

**THE PROJECT ON CAPACITY DEVELOPMENT
FOR KAIZEN IMPLEMENTATION FOR QUALITY
AND PRODUCTIVITY IMPROVEMENT
AND COMPETITIVENESS ENHANCEMENT
IN THE FEDERAL DEMOCRATIC REPUBLIC
OF ETHIOPIA**

**SEPARATE VOLUME I: PRODUCTS
(GUIDELINES, ETC.)**

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**The Project on Capacity Development for KAIZEN Implementation for Quality
and Productivity Improvement and Competitiveness Enhancement
in the Federal Democratic Republic of Ethiopia
Separate Volume I : Products (Guidelines, etc.)**

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1. EKI Kaizen Dissemination Plan
2. Guideline of Organizational Management of Civil Service Organization
3. Concept and Application of Kaizen Indicator
4. Implementation Manual of Intermediate-level (Level 2) Kaizen Training
5. Evaluation Guideline for Trainees of Intermediate-level Kaizen
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1. EKI KAIZEN DISSEMINATION PLAN

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EKI Kaizen Dissemination Plan based on BSC

Composition of the Kaizen Dissemination Plan

The Kaizen Dissemination Plan was compiled based on the following order and composition.

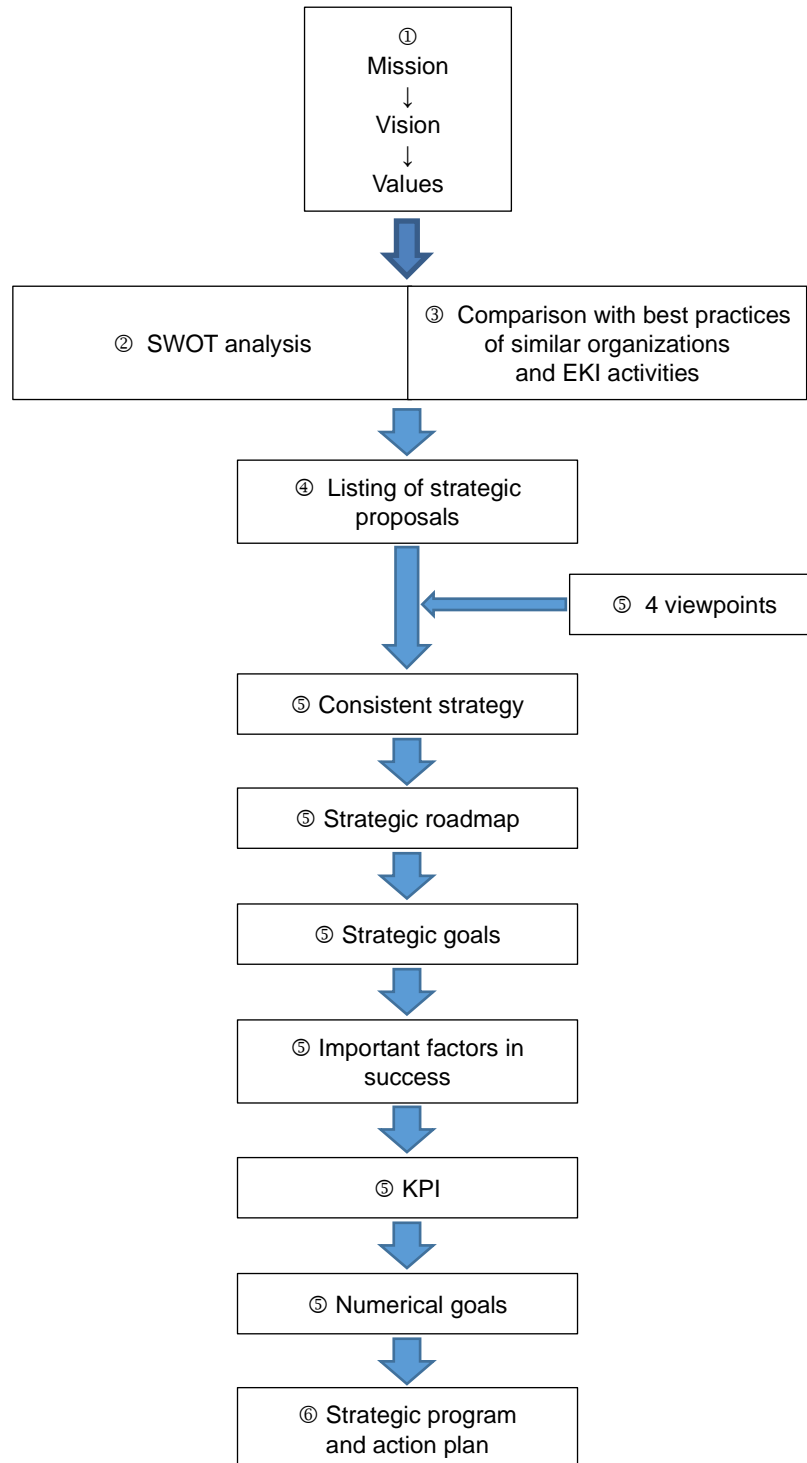


Figure 1 Order and composition of Kaizen dissemination plan

1. Mission, Vision and Values

The plan basically envisages EKI under the Ministry of Public Service and Human Resource Development over the five years leading up to 2020¹.

Mission: (Indication of the purpose of existence of EKI and the fundamental values and standards that constitute its convictions for achievement)

“Contribute to the economic growth of Ethiopia and achievement of mid-ranking nation status by 2025 through the training and dissemination of human resources who can execute Kaizen.”

Current EKI mission: “Contribute to the sustainable socioeconomic development of Ethiopia through enhancing quality and productivity.”

Vision: (Intended or desirable management condition that provides the grounding of the strategy for achieving the mission)

“The Kaizen mind of industry and official agencies builds the strongest socio-economy in Africa, strengthens competitiveness of export industries and import-substitute industries, and fosters an investment environment that can attract twice as much FDI.”

Current EKI vision: “Strive for center of excellence in transferring and disseminating Kaizen by 2014”

Sense of values:

“It is our joy to continue making improvements so that work can be better, faster and cheaper, more so today than yesterday, and more so tomorrow than today.”

2. SWOT Analysis

The objective of SWOT analysis is to define the external environment of EKI as lists of opportunities and threats, and the internal environment as lists of strengths and weaknesses, and to derive the necessary strategy for EKI from cross-analysis of the external environment and internal environment. Combinations of cross-analysis comprise the following four patterns, and strategy was basically derived based on the following principles corresponding to these patterns.

Table 1 SWOT Analysis Combinations and Principles for Deriving Strategy

Cross-analysis combination	Principle for deriving strategy
Opportunity x Strength	Exploit the strength and utilize the opportunity.
Threat x Strength	Exploit the strength and convert the threat into an opportunity.
Opportunity x Weakness	Complement the weakness and grasp the opportunity.
Threat x Weakness	Avoid the worst possible scenario.

¹ The mission and vision described here are given not as official contents but rather as single proposals.

Out of the four combinations shown above, the strategies that are possible in the cases of “Opportunity x Strength” and “Threat x Weakness” are easy to understand. Difficulty arises in the cases of “Threat x Strength” and “Opportunity x Weakness”. In both these cases, in order to make the strategy a success, it should be noted that measures are not taken to overcome the negative “threat” or “weakness”; rather success is founded in exploiting the positive “strength” and “opportunity”.

Table 2 SWOT Analysis of EKI

External Environment			
Opportunities		Threats	
<div>① The political situation is stable and it is forecast that the Kaizen promotion policy will be continued.</div> <div>② Size of the role of Kaizen in GTP2</div> <div>③ Strong leadership of the prime-minister and initiatives by government agencies aimed at permeating Kaizen activities</div> <div>④ With transfer of EKI to jurisdiction of MoPSHRD following reorganization of government agencies, it is better able to be directly involved in Kaizen in more government agencies.</div> <div>⑤ The highest economic growth rate in the world</div> <div>⑥ There is an ongoing construction boom.</div> <div>⑦ Growing interest in Kaizen among enterprises</div> <div>⑧ There are many enterprises and people who are seriously engaged in basic activities such as 5S.</div> <div>⑨ There are large needs for Kaizen consulting among public enterprises.</div> <div>⑩ The internet environment is getting better.</div> <div>⑪ There is a chance that Ethiopia can become a Kaizen leader at Africa information sharing conferences.</div> <div>⑫ There is strong support for EKI from JICA.</div> <div>⑬ An EKI complex (building) will be constructed under JICA support.</div>		<div>① In line with the reorganization of government agencies, it is possible that the activities of EKI will shift emphasis from Kaizen consulting for private sector manufacturing enterprises to Kaizen training for government agencies.</div> <div>② It is possible that Kaizen activities will lean towards guidance for public enterprises and become less focused on Kaizen activities for private sector enterprises.</div> <div>③ Since EKI only has offices in A/A, the cost entailed by consultants making trips to the regions may be too large for the activity to be cost effective.</div> <div>④ Due to the large number of business trips, the physical burden on consultants will be great.</div> <div>⑤ Due to the favorable economic situation, private enterprises are seeking talented human resources, generating more opportunities for EKI consultants to change jobs.</div> <div>⑥ Due to increasing salary differentials with private sector enterprises, there are growing opportunities for transferring to the private sector.</div> <div>⑦ The charged consulting market is not large.</div> <div>⑧ Compared to huge expectations regarding Kaizen, it is possible that limited results may lead to disappointment.</div> <div>⑨ It is possible that private consulting businesses (KAIZEN Institute, etc.) in other African countries will enter the market after seeing the activities in Ethiopia.</div>	
Internal environment			
Strengths	<div>① The leader of the ministry with jurisdiction is the powerful deputy prime-minister, meaning that the influence of EKI will become stronger.</div> <div>② Strong enthusiasm and leadership of the EKI top management with respect to Kaizen dissemination</div> <div>③ Since many consultants major in IE at university, it is thought they possess basic knowledge of Kaizen technology.</div> <div>④ 70% of the consultants are in their 20s and have vigor.</div> <div>⑤ Almost all the consultants can conduct basic Kaizen without support.</div> <div>⑥ EKI has the Kaizen manuals that were prepared in the first and second projects.</div> <div>⑦ Since the EKI consultants can use the EKI minibuses and 4WD vehicles, they have a wide scope of activity.</div> <div>⑧ Mechanisms for continuing Kaizen (KPT, Kaizen awards ceremony, Kaizen month, etc.) have been established and are operated.</div>	<Strategy of exploiting the strength and utilizing the opportunity>	<Strategy of exploiting the strength and converting the threat into an opportunity>
		<div>① Administer consultant qualification seminars and tests in order to generate revenue.</div> <div>② Create Kaizen-related qualifications for enterprises (e.g. KPT leader, KPT facilitator, Kaizen leader, TPM leader, Muda elimination leader, etc.)</div> <div>③ Create seminars and courses corresponding to corporate qualifications.</div> <div>④ Serve as the host nation for the knowledge sharing conference.</div> <div>⑤ Create an African common Kaizen consultant qualification and prepare the teaching materials and tests for this.</div> <div>⑥ Implement Kaizen instructor training seminars for third countries.</div> <div>⑦ Conduct mobile consulting on Kaizen for nearby countries that are promoting Kaizen.</div>	<div>① Through establishing EKI branch offices in each region, mitigate the burden of clients traveling to A/A, reduce the travel time of EKI consultants, and thereby increase the time that can be devoted to consulting.</div> <div>② Assign one permanent Kaizen dissemination officer to each region in order to link EKI to regional enterprises. Although not a consultant, the dissemination officer will grasp and aggregate the Kaizen needs of regional enterprises, plan Kaizen seminars and one-day Kaizen counseling events in the regions, and secure cooperation from EKI headquarters in executing work.</div> <div>③ In order to uncover Kaizen needs, establish periodic free Kaizen consulting days in the regions let the EKI consultants be responsible for them.</div> <div>④ One future possibility for former EKI consultants is to set up independent, private sector consulting firms that can be utilized as resources for outsourcing EKI’s work.</div>

	<ul style="list-style-type: none"> ⑨ EKI will have branch agencies in six regions, etc. ⑩ Ethiopia is the most advanced of the countries promoting Kaizen in Africa. 	<ul style="list-style-type: none"> ⑧ Produce and retail basic Kaizen teaching materials that make use of the internet and mobile devices. ⑨ In addition to Kaizen awards, present “5S good practice awards,” “MUDA elimination awards” and so on to enterprises that realize excellent results in introducing Kaizen technologies, and thereby re-impress the importance of Kaizen technologies. ⑩ When presenting Kaizen awards, also commend those Kaizen consultants who achieve excellent results and create exemplary good practices. ⑪ In order to ensure the continuity of Kaizen activities, develop a system for reporting on the results of Kaizen and disseminate it to enterprises. ⑫ Construct a system for distributing the outputs of Kaizen in labor-management cooperation in order to achieve “wage hikes that do not exceed the improvement in productivity” that is stressed in GTP2. 	<ul style="list-style-type: none"> ⑤ Make the financial basis of EKI dependent on central government budget and consulting revenue (make EKI a semi-self-supporting organization). ⑥ Also determine unit rates for consulting and seminars for government agencies and public enterprises with a view to obtaining revenue.
Weaknesses	<ul style="list-style-type: none"> ① It has little consulting experience. ② It has little Kaizen consulting experience in the service and other non-manufacturing sectors. ③ There is no system for increasing opportunities for contact with enterprises. ④ Compared to consulting activities, there are few seminar activities. ⑤ There is no standardization (packaging) of consulting. ⑥ Seminars are not standardized (packaged). ⑦ Because it is not a revenue generating organization, customer orientation is weak. ⑧ Because EKI staff are public servants, they cannot receive results-based salaries according to their contribution. ⑨ Because the allowance provided by EKI for regional consulting trips is small and sometimes less than the incurred costs, the consultants have little motivation to go. ⑩ The allowances that are directly paid by enterprises to individual consultants are informal and thus not clearly indicated. ⑪ There is a high job leaving rate among consultants. ⑫ There is no systematic accumulation and utilization of Kaizen technology good practices. 	<p><Strategy of complementing the weakness and grasping the opportunity></p> <ul style="list-style-type: none"> ① Promote the commodity development (packaging) of consulting and seminars (e.g. 3-month Kaizen for eliminating line MUDA, 1-month course of 5S for revamping lines, 6-month course for introducing TQM for realizing high-quality low-cost production, etc.) ② Preparation and sale of teaching materials that correspond to packages ③ Preparation and sale of supplementary teaching materials utilizing DVD and models, etc. ④ In order to promote bottom-up Kaizen activities, stage regional and nationwide KPT conventions to commend excellent KPT. ⑤ Periodically compile and sell journals that are useful for improving the Kaizen ability of frontline workers on lines. ⑥ Revise the EKI Proclamation so that it can be a profit-making organization. ⑦ Develop an organization whereby part of the EKI revenue is returned to the consultants, etc. as performance-based salary. ⑧ Operate and utilize a good practices proposal system. 	<p><Strategy of avoiding the worst possible scenario></p> <ul style="list-style-type: none"> ① Establish a public agency Kaizen promotion research team for conducting research and trial implementation. ② Establish a service industry Kaizen promotion research team for conducting research and trial implementation.

	<ul style="list-style-type: none"> ⑬ EKI has no centers of activity in the regions. ⑭ The administrative capacity of middle managers cannot keep pace with the actual situation in the rapidly expanding organization. ⑮ The organizational structure cannot flexibly respond to Kaizen needs. ⑯ EKI has no system for conducting internal workshops and presentation meetings, so there are few opportunities for self-development. ⑰ There is no system for learning new Kaizen technologies from outside and spreading them within EKI. ⑱ The setup for searching for new Kaizen technologies and incorporating them into the organization is weak. 	<ul style="list-style-type: none"> ⑨ Thoroughly enforce client-oriented consulting action guidelines. ⑩ Revamping of the EKI organization: Organize the Kaizen consulting department and seminar department as line departments and other departments as staff departments. In line departments, do not assign individual consultants to the industrial sector as previously, but rather assign them to the Kaizen research department and include them among team members according to each project. Organize the project teams according to the experience of the members, and select members according to the work. ⑪ Organize consulting teams (project teams) based on the skills of consultants. ⑫ Create and execute individual consulting capacity building programs. ⑬ Conduct periodic training for the managerial capacity building of middle managers. ⑭ Create Kaizen technology development units for exploring and introducing new Kaizen technologies and researching applications of existing Kaizen technologies (localization). 	
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3. Comparison with Best Practices of Similar Organizations and EKI Activities

3-1. Comparison with Best Practices

3-1-1. Approach to Comparison

For the best practices of a country to be adopted as best practices by another country, it is preferable for the economic standard and social conditions of both countries to be somewhat similar. The current best practices in advanced countries are unlikely to be adopted as best practices by most developing countries because of the huge gap in the economic and social conditions. What is desirable for developing countries is to present those best practices which can be achieved with conscious effort. By introducing a time axis, the best practices in advanced countries may become the best practices for developing countries. For example, some best practices in advanced countries today may become best practices in developing countries in 20 years time. Similarly, the best practices in advanced countries 20 years ago may be the best practices for developing countries now.

From this point of view, cases which could become best practices for Ethiopia and the EKI were sought in the history of the quality and productivity improvement activities of Japan, Singapore and Malaysia. In Japan, cases at the Japan Productivity Center (JPC), Union of Japanese Scientists and Engineers (JUSE), Japan Management Association (JMA) and Japan Institute of Plant Maintenance (JIPM) were examined to find appropriate best practices for the present purpose. A similar search for likely cases of best practices was conducted with the history of the Singapore Productivity Centre (SPC) and Malaysia Productivity Corporation (MPC).

Here, cases refer to those relating to the system supporting the dissemination of KAIZEN, including policies on quality and productivity improvement, implementing bodies for such policies and relevant mechanisms. As such, cases of KAIZEN at individual enterprises through the application of KAIZEN techniques are not sought as best practices here².

The status of each best practice becomes clearer if the stage at which the said best practice is situated is determined among various stages of the KAIZEN dissemination process instead of simply listing cases which have contributed to the development of a nation or an organization promoting KAIZEN as best practices. Based on this viewpoint, the flow of the development, introduction, application and dissemination of management (KAIZEN) techniques at the JMA was examined to identify the process to invent, nurture and disseminate new KAIZEN techniques. This examination identified the five stages shown in Figure 2. These five stages are ① development of a management technique in-house or imported from abroad, ② staging of a seminar, etc. to introduce the new technique, ③ application of the new technique in consulting activities, ④ verification of the effectiveness of the new technique through consulting activities and seminars and ⑤ institutionalisation of the new technique, the effectiveness of

² Case examples of Kaizen that are based on use of Kaizen technology can become B/P in the broad sense, however, this section looks at B/P in terms of policy and systems that are based on the organization for Kaizen dissemination.

which has been verified, for its dissemination and firm establishment. Examples of such institutionalisation are a qualification system for experts on the new technique, an award system for enterprises achieving excellent results through application of the new technique and the establishment of a nationwide organization for the new technique.

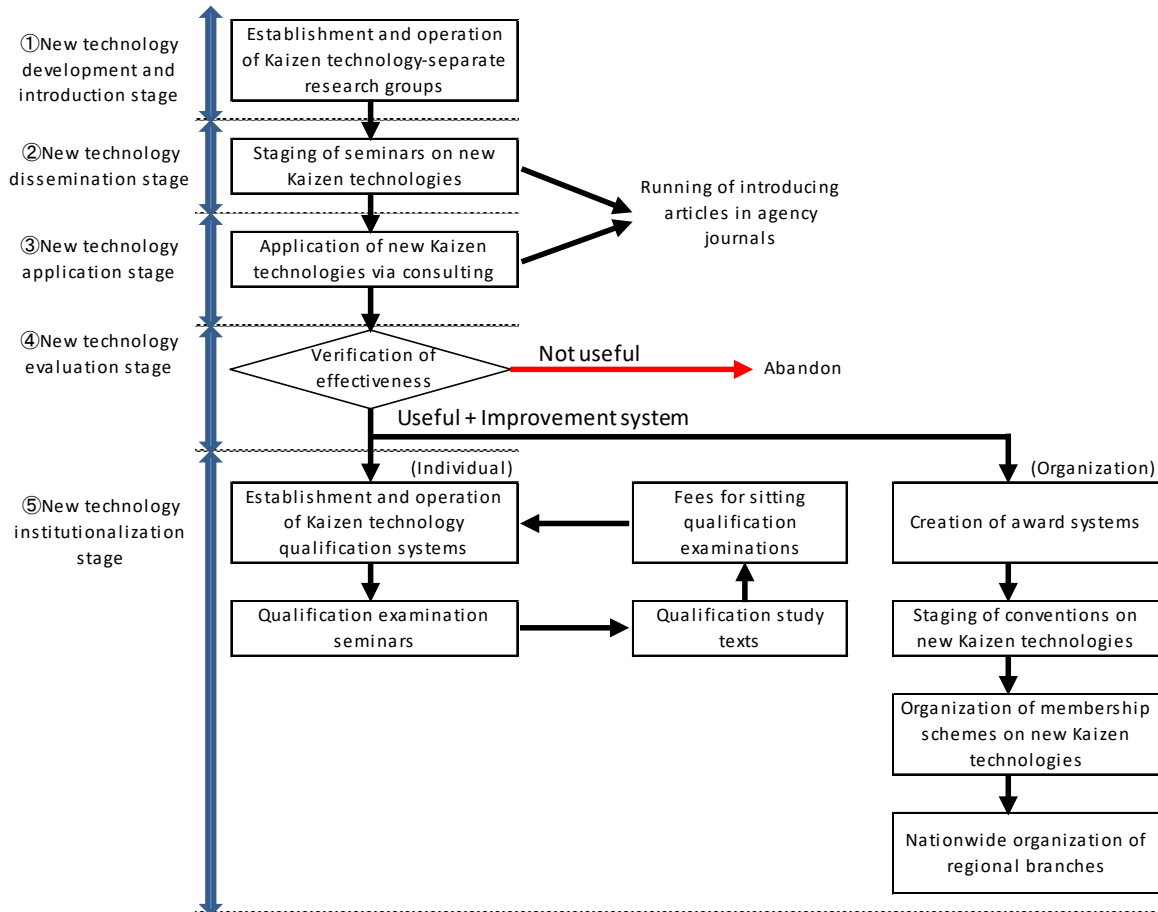


Figure 2 Course of dissemination of Kaizen technology in JMA

3-1-2. Analysis of the dissemination course

In order to grasp the course of dissemination of Kaizen technology in this consulting firm, a certain pattern became apparent upon classifying and chronologically listing the topics that the firm has worked on since its establishment. This pattern can be divided into five stages.

The point of departure is the “**New technology development and introduction stage.**” In this stage, management technology that is deemed to be required for socio-economy is developed and introduced. The origins of new technologies are threefold. One is management (Kaizen) technology that is uniquely developed by JMA via its consulting activities; the second is the introduction of techniques that have gained attention in the United States and so on; and the third is the introduction of management technologies related to new technologies that have a major impact on society and economy. Examples of the third type include productivity Kaizen technologies in computers, pollution and indirect sectors, and Kaizen technologies in the management of universities, local governments and so on. In order to

introduce such management technologies, first theme-based research groups are established in order to conduct research.

The next step is the “**New technology dissemination stage**,” which entails acquiring clients via seminars. Know-how that has been accumulated in the new technology research groups, and case studies of introduction to limited advanced enterprises are introduced via seminars. Moreover, because the association periodically issues a number of journals, it introduces technologies in the form of special articles and series articles. The objective of this step is to inform industrial circles about new technologies and attract interest from latent clients.

The third stage is the “**New technology application stage**,” which entails application of the new technology via consulting. Brushing-up of technology geared to making it easier to use in workplaces is conducted through this consulting; moreover, because evaluation of the effectiveness of technology is also conducted via these consulting activities, this step is the most important in determining whether or not the new technology will become firmly established. However, the officially disclosed history of JMA contains hardly any examples of the new technologies being applied in consulting. This is not because such examples don’t exist, but rather because consulting is not normally conducted with the aim of introducing specific technologies; moreover, because consultants are obliged to maintain the confidentiality of their clients, they are not permitted to disclose the enterprises at which they used new technologies in Kaizen activities.

The fourth stage is the “**New technology evaluation stage**,” in which the effectiveness of the new technology is assessed. Evaluation is conducted to determine whether or not the new technology can be used in resolving companies’ problems, increasing profits, reducing costs, improving quality or imparting other effects. Technologies that are found to be not effective are discarded or forgotten. In the case where it is found that the evaluated technology is better utilized in combination with other multiple technologies rather than as an isolated technology, one out of the two following paths is taken.

The fifth stage is the “**New technology institutionalization stage**,” where the new technology becomes established in industry and a certain degree of dissemination can be observed.

In cases where a technical system comprising multiple technologies is effective, such a system is utilized by individuals or small groups, and users need to have a certain degree of knowledge, a qualification system may be created for that technology. Examples of this in JMA are the IE qualification system and officer certification system. When such qualification systems become popular, examination-oriented training courses are created, reference books are published, and examinations are implemented, thereby generating a “qualification-related business.”

In cases where the utilization of technical systems pervades society as a whole or is related to numerous people, company awards are presented, nationwide conventions are held, and membership systems are established. Also, nationwide organizations composed of regional branches may be formed.

TPM, which is handled by the Japan Institute of Plant Maintenance, an offshoot of JMA, is a typical example of technology growth in this body. The following table shows the growth patterns of TPM based on the five stages described above.

Table 3 History of TPM

Stage	Year	Activities
① New technology development and introduction stage	1954	Development of the PM (preventive maintenance) survey field
② New technology dissemination stage	1960	1 st Equipment Management National Convention and Maintenance Show
③ New technology application stage	1961	(Founding of the Japan Institute of Plant Maintenance, an offshoot of JMA)
④ New technology evaluation stage		
⑤ New technology institutionalization stage	1964	Award system for excellent PM businesses
	1966	PM excellent engineer awards
	1971	Receiving of award is conditional on total participation
	1989	Definition of TPM is revised from production department TPM to company-wide TPM.
	2000	Start of an autonomous maintenance technician system
	2012	Start of the national “Machine Maintenance Skill Examination”

There are no remaining records, however, it is inferred that the new technology dissemination stage took place at the end of the 1950s, and the new technology evaluation stage lasted until the start of the 1960s.

3-1-3. Institutionalization of KAIZEN

The institutionalization of KAIZEN is the focal point of the Project along with the advancement of KAIZEN techniques in the field. Because of this, the original dissemination plan recommended a number of measures designed to facilitate such institutionalization. Before referring to this plan, it is necessary to define « institutionalization » in the context of the institutionalization of KAIZEN.

Institutionalization in social science means “a set of rules or a mechanism to direct the actions of individuals”. In contrast, a mechanism in the context of the institutionalization of KAIZEN has a much wider meaning³. To be more precise, a mechanism in the context of KAIZEN means a mechanism designed “to direct various actions of individuals and organizations and to make these actions continue”. Such a mechanism includes certain rules in addition to a system to stimulate motivation, a human resources development system and a system to improve KAIZEN techniques. This mechanism affects not only the actions of individuals but also the activities of enterprises, their departments and small groups. Any work designed to make this mechanism not only direct but also continue various actions constitutes part of the mechanism. The principal targets of institutionalization to disseminate and further develop KAIZEN activities can be described as the 4M (manpower, motivation, methodology and management) as shown in Figure 3.

³ Institutionalization in the field of institutional economics refers to normative rules and is similar to the institutionalization raised here in the sense that it emphasizes mechanisms.

The level of institutionalization of KAIZEN is judged based on how far the mechanism to manage nationwide KAIZEN dissemination activities has been developed, following the creation of a mechanism to continue research and development on the introduction of new KAIZEN techniques with the involving of an increasing number of people in KAIZEN and enhancement of the motivation for KAIZEN. To be more precise, the institutionalization of KAIZEN is judged to be in progress when the 4M are continually growing.

Looking at the manpower component of 4M, in order to continue and grow, it is necessary to nurture three types of human resources as expressed by CPS. In other words, it is necessary to have Consultants who will convey Kaizen activities; Practitioners who will executive Kaizen inside enterprises and organizations; and a system for ensuring that Successors to Consultants and Practitioners continue to be nurtured.

Concerning motivation, 3M are important, i.e. Mindset, Morale, and Maintain. Concerning methodology, it is necessary to have Kaizen technologies such as QC and IE that originate from engineering, the human skill of Kaizen, and the R&D of Kaizen for enhancing the level of Kaizen technology. In order to sustain the management of Kaizen, 3M are required, i.e. Marketing of Kaizen, rotation of the Management Cycle of Kaizen, and Making Results of Kaizen.

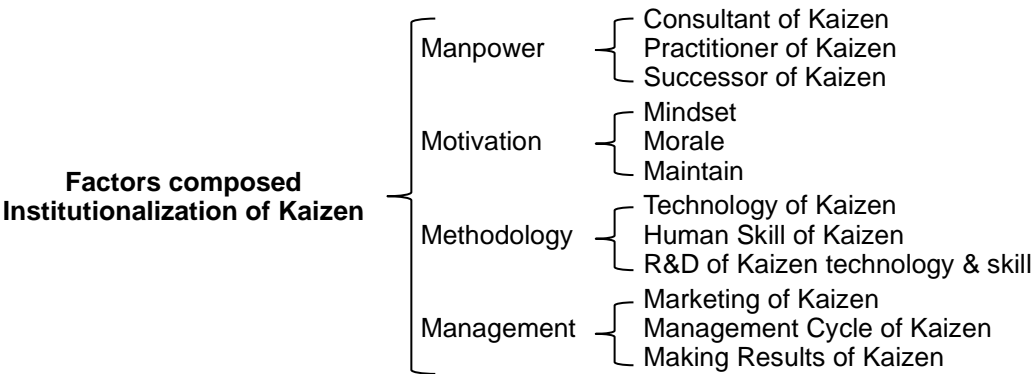


Figure 3 Factors composed institutionalization of Kaizen

3-2. Similar Examples in Japan

3-2-1. Japan Management Association

Established in 1942, the Japan Management Association (JMA) is a general incorporated association, although its current activities are no different from those of a private consulting firm, of which it would be one of the largest in Japan. The historical milestones of the association are described in Table 4, while Figure 2 summarizes these milestones according to stage and chronology.

(1) History

Table 4 History of Japan Management Association

Phase	Category of activity	1940s	1950s	1960s	1970s	1980s	1990s	2000s	2010s
① New technology development and introduction stage	Development /Introduction of new management technology	<ul style="list-style-type: none"> Start of QC (quality control) survey Introduction of plant preventive maintenance (PM) systems 		<ul style="list-style-type: none"> ZD (zero defect) movement Development and promotion of MIC plans 	<ul style="list-style-type: none"> ORDLIX Development of VRP (cost reduction of parts based on halving parts) 	<ul style="list-style-type: none"> New product and new project search (NBP) program based on technology matrix KI planning (white collar productivity innovation) CAI education, remote education and dissemination activities 			
	Study group on new management technology		<ul style="list-style-type: none"> WF (work factor) method presentation and research group Cost control research group Process control research group Office control research group MAPI introduction research group PM (preventive maintenance) 	<ul style="list-style-type: none"> EDP Institute Industry Research Center ZD Secretariat MD (Marketing Data) Center Japan Institute of Plant Maintenance 	<ul style="list-style-type: none"> Pollution Technology Information Center JMA Management School Japan Office Automation Association 	<ul style="list-style-type: none"> Reorganization into the Japan Institute of Plant Maintenance White Collar Productivity Institute Creativity Development Center Innovated Management Institute 	<ul style="list-style-type: none"> Established the Environmental Management Center School Corporation Management Support Center Technology KI Promotion Center 	<ul style="list-style-type: none"> BSC (Balance Score Card) Consortium Research Group 	
	Group of observers			<ul style="list-style-type: none"> European Top Management Mission 	<ul style="list-style-type: none"> Hospital Management Innovation Center 				
② New technology dissemination stage	Seminar	<ul style="list-style-type: none"> Production Technology Seminar Office Manager Training Seminar 	<ul style="list-style-type: none"> WF Technician Training Course Office Management Expert Training Course IE Course Design Management Research Seminar Budget Control Seminar 	<ul style="list-style-type: none"> SE & EDP Course 	<ul style="list-style-type: none"> IWA (Women's Capacity Development) Course IE Technician Development Course Telecommunications Education Headquarters 	<ul style="list-style-type: none"> Quality Management (QM) dissemination activities Service Quality, and Productivity Innovation Symposium 		<ul style="list-style-type: none"> Executive Officer Training Course 	

Phase	Category of activity	1940s	1950s	1960s	1970s	1980s	1990s	2000s	2010s
	Publish	<ul style="list-style-type: none"> • Start of “Production” (quarterly journal) • Start of “Office Efficiency” and “Production Efficiency” • Issue of the “Efficiency Handbook” 	<ul style="list-style-type: none"> • Start of the “Management” magazine • Start of “IE” 			<ul style="list-style-type: none"> • “JMA Journal” • Start of “Human Resources Education” 			
③④※	Consulting	<ul style="list-style-type: none"> • Guidance on implementation of quality control 	<ul style="list-style-type: none"> • Guidance on implementation of PM relations 						
	Oversea			<ul style="list-style-type: none"> • Overseas consulting • Dispatch of the ZD Management Technology Training Team 					
⑤ New technology institutionalization stage	Qualification				<ul style="list-style-type: none"> • IE Qualification Certification System • Design Controller Certification System 		<ul style="list-style-type: none"> • Establishment of the Diploma in Company Direction 		
	Awarding			<ul style="list-style-type: none"> • PM Outstanding Workplace Awards System 	<ul style="list-style-type: none"> • General Marketing Excellent Maker Awards 	<ul style="list-style-type: none"> • Word Processor Contest • Outstanding Productivity Award • Excellent Service Award • Outstanding Capacity Development Enterprise Award 			
	Convention		<ul style="list-style-type: none"> • WF Research Presentation Convention • WF Nationwide Convention 	<ul style="list-style-type: none"> • Plant Management National Convention • Maintenance Show • Production Management Group National Convention • IE Group 1st General Assembly • ZD National Convention 	<ul style="list-style-type: none"> • National Conference of In-company Trainers • Marketing General Conference 	<ul style="list-style-type: none"> • General Conference on Capacity Development • International Conference on Productivity and Quality Improvement • Education Information Systems Exhibition 	<ul style="list-style-type: none"> • International Conference of Research & Development Management and Service 		

Phase	Category of activity	1940s	1950s	1960s	1970s	1980s	1990s	2000s	2010s
				<ul style="list-style-type: none"> • International Plant Maintenance Convention 		<ul style="list-style-type: none"> • National Convention of Promotion of Office Innovation • ZD 20th Anniversary International Convention • National Convention of Research & Development Management 			
	Organizing					<ul style="list-style-type: none"> • Establishment of the Engineering Promotion Conference in cooperation with 40 representative enterprises of Japan 			

※ ③New technology application stage ④New technology evaluation stage

(2) Lifecycle of Kaizen technology and handling by consulting agencies

Kaizen technology may be regarded as a certain type of soft product. By applying the concept of product lifecycle that is discussed in marketing, the cycle of Kaizen technology can be depicted as follows.

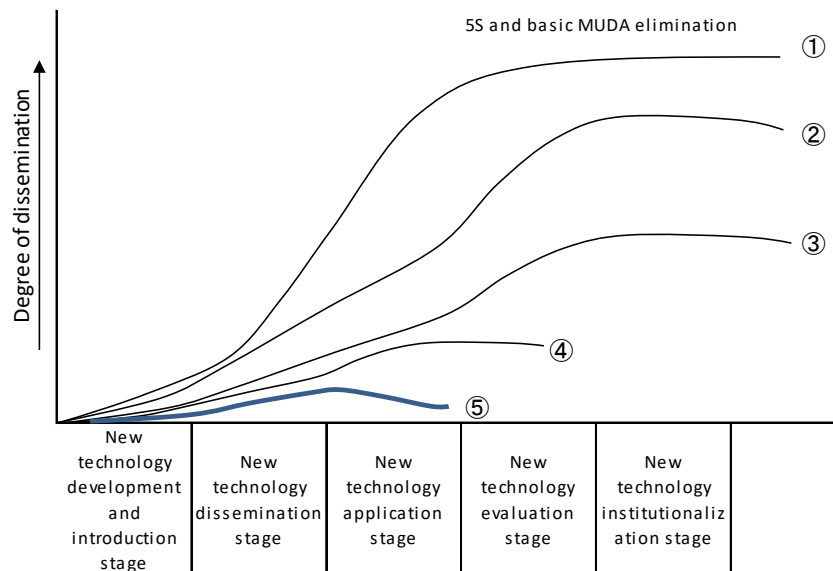


Figure 4 Lifecycle of Kaizen Technology

Individual Kaizen technologies can be divided into the following five types depending on the length of the lifecycle.

- ① Ultra-long lifecycle Kaizen technology: 5S, QC7 tools, etc.
- ② General-purpose Kaizen technology: IE, SQC
- ③ Standard Kaizen technology: Cell production system, examination
- ④ Minor Kaizen technology: Taguchi method
- ⑤ Temporary topical Kaizen technology: ZD (Zero Defect)

In order to demonstrate that consulting firms are constantly developing and introducing new Kaizen technologies, such technologies are announced and their effectiveness is pursued via journals and seminars. Sometimes, “new Kaizen technologies” that are simply renamed appear, however, the prosperity of consulting firms may be viewed as the accumulation of the lifecycles of each Kaizen technology. This concept can be depicted as follows.

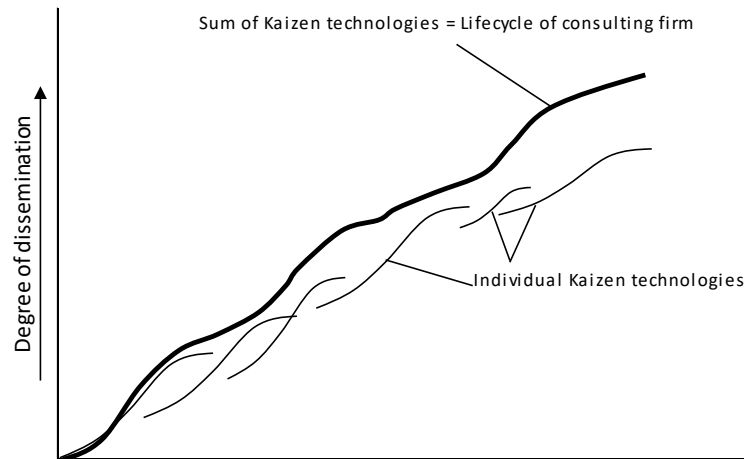


Figure 5 Lifecycle of Consulting Firm Viewed in Terms of Kaizen Technologies

JMA, which originated out of an efficiency improvement promotion agency that was launched by the government during wartime, currently conducts activities that are no different from those of a private sector consulting firm. On the other hand, EKI promotes quality and productivity improvement (Kaizen) as a national agency, and although there are minor differences in its role, it can learn numerous lessons and hints from JMA.

The following table summarizes the differences between EKI and JMA according to the five stages of Kaizen technology dissemination.

Table 5 Comparison between JMA and EKI according to Kaizen Technology Dissemination Stages

5 stages	JMA	EKI
① New technology development and introduction stage	A group is formed to conduct research into technologies that are likely to be needed from now on, technologies that have been established via consulting activities, technologies that are gaining attention in the United States, etc., and study is commenced. It is not clear whether enterprises that are interested in the research group and enterprises that have introduced the technology on a trial basis join the group, however, if enterprises also participate, the research will be more effective than simply academic.	The mechanism for introducing new Kaizen technologies and applying them as know-how within EKI is inadequate.
② New technology dissemination stage	The new technology is introduced to enterprises, etc. via seminars, training, journals, etc. Much of the revenue is obtained in this phase. Capable enterprises can sometimes introduce new technology to their organization based only on the knowledge acquired in seminars.	Compared to activities in the next stage (consulting), activities here are generally low key.
③ New technology application stage	In this stage, the new technology is improved for easier use and its effectiveness is ascertained. Since it is necessary to respond to clients on an individual basis, revenue in this stage is not so high in relation to the amount of consultant man-hours, however, in terms of the accumulation of consulting know-how and training of consultants via OJT, this is the most productive stage.	This is the core activity of EKI, however, it has low efficiency to begin with, and this isn't helped by the fact that fixed teams respond to the needs of clients. Moreover, there is no mechanism for brushing up new technologies via the consulting activity.

5 stages	JMA	EKI
④ New technology evaluation stage	It is evaluated whether or not the technology can have a long lifecycle, and decision is made about whether or not to establish systems for firmly establishing technologies that have potential.	Because EKI, which has no history, has so far concentrated on introducing Japanese Kaizen technologies, it has not had to introduce and evaluate new technologies.
⑤ New technology institutionalization stage	Systems for ensuring that strong technologies become firmly established in industry are initiated, for example, qualification systems, qualification examination seminars, technology awards ceremonies, conventions, organization of participating enterprises, and so on.	In order to systemize “Kaizen,” Kaizen awards are instigated, a Kaizen month is established and so on.

(3) Necessary strategy for EKI derived from comparison with JMA

- 1) Build a mechanism for developing new Kaizen technologies that match current conditions in Ethiopia (Africa), and for utilizing and accumulating them as know-how.
- 2) Build a mechanism for introducing Kaizen technologies that are attracting attention in Japan, the United States, etc.
- 3) Build a mechanism for evaluating new Kaizen technologies.
- 4) Construct and implement a system of training via Kaizen seminars without waiting for completion of the EKI complex.
- 5) Standardize and package consulting services.
- 6) Flexibly organize consultant teams corresponding to the packages.
- 7) Concerning systematic Kaizen technologies, build qualifications for corporate persons and operate examination seminars and tests.
- 8) Build and operate a Kaizen proclamation for labor-management cooperation.

3-2-2. Union of Japanese Scientists and Engineers

JUSE (JUSE) was formed following the unification in 1944 of three engineering groups that were variously established between 1918 and 1940, and the organization was reformed in 1946 into the current Union of Japanese Scientists and Engineer. It mainly conducts activities geared to disseminating “quality control” and its homepage introduces the following eight areas of activity.

Table 6 Activities of JUSE

1. Education, training and conventions	5. QC circle activities (small group Kaizen activities)
2. Assemblies, symposiums and forums	6. ISO review and registration
3. Examinations and qualifications	7. International activities
4. Awards and prizes	8. Public information activities

(1) History

Table 7 History of JUSE

Phase	Category of activity	1940s	1950s	1960s	1970s	1980s	1990s	2000s	2010s
1. New Technology Development and Introduction	Development / Introduction of new management	<ul style="list-style-type: none"> • Dr. Deming visited Japan (QC) 	<ul style="list-style-type: none"> • Dr. Juran visited Japan (QC) • Dr. Shewhart visited Japan 	<ul style="list-style-type: none"> • Named QC analysis techniques as '7QC tools' by Mr. Kaoru Ishikawa Reliability Techniques 	<ul style="list-style-type: none"> • 'New 7QC tools' • Product Liability 	<ul style="list-style-type: none"> • TQM • QC in Software Production 	<ul style="list-style-type: none"> • TQM • ISO9000 	<ul style="list-style-type: none"> • SQiP (Software Quality Profession) 	
	Study group on new management	<ul style="list-style-type: none"> • SQC Research Group • Factory Management Committee 	<ul style="list-style-type: none"> • Operations Research Committee • Reliability Research Committee 		<ul style="list-style-type: none"> • Product Liability Study Group 	<ul style="list-style-type: none"> • Quality Management Research Association in Software Production 	<ul style="list-style-type: none"> • TQM Research Group 	<ul style="list-style-type: none"> • Japan Organization for Quality Innovation (JOQI) • R-Map Practice Study Group • SQC Practice Study Group • Research Committee for the future generation of TQM 	
	Group of observers			<ul style="list-style-type: none"> • Dispatched the First Overseas QC Inspection Team (USA) 	<ul style="list-style-type: none"> • Dispatched the First Overseas Composite Materials Inspection Team (USA and Europe) • Dispatched the First Overseas Inspection Team of Sensory Test (USA and Europe) • Dispatched the First Overseas Inspection Team of Liability (USA and Europe) • Product Liability (PL) • Overseas Inspection Team (USA) • Management Science Overseas Inspection Team (USA) 				

Phase	Category of activity	1940s	1950s	1960s	1970s	1980s	1990s	2000s	2010s
2.New Technology Promotion	Seminar	<ul style="list-style-type: none"> • QC Seminar Basic Course 	<ul style="list-style-type: none"> • Dr. Deming's QC 8days Training Course • Dr. Deming's Market Research Seminar • Dr. Juran's QC Management Training • QC Basic Course, Department Managers Course, Special Executives Course • Experimental Design Seminar • Sensory Test Seminar • Radio QC Seminar, Radio JUSE's hour Key of Management' broadcasting Started 	<ul style="list-style-type: none"> • Reliability seminar Special Course • Dr. Juran's Special Seminar Presidents' Executives Course, Department Managers Course • Experimental Design Basic Course • QC Senior Managements Special Course • JUSE Course for Sales department • 1st QC Symposium 	<ul style="list-style-type: none"> • Multivariate Analysis Seminar • Reliability Symposium • QC Circle Cruising Seminar • JUSE Course for Purchasing and Materials Division • International Forum for Sustainable Asia and the Pacific (ISAP'72Tokyo) • QC Circle Top Course • Dr. Juran's Special QC Seminar' Top Management Course and Department Manger's Special Course' QC in Service Industry Symposium • Product Liability Measures Seminar • TQM Practitioners Course • Product Liability Measures Seminar 'FMEA/FTA' • Product Liability Measures Seminar 'Design Review' • PL Seminar Basic Course 	<ul style="list-style-type: none"> • Software Productivity Management Seminar • Product Safety(PS) Symposium • QC Circle Manager Course • QC in Service Sector Symposium • New 7 QC tools Basic Course for Managers and staff • TQM in Service Industry Basic Course • International TQM Seminar • Quality Function Deployment Seminar Basic Course • The Policy Management Seminar in TQM 	<ul style="list-style-type: none"> • Quality Function Deployment Symposium • QC Seminar Chief Course • QC Circle Course for Senior Manager • International Symposium for Quality Function Deployment • Task Achieving QC Story seminar • Product Planning 7tools Seminar • ISO9000 and TQM Seminar • Symposium for TQM Promotion in the Medical Industry 	<ul style="list-style-type: none"> • QC Circle Head office Proposed Advanced QC Circle Activities(e- QCC) • Quality Management Seminar for Executives • Symposium for Knowledge creation 	<ul style="list-style-type: none"> • e-Learning' QC Basic and Its practical use' • 100th Anniversary of QC Symposium
	Publish	<ul style="list-style-type: none"> • Issued "Engineer· Club" Magazine 	<ul style="list-style-type: none"> • "QC Magazine" • "Operations Research" Magazine 	<ul style="list-style-type: none"> • "Genba and QC" Magazine 	<ul style="list-style-type: none"> • QC Circle General Principles • "QC Circle Activity Basic Policy in Administration" 	<ul style="list-style-type: none"> • Rename Genba and QC Magazine to" QC Circle" 	<ul style="list-style-type: none"> • Reissued "QC Circle General Principles (The second Edition)" • "TQM Declaration" Magazine • "QC Circle Basic – QC Circle Principles" • Reissued "New QC Circle Activities Principles" 	<ul style="list-style-type: none"> • Rename "QC Magazine" to "Quality Management" 	<ul style="list-style-type: none"> • "Quality Management" Web-site Magazine

Phase	Category of activity	1940s	1950s	1960s	1970s	1980s	1990s	2000s	2010s
③ ④ *	Consulting							• Implemented the First Enterprise's Quality Management Research	
	Oversea				• Dispatched QC Research Team for Overseas Operating Companies (South-east Asia)				
5.New Technology Institutionalization	Qualification						• QC Circle Trainer	• QC Trainer • ASQ CQE (Quality Engineer qualification System) • QC qualification System • JUSE Certified Reliability Engineer (JCRE) • JUSE Certified Software Quality Engineer(JCSQE)	
	Awarding		• Deming Prize, Deming Prize for SMEs • Nikkei QC Literature Award	• FQC Award ("Genba and QC Magazine") • Deming Prize (implementation prize and Department Prize)	• Ishikawa Awards • Japan QCAwards • QC Cercle General Manager Awards • SQC Awards "QC Magazine" • Deming the office Prize	• Opened overseas companies to apply Deming Prize • Florida Power & Light Company won the Deming Prize as the first abroad Company	• Rename FQC Award to Ishikawa Award • Opened overseas companies to apply Japan QC Awards • Integrated and rename Deming implementation prize and Department Prize as Deming implementation prize • Taiwan company Philips won the Japan QC Award as the first abroad Company • Japan QC Incentive Award (TQM Prize, Quality Technology Innovation Prize) • QC Circle Manager Awards	• Quality of Medical Service • Incentive Awards • Deming Prize Promotion Achieved Award (Abroad) • Enterprises' Quality Management • Research and Highest Award	• Renamed Japan QC Awards to Deming Grand Prize • QC Circle Head office Chief Secretary Awards • QC Circle Ishikawa Kaoru Awards QC Circle Activity (Small Group for KAIZEN Activities) Quality • Company and business Office Awards

Phase	Category of activity	1940s	1950s	1960s	1970s	1980s	1990s	2000s	2010s
	Convention		<ul style="list-style-type: none"> • The First QC Convention 	<ul style="list-style-type: none"> • Enactment QC month, QC Mark and QC flag • Organizational managers' QC Convention • The first QC Circle Convention • The first Top Management QC Convention • 100th Anniversary QC Circle Convention • The First International Conference for Quality (ICQ'69Tokyo) 	<ul style="list-style-type: none"> • The First Japan QC Circle Selection Convention • Managers' QC Convention • East Asia QC circle Convention in Seoul • The First International Convention for QC Circle (ICQCC'78Tokyo) • ICQ'78Tokyo 	<ul style="list-style-type: none"> • 1000th Anniversary QC Circle Convention • ICQC'81Tokyo • ICQCC'85Tokyo • The First QC Convention in a Service Industry • ICQ'87Tokyo • 2000th Anniversary QC Circle Convention 	<ul style="list-style-type: none"> • ICQCC'90Tokyo • 3000th Anniversary QC Circle Convention • ICQCC'95Yokohama • ICQ'95Yokohama • 4000th Anniversary QC Circle Convention • Integrated Department Manager and Staff TQM Convention and QC Convention in a Service Industry, established "Quality Forum 2000" 	<ul style="list-style-type: none"> • ICQCC'03Tokyo • ICQCC'05Tokyo • 5000th Anniversary QC Circle Convention • The First All Japan Championship for Office works, Selling and Service Department 	<ul style="list-style-type: none"> • ICQCC'11Yokohama
	Organizing			<ul style="list-style-type: none"> • Established QC Circle head office • QC Circle branch offices(8 regions) 	<ul style="list-style-type: none"> • QC Circle branch offices(10 regions) • Established The Japanese Society for Quality Control • Established the Reliability Engineering association of Japan 	<ul style="list-style-type: none"> • QC Circle branch offices(11 regions) 	<ul style="list-style-type: none"> • TQM Promotion Council in the Medical Industry 	<ul style="list-style-type: none"> • Established WAQ(World Alliance for Quality) 	

* ③New Technology Application ④New Technology Evaluation

(2) Course of growth for quality Kaizen in JUSE

Unlike JMA, which gives direct advice to enterprises on quality issues through consultants who are employees, JUSE conveys quality approaches and quality control and problem solving methods to the owners, managers and line workers of enterprises via education and training. Moreover, hardly any of the training lecturers are employees of JUSE, but rather external lecturers are consigned in almost all cases. Features as compared to JMA can be summarized as follows.

- The first 10 years following establishment of the organization more or less coincided with the new technology development and introduction stage and new technology dissemination stage. Well-known American quality consultants such as Deming and Duran came to Japan to introduce new quality concepts and techniques in seminars, which meant that the first two stages took place simultaneously. The forerunner organization of JMA had already been conducting consulting activities from before the War, so the base for digesting and applying new technologies was already in place, however, post-War Japan had hardly any knowledge or experience about the kind of quality control handled by JUSE, and this may have accounted for the differences between the two organizations.
- JUSE does not employ consultants and trainers that can directly conduct guidance for enterprises, but it outsources such work, however, the Japan Management Association conducts seminars and consulting through its own consultants.
- JUSE places emphasis on seminars and training, however, the Japan Management Association also devotes energy to consulting.
- The technologies handled by JUSE are related to quality, whereas JMA is more concerned with a wider range of management technologies.

JUSE has been more active than JMA in the new technology institutionalization stage. Institutionalization here refers to the situation where Kaizen technology is disseminated and refined for continued use. Specifically speaking, a technology is said to be systemized when awards for excellent enterprises and individuals are instigated, conventions are staged on the local, national and international levels, research groups and membership systems concerning the technology are established, national and regional organizations are built and so on.

JUSE has established the Deming Prize, initiated QC circle conventions and deployed a nationwide network of QC circle organizations⁴. Whereas the Deming Prize is awarded to enterprises that display excellent results in quality control, the QC circle conventions and organizations aim to broaden and heighten the base of QC. Concerning QC-related qualifications, it has established the

⁴ In developing regional and nationwide organizations for QC circles, it is said that JUSE copied the approach adopted by the Soka Gakkai religious organization in Japan.

quality control examination and qualifications for quality control technicians, quality engineers and so on. The quality control examination, which is jointly operated with the Japanese Standards Association, attracts more than 100,000 examinees each year. In terms of Maslow's five-stage needs hierarchy, this system responds to the second need for approval and the third need for social recognition⁵.

(3) Comparison of activities between JUSE and EKI

Concerning the Kaizen technology institutionalization stage, in which JUSE is especially effective, the following table shows the comparison with EKI.

Table 8 JUSE and EKI in the Technology Institutionalization Stage

	JUSE	EKI
Awards	It has continued to award the Deming Prize since 1951.	It awards Kaizen prizes to enterprises and individuals.
Conventions	QC circle conventions, national conventions, world conventions, etc.	KPT conventions are staged within enterprises, however, the only convention that crosses over enterprises is that for reviewing the Kaizen prize.
Qualification systems	Qualifications for QC circle instructors, quality control technicians, quality engineers, and QC examination	A Kaizen consultant qualification is currently being debated, however, there is no qualification system for people in enterprises.
Organization	The QC circle headquarters has nine branches throughout the country. In line with the vitalization of QC circles, nine branches have been started, and these have been further divided into district blocks for conducting more fine-tuned activities.	Little progress is being made regarding the organization of clients.

(4) Strategy for EKI derived from comparison with JUSE in the technology institutionalization stage

The strategy that is thought to be needed in EKI comprises the following three points.

- ✓ A KPT convention and a Kaizen convention are envisaged, however, just one of these should be conducted at first on the regional level.

Conventions can be conducted in regions and overseas, but the regional variety is far more frequent. Not only can travel and accommodation expenses for presenters be kept low, but regional conventions are also effective in terms of filling the aforementioned need for approval.

⁵ The need for approval is the need to be respected and recognized by the group as a valuable being, while the need for social recognition is a sensory and emotional desire to have personal relations, be accepted by others and belong to society as someone who is needed in society and has a social role to play.

- ✓ Build a solid regional organization.

Rather than adopting a centralized approach to building organizations, it is better to adopt a decentralized approach.

- ✓ Establish a qualification system for people in enterprises. At first this should be limited to a single qualification such as the quality control examination. However, the quality control examination may be divided into three or four classes according to the level of difficulty. Rather than creating numerous qualifications corresponding to a wide variety of technologies, it is desirable to create a system for a qualification that is needed by a large population of workers.

3-2-3. Japan Productivity Center

(1) History

The Japan Productivity Center (JPC) was established in 1955 based on the initiative of the industry and the Government of Japan and support from the United States with the goal of improving productivity in industrial circles. Since its founding in 1955, the JPC upheld its basic philosophy of maintaining and respecting the human element in economic activities. It launched a nationwide productivity movement centered on Japan's industrial society based on three guiding principles: expansion of employment; cooperation between labor and management; and fair distribution of the fruits of productivity among labor, management, and consumers. As a neutral tripartite organization representing labor, management, and academia, it contributed greatly to the development of Japan's economy and the improvement of people's lives.

Table 9 History of JPC

Phase	Category of activity	1950s	1960s	1970s	1980s	1990s	2000s
1. New Technology Development and Introduction	Development /Introduction of new management technology	<ul style="list-style-type: none"> • Three guiding principles • Value-added productivity • The concept of productivity 	<ul style="list-style-type: none"> • Fifth anniversary declaration • Developed the cost accounting system by industry • Proposals about of outputs (productivity and wages / prices) • Declaration of the 10th anniversary of the productivity movement 	<ul style="list-style-type: none"> • Declaration of the 15th anniversary of the productivity movement • Declaration of the 20th anniversary of the productivity movement • Guidelines on in the new age • 5 principles of National Conference on Society and Economy 	<ul style="list-style-type: none"> • Declaration of the 25th anniversary of the productivity movement • Declaration of the 30th anniversary of the productivity movement 	<ul style="list-style-type: none"> • General plan and activities philosophy of Productivity Center for Socio-Economic Development 	<ul style="list-style-type: none"> • Declaration for 21 century's productivity • Declaration of the 50th anniversary of the productivity movement
	Study group on new management technology	<ul style="list-style-type: none"> • Established Institute of Productivity • Committee for productivity measurement allocation • Committee for SMEs cost accounting • Committee for SMEs productivity improvement 	<ul style="list-style-type: none"> • Productivity International Comparative Study Group • SMEs cost accounting committee • Productivity outcome allocation committee • Management Strengthening Committee 	<ul style="list-style-type: none"> • Industrial Education Committee • Social Environment Committee • Environmental issues industry conference • Corporate Ethics Committee 	<ul style="list-style-type: none"> • Modern enterprise research committee • Strategic marketing software study group • Productivity improvement for senior engineer • Service Industry Productivity committee 	<ul style="list-style-type: none"> • Productivity international relocation committee • Customer Satisfaction Management Forum 21 • Economic revitalization study special committee • Management Quality Council • Management Innovation Special Committee 	<ul style="list-style-type: none"> • Venture business national forum • Technology management research center • Social vision for 21 century research group • Life structure reform forum • Service industry productivity council
	Group of observers	<ul style="list-style-type: none"> • Inspectorates dispatched according to each industrial sector (iron and steel, etc.) (Europe, America) • Top Management inspectorate to USA and Europe • Inspectorates dispatched according to each control technology, such as marketing, IE, quality control, distribution, etc. (Europe and America) • Inspectorate on productivity improvement in SMEs 	<ul style="list-style-type: none"> • MIS (Management information system) mission in USA • Inspectorates by industry to USA and Europe (Economy and business administration) 	<ul style="list-style-type: none"> • Economy inspector to USA and Europe • Economy and industry investigation team to emerging country 	<ul style="list-style-type: none"> • Productivity top management mission to China • Japan Seminar in NY, USA • Japan Seminar in USA and Europe 	<ul style="list-style-type: none"> • Economy investigation team to Asia and emerging country 	<ul style="list-style-type: none"> • Economy investigation team to Asia and Africa

Phase	Category of activity	1950s	1960s	1970s	1980s	1990s	2000s
2. New Technology Promotion	Seminar / Training	<ul style="list-style-type: none"> • Top management seminar • Training for Management improvement by foreign trainers, TWI training • Top seminar in Karuizawa • Cost accounting system training session • SMEs managers' seminar in regional area • QC training instructor course 	<ul style="list-style-type: none"> • Tokyo top seminar • Junior management comprehensive course (the first stratified education training) • Top management comprehensive course (targeted Top managers) • Training for new employees • Middle management comprehensive course • Management Academy seminar 	<ul style="list-style-type: none"> • Social environmental issue seminar • Productivity cruising seminar • Next generation managers seminar • Senior managers special seminar • Continuously implemented of trainings for Top managers, trainings for professionals, In-company training 	<ul style="list-style-type: none"> • Research group for economy and social policy • International productivity symposium (Tokyo) • World management program cosponsored by US Brookings Institute and French Chamber of Commerce and Industry • Continuously implemented of trainings for top managers, trainings for professionals, In-company training 	<ul style="list-style-type: none"> • National productivity forum • Management and labor policy symposium • Japan quality award debriefing session • Continuously implemented of trainings for top managers, trainings for professionals, In-company training 	<ul style="list-style-type: none"> • Global top seminar • Customer value forum (reorganized Japan quality award debriefing session) • Continuously implemented of trainings for top managers, trainings for professionals, In-company training
	Publish	<ul style="list-style-type: none"> • Quarterly magazine of productivity statistics • Launch of the productivity newspaper • Monthly productivity journal • Technical Digest • Overseas inspectorate reports 	<ul style="list-style-type: none"> • Monthly statistics report of labor productivity • Postwar Business History • Productivity analysis by prefecture • Start of survey into work consciousness 	<ul style="list-style-type: none"> • Productivity encyclopedia • New edition cost accounting for SMEs 	<ul style="list-style-type: none"> • Productivity White Paper • 80s productivity general policy • International comparison of labor productivity 	<ul style="list-style-type: none"> • Japan quality award winning companies case studies 	<ul style="list-style-type: none"> • White Paper on Leisure • Analysis of total factor productivity • International comparison of national • Announcement of service enterprise rankings based on the Japanese customer satisfaction index
③④*	Consulting	<ul style="list-style-type: none"> • Invited Consultants from foreign country and • Mobile counseling / Technical counseling / Research factory • Management guidance (conceptual and general management guidance based on productivity) 	<ul style="list-style-type: none"> • Management group guide by regional companies • Continuously implemented consultancy 	<ul style="list-style-type: none"> • Continuously implemented consultancy services 	<ul style="list-style-type: none"> • Continuously implemented consultancy services 	<ul style="list-style-type: none"> • Continuously implemented consultancy services 	<ul style="list-style-type: none"> • Management consultant school • Continuously implemented consultancy services
	Oversea	<ul style="list-style-type: none"> • Accepted group of inspectors of spanning and weaving from Taiwan • Accepted group of inspectors of productivity from India • Asia productivity international conference 	<ul style="list-style-type: none"> • Asia productivity Organization (APO) organized trainings in Japan and dispatched experts (QC, IE, SMEs management instructor) 	<ul style="list-style-type: none"> • Continuously implemented APO training in Japan and dispatched experts • Hosting of a productivity inspectorate from China • Accepted group of inspectors of productivity 	<ul style="list-style-type: none"> • Continuously implemented APO training in Japan and dispatched experts • Accepted JICA Chinese trainees for "business" • JICA Singapore productivity improvement project • International productivity symposium (overseas) 	<ul style="list-style-type: none"> • Continuously implemented APO training in Japan and dispatched experts • Eastern Europe productivity improvement inspectorate • Russia productivity improvement support project • S. Korea productivity improvement project • JICA productivity improvement project (Costa Rica, Hungary, Thailand, etc.) 	<ul style="list-style-type: none"> • Continuously implemented APO training in Japan and dispatched experts • JICA productivity improvement projects (Costa Rica, Paraguay, Tunisia, Kenya, etc.)

Phase	Category of activity	1950s	1960s	1970s	1980s	1990s	2000s
5.New Technology Institutionalization	Qualification	<ul style="list-style-type: none"> • Training for SMEs consultant trainers 	<ul style="list-style-type: none"> • Business management training (later renamed as Business Consultant training) 	<ul style="list-style-type: none"> • Establishment of the business management consultant qualification system 		<ul style="list-style-type: none"> • Japan Quality Award and self assessor qualification system 	<ul style="list-style-type: none"> • Career consultant training course and Career consultant qualification system • SMEs consultant qualification system • Management consultant training courses implemented in Singapore and Vietnam
	Awarding					<ul style="list-style-type: none"> • Japan Quality Award 	<ul style="list-style-type: none"> • High Service 300 selections (Service Industry Award) • Empowerment Award • Japan Service Award
	Convention	<ul style="list-style-type: none"> • Productivity Improvement Exhibition • Asia Productivity International Convention 	<ul style="list-style-type: none"> • 5th anniversary convention • National labor union productivity convention 	<ul style="list-style-type: none"> • 1970 was designated as “Productivity Year” • Productivity convention in Asia • Top management club • World environment exhibition • National productivity convention 	<ul style="list-style-type: none"> • APO 25th anniversary productivity convention 	<ul style="list-style-type: none"> • International Productivity Convention (IPC'91) in Bangkok • International Productivity Convention (IPC'96)in Greek • International Productivity Convention (IPC'98)in South Africa • APO 30th anniversary productivity convention 	<ul style="list-style-type: none"> • International Productivity Convention (IPC'2000)in Brazil • APO 40th anniversary memorial ceremony
	Organizing	<ul style="list-style-type: none"> • Supporting membership system • Established productivity centers in regional areas and headquarters in prefectures • Japan Marketing Association • Japan IE Association • Japan material handling (MH) Association 	<ul style="list-style-type: none"> • Supporting Asia Productivity Organization (APO) • Supporting Japan Packaging Institute 	<ul style="list-style-type: none"> • Socio-economic national conference • Established headquarters in prefectures(Ibaraki and Tochigi) • Opening of the productivity training center 	<ul style="list-style-type: none"> • Established productivity center in Chiba prefecture 	<ul style="list-style-type: none"> • Established International Productivity Center (IPC) • Integrated Socio-economic national conference and Japan Productivity Center 	<ul style="list-style-type: none"> • Integrated with IE Association

* ③New Technology Application ④New Technology Evaluation

At the start, the activities of JPC were defined as the following seven areas:

- 1) Dispatch of observation missions to Europe and America, invitation of European and American experts, and introduction of literature, information, etc. concerning technologies.
- 2) Dissemination of scientific management approaches concerning management, production and labor affairs
- 3) Operations as a training center
- 4) Operations as an information center
- 5) Promotion of efficiency and guidance for enterprises
- 6) Large-scale enlightenment and advertising campaigns for research of productivity indicator
- 7) Other activities geared to improving productivity

(2) Differences between JPC and JMA, JUSE

When compared with the previously described JMA and JUSE, the features of JPC are the above 1), 2), 6) and 7).

Item 1) Corresponds to the new technology development and introduction stage of Kaizen technology dissemination described in 3-1. Through dispatching observation missions composed of top corporate managers to the United States to learn advanced management methods, this contributed to the transfer of technology to Japan. Before leaving, the mission members ascertained conditions in Japan and determined the items they wanted to observe and conveyed them to the host side, and the host nations arranged visit destinations according to the mission's wishes. The missions were required to give interim reports during their tours and final reports on completion. After returning to Japan, report meetings were staged at major cities throughout Japan in order to introduce the overseas advanced technologies and pave the way for the next stage of new technology dissemination. Therefore, the observation missions in activity 1) were instrumental in disseminating new technologies.

It is not expressed in the table, however, over the seven years between 1955 and 1961 when observation tours were conducted under assistance from the United States, a total of 3,986 persons were dispatched in 393 missions.

At least another four differences can be pointed to between JPC and the two other agencies.

Firstly, through witnessing the advanced management technologies of Europe and America in observation tours by top managers endowed with a keen awareness of issues, this provided the impetus for introducing marketing, cost control, inventory control, process control, IE, OR, QC, human relations, suggestion system, packaging technologies and so on to Japan.

Secondly, concerning 6) and 7), a major objective of JPC is improvement of productivity, as opposed to the improvement of quality in JUSE. Moreover, in addition to productivity in individual enterprises, JPC deals with productivity on the industrial and national levels. As part of its activities, JPC announces national productivity indicators and exerts a certain degree of influence on national policies.

Thirdly, in response to the wishes of the Government of Japan, JPC has been deeply involved in the establishment and operation of the Asia Productivity Organization (APO), which aims to improve productivity in Asia, as well as productivity organizations in Singapore and Malaysia.

Fourthly, JPC puts effort into the development of management consultants. JMA also conducts its own consultant training, however, this only constitutes a part of its employee education. In contrast, JPC conducts 3-month and 6-month courses for developing consultants out of trainees who are dispatched from financial institutions and so on.

Moreover, JPC currently focuses mainly on the following activities.

- 1) Training and seminar
- 2) Survey and research
- 3) Consulting and dispatch of lecturers
- 4) Policy proposal, survey and research
- 5) Literature and journals

Of these, the area of training seminars is the largest source of revenue. The training seminars are categorized according to theme, hierarchical level, field, and skill. However, hierarchical training accounts for the largest share. Activities in the consulting division are conducted by 30~40 consultants including those in the overseas department. Table 10 shows the detailed contents of the training seminars and consulting and dispatch of lecturers.

Table 10 Japan Productivity Center Training Seminars and Consulting and Dispatch of Lecturers

Training seminars	Theme-based training	Personnel and labor affairs (personnel and labor, wage and assessment system, mental health, labor unions and labor-management relations), management affairs in general (global human resources district training, executive seminars, management quality promotion seminars, service innovation seminars), business skills (logical thinking, communication coaching, sales and marketing training seminars), other activities (technology, production, research, development, maritime training, local government, etc.)
	Hierarchical training	Courses for directors and executives, courses for senior managers, basic courses for managers, basic courses for workplace leaders, self-vitalization courses for core employees, early skill development courses for young employees, new recruit education programs
	Field-separate training	Sales and marketing, production control, accounting and financial affairs, personnel and labor affairs, management strategy, technology management, labor-management relations, organizational vitalization, international exchange, environment and energy, mental health, etc.
	Skill training	Management quality assessment, long-term training, project management, logical thinking, presentations, business debate, motivation, personnel evaluation training, objectives management, business manners, IT, leadership, mental care, business writing, mental health, counseling
	Management academy	Business structural reform course, global business leader course, top management course, management strategy course, technology management course, organizational reform and leadership course, marketing strategy course, production innovation management course, human resources management course, management financial affairs course
	Global human resources development	Global human resources development training
	Consultant and SME diagnostician training	Management consultant training, SME diagnostician registration and training curriculum, career consultant training
Consulting and dispatch of lecturers	Management consulting operations	Company-wide reforms (formulation of management ethos, compilation of management strategy and medium-term management plan, business and management succession), reform of people and organizations (support for building personnel systems, organizational and human management and diagnosis, human resources development and capacity building system design, support for operation of personnel systems, support for reduction of overtime), reform of work processes (support for work improvement, support for line Kaizen, support for work standardization), establishment of compliance (compliance education)
	Personnel affairs and labor union affairs	Personnel treatment consulting, introduction of duty pay, performance pay and annual salary systems, evaluator training courses, program for supporting labor unions
	Organizational development and mental health affairs	Organizational development, mental health, counseling management
	Global operations	Global consulting and human resources development, global internships, global task solutions, international observation training, Asian global leader development, global survey and diagnosis services
	Universities, local governments, medical care, and public sector	University management total support, Local Government Management Center, Public Sector Personnel Support Center, training of evaluators for medical agencies
	In-company training (dispatch of lecturers)	
	Survey	Customer satisfaction survey, organizational performance survey, periodic mental checkup of workers, employee satisfaction survey, corporate ethics awareness survey, productivity and morale improvement program
	Others	Japan Quality Award Council, Service Productivity Council, Healthy Workplace Building Forum

(3) Comparison of JPC with EKI

The four strategies described below are deemed to be needed in EKI based on comparison with JPC.

- ✓ Extend the Kaizen movement from private enterprises and public agencies out to the general population.

Whereas improvement of productivity tends to be viewed as a something that entails cutting workers and is an enemy of labor unions and workforces, JPC has treated it as a joint activity of labor and management and a means of promoting labor-management relations. Kaizen is rarely associated with reducing the workload of workers, but improvement of productivity, which is one of the goals of Kaizen, tends to be seen as taking workplaces away from workers⁶. EKI needs to implement activities that will help citizens understand that “Kaizen entails activities geared to creating new employment and work that can improve incomes, and it does not take away employment opportunities. Jobs are lost, and incomes are reduced or taken away because companies lose out to domestic and overseas competitors in the area of Kaizen.”

- ✓ Announcement of productivity indicators

Both organizations are expected to conduct activities that reflect economic policies. EKI intends to announce productivity indicators, but there are no concrete plans for how this will be achieved. In the case of JPC, labor productivity of added value is calculated using output taken from Ministry of Economy, Trade and Industry statistics and quantity of labor input (denominator) taken from Ministry of Labor and Welfare statistics, however, since conditions differ in Ethiopia, In Ethiopia, we think that it is proper to examine a measurable productivity index based on governmental statistics.

- ✓ Become a good example of Kaizen as a center of excellence

JPC has supported member countries of APO and other countries’ productivity centers. There is likely to be no problem regarding whether, in the same way, EKI has the desire to be a good example for third countries or has the capacity to do so. Under a government that places priority on the dissemination of Kaizen, EKI is assured of receiving ample human resources and funding, however, the concern is that such an environment cannot be expected in third countries. Therefore, it would be a mistake to assume that other countries have the same conditions as Ethiopia.

⁶ Kaizen approach is to reduce MUDA which is not value-add activity and increase productivity. When the workers for the particular work activity are able to be reduced by KAIZEN, the employer maintain the employment to allocate the surplus workers to the other valuating activities or the activities which can done only by humans.

✓ Development of consultants

Development of consultants here refers not to the training of consultants out of new recruits by EKI, but rather it means that banks, other agencies or individuals make applications and build training program and recognition system. A small number of the people who complete such training with excellent results at JPC are recruited by JPC as learner consultants, however, the majority of trainees return to their original organizations. EKI is not considering courses such as these for the development of external consultants, however, in order to promote dissemination of Kaizen in the wider sense, this is another matter worth examining.

When JPC dispatches missions overseas, the missions decide the questions they want to ask visited agencies in advance, and they compile reports, conduct hearings and hold report meetings after they return home. EKI conducts almost the same thing when it dispatches staff overseas, however, it has room for improvement in that: 1) it doesn't uniformly manage trip reports; 2) it doesn't pursue the thorough sharing of information; and 3) although it reports to department managers, reporting to colleagues and other departments is not conducted.

3-3. Examples of Singapore and Malaysia

As was mentioned in the section describing JPC in 3-2-3, the Kaizen agencies in Singapore and Malaysia were established with support from JPC, and the extension methods adopted by each agency reflect differences in the national conditions and political style of each country. The conditions of EKI in Ethiopia are similar to those in Singapore, where Kaizen dissemination (productivity improvement movement) was conducted as a top-down activity under political initiative.

3-3-1. Singapore

(1) History

The productivity improvement movement in Singapore was conducted as a top-down activity under the forceful leadership of former Prime Minister Lee Kuan Yew. The movement was conducted over three stages: the stage of raising awareness over five years between 1981 and 1985, the action stage over the next three years, and the autonomous development stage from 1989 onwards. Incidentally, JICA conducted technical cooperation between 1983 and 1990.

In the stage of raising awareness, emphasis was placed on changing the thinking of managers and workers so that they could understand the importance of productivity. For this purpose, the National Productivity Agency introduced the following measures: ① Mass education, ② Public relations and training, ③ Incentives in corporations, ④ Provision of opportunities for labor-management cooperation, and ⑤ Improvement of the public sector.

Of these, concerning ③, the government requested enterprises to implement preferential measures such as performance-based bonuses, awards for long-serving employees, in-company labor unions, and provision of welfare facilities for employees in blue-chip corporations.

Examples of measures under ④ included the formation of excellent work committees, quality control circles (QCC) and so on.

In addition, productivity-related programs were implemented at numerous education agencies including engineering colleges and junior colleges, thereby instilling the concept of productivity among young people, i.e. the workers of the future. Moreover, the productivity movement was permeated with government agencies setting an example for the private sector. Specifically, work improvement teams were organized to solve problems in each workplace.

Table 11 History of Singapore Productivity Center

Phase	Category of activity	1960s	1970s	1980s		1990s ③Ownership stage (1989~1990's)	2000s~ ④Innovation Stage
				①Awareness stage (1981~1985)	②Action stage (1986~1988)		
1.New Technology Development and Introduction	Development /Introduction of new management technology						
	Study group on new management technology	• National Productivity Centre (NPC, 1967-1972)	• National Productivity Board (NPB, 1972-1981)	<ul style="list-style-type: none"> • National Productivity Council (NPC) was established as an oversight and policy coordination body for the Productivity Movement. • The productivity campaign was linked with civil service reform and was spearheaded by the Central Productivity Steering Committee. • Singapore Productivity Association (SPA) was established 		• The NPB merged with the Singapore Institute of Standards and Industrial Research to become the Productivity Standard Board (PSB) in 1996	<ul style="list-style-type: none"> • The PSB's productivity-related functions were transferred to the Standards, Productivity and Innovation Board (SPRING Singapore) in 2002. • Singapore Productivity Center was established under the Singapore Productivity Association
	Group of observers		• Various technical transfers from Japan had been implemented under APO project.	JICA-supported Productivity Development Project (1983-1990)			• Executive learning visits to Spain (Value Chain)
2.New Technology Promotion	Seminar			<ul style="list-style-type: none"> • Training courses emphasis on human relations such as Team Work. • Training Coerces of Productivity and Management • Visiting companies Sturdy Tour, Cultural exchange meeting (SPA) • In-company training supported by SDF was organized with reputable companies such as Singapore Airlines (Service Quality Center), Philips Singapore (Industrial Engineering Training Center), and Seiko Instruments (OJT Project) 		1. Launch of the Productivity Activists Scheme (Develop a core of productivity "champions" in companies) 2. Private Sector Leading the Annual Productivity Campaign (Employer groups chairing the Campaign Steering Committee)	<ul style="list-style-type: none"> • Leading and Managing Productivity Series • Enhanced Certified Productivity Practitioner Course • Implementing Productivity: A Total Approach (Senior management seminar) • Certified Productivity Consultant (CPC) Training Programme • Food Services Productivity Conference • Productivity Benchmarking Seminar
	Publish					<ul style="list-style-type: none"> • Productivity Digest • Teamwork • Innovation and Quality News 	
③④*	Consulting			<ul style="list-style-type: none"> • Management Guidance Center (Management consultancy service for SMEs) • Industry-based Consultancy Assistance Scheme • Model Company Project (by JICA and NPB) 		• Consultancy Services for MSEs	<ul style="list-style-type: none"> • Consultancy Services for the local Retail, Food Services and Hotel sectors • Consultancy Services for MSEs
	Oversea					• Singapore Cooperation Program: SCP (gratuitous technical assistance)	• Singapore Cooperation Enterprise: SCE (onerous technical support)

Phase	Category of activity	1960s	1970s	1980s ①Awareness stage (1981~1985) ②Action stage (1986~1988)	1990s ③Ownership stage (1989~1990's)	2000s~ ④Innovation Stage
5.New Technology Institutionalization	Qualification			• Management Consultancy Referral Scheme and Associate Consultants Scheme (Supported by JICA)		
	Awarding				• Singapore QC Award • National Products Award • National Training Award • Excellent Service Award • National QC Award	• National IQC Awards • International Management Action Award (IMAA)
	Convention			• November was designated as “Productivity Month”	• National QC Conventions	• International QC Conventions • National Innovation QC Conventions
	National Movement			• Launch of the productivity movement • Publication of productivity data • Media support(created a symbolic Mascot and slogans) • Revised Curriculums of educational institutions. • Creating a library of local case studies on good management practices • Strengthening employees' incentives (Payment of variable bonus, special awards for long-serving employees, house unions, sports facilities) • Promotion of labor-management joint consultation: work excellence committees and QCCs • Promotion of productivity in the public sector: productivity campaign in the public sector, work improvement teams, productivity working committee. • Introduced productivity-related programs in many technical colleges and Universities.	• NPB encouraged the private sector to lead annual productivity campaigns. Employer groups were urged to chair the Campaign Steering Committee. • Start of the productivity promoter program • Develop a core of productivity “champions” in companies • New Productivity Movement Icon	
	Organizing			• Labor unions spearheaded the productivity campaign and created the Productivity Promotion Council. • Labor unions and employer groups supported workforce training, with financial incentives from the NPB- administered SDF. • Ministry of Defense and the Armed Forces launched the Skills Development Fund (SDF) • Skill Development Fund		

* ③New Technology Application ④New Technology Evaluation

In the next action stage, the National Productivity Agency established the Management Guidance Center in order to provide advice to managers of MSEs. Japanese experts and government officers conducted transfer of consulting technology while offering guidance to enterprise managers. In addition, a management consultant introduction system and a tie-up consultant system were introduced. The private sector consultants that were trained under Japanese cooperation were deployed to conduct the productivity improvement movement. The National Productivity Agency allowed private sector personnel to participate in training as well as its own employees; and following the training, they helped provide management guidance to enterprises. Such private sector consultants, who numbered more than 200, were known as introduction consultants or tie-up consultants.

As other initiatives geared to realizing improvement of productivity, a sector-separate advice and support system for offering intensive support to enterprises in priority sectors, and an employee training system utilizing the technology development fund were introduced. The technology development fund, financed by contributions from private sector enterprises, was a system for giving incentives to enterprises to train employees. In concrete terms, enterprises would pay the greater out of 0.25% or 2 Singapore dollars with respect to the total outlay on each employee (including insurance premiums and taxes, but discarding amounts over monthly salary of 4,500 Singapore dollars). The government used this fund to subsidize enterprises that invested in improving employees' skills. Under this system the government covered up to a maximum of 90% of training expenses.

In the autonomous development stage, in order to stop the productivity improvement movement from falling into a rut and prevent passive participation in the movement, private enterprises and government agencies were required to display initiative. The National Production Agency required private enterprises to stage their own productivity campaigns every year and demanded that campaign organizing committees oversee groups of managers. In 1994, the Singapore Quality Prize was established, and in 1996, a productivity promotion program was started with the goal of nurturing productivity leaders in each business establishment.

Incidentally, the following agencies were instrumental in implementing the productivity improvement movement:

- National Productivity Council (NPC)
- National Productivity Board (NPB)
- Singapore Productivity Association

(2) EKI strategies derived from the Singapore productivity improvement movement

The productivity improvement movement in Singapore is similar to the Kaizen dissemination activities of EKI in three ways. First, it was promoted from above at the urging of top government offices. Second, Japan provided the model for the movement in both countries. And third, emphasis was placed on changing thinking, and the starting points for both movements was mindset.

Activities that were adopted in the Singapore productivity improvement movement and could be introduced as useful strategies in EKI from now on are as follows.

✓ Introduction of a system for sharing the gains of Kaizen among employees

In the initial awareness changing stage of the Singapore productivity improvement movement, the government encouraged enterprises to introduce results-based bonus payments and give awards to long-serving employees. EKI should also propose and become involved with systems for apportioning the benefits of Kaizen to employees in order to encourage Kaizen based on the participation of employees.

✓ Promotion of five-year education as Kaizen for students

EKI currently conducts activities aimed at disseminating Kaizen to universities and, indirectly, TVET, however, it is not clearly whether this is intended to implement 5S in university and TVET facilities or instill Kaizen concepts and practices among students. Alternatively, the objectives may be set but the relationship between them is not clear. EKI needs to establish a system for informing students, who are the future workers, about Kaizen concepts and helping them acquire Kaizen practices.

✓ Development and utilization of private sector consultants

In order to realize the faster dissemination of Kaizen activities, cost effectiveness is impaired by focusing only on EKI consultants. If private sector consultants could be utilized, this would help reduce fixed costs and make it easier to run the organization. In addition, EKI consultants should be presented with the career option of becoming private sector consultants. In this case, since the EKI consultants would continue to work as consultants without becoming employees of private sector enterprises, consulting functions in the broad sense would not deteriorate.

✓ Introduction of earmarked tax and introduction of a Kaizen promotion system based on reapportionment of this

In Singapore, enterprises are required to contribute an amount equivalent to a very small percentage of personnel costs to a fund that is used to cover 90% of employee training expenses. In order to make EKI's operations more oriented to clients and at the same time encourage enterprises to become more Kaizen oriented, a tax earmarked for a Kaizen

promotion fund should be levied from enterprises⁷ so that, for example, when enterprises consign consulting to EKI, 90% of the consulting fee paid to EKI can be paid from this fund.

3-3-2. Malaysia

(1) History

The history of the Kaizen movement in Malaysia is similar to that in Singapore, but it also has a number of distinct features.

One of these is that the Kaizen promotion agency has strong linkage with national economic policy. And the agency became partially privatized quite soon after it was first established, and the third is that it has created and presents a number of finely categorized prizes. Fourthly, Malaysia has introduced its own specific technologies such as Quality and Environment Certification, Innovative Creative Circle and Business Excellence Framework while skillfully incorporating Japanese Kaizen technologies. Malaysia gives distinctive expression to Kaizen technologies, demonstrating its desire to localize Kaizen.

⁷ The aim of having an earmarked tax is to deepen awareness of Kaizen and encourage enterprises to autonomously seek Kaizen activities. Such a tax could be set as a percentage of sales or personnel expenses, or it could be based on number of employees or capital and so on.

Table 12 History of Malaysia Productivity Center

Phase	Category of activity	1960s	1970s	1980s	1990s	2000s~
1.New Technology Development and Introduction	Development /Introduction of new management technology					
	Study group on new management technology	• The National Productivity Corporation was established in 1962 as a joint project between the United Nations Special Fund and the Federal Government with ILO the National Productivity Council	• The National Productivity Centre		• The National Productivity Council incorporated the National Productivity Corporation	• National Productivity Corporation became Malaysia Productivity Corporation(MPC) in 2008
	Group of observers					
2.New Technology Promotion	Seminar	Management Training & Advisory Services		Management training & entrepreneurship	Reserch & System Development Productivity & Efficiency Enhancement (1995~) • Quality Management Programmes • Productivity Management Programmes • Management Development Programmes • Production Management Programmes • Enterprise Development Programmes • ICT Development Programmes	Benchmarking & Best Practices Competitiveness & Innovation (2005-2010) High impact productivity & innovation driver (2010-2015) • Quality Environment Management System (QEMS) • Innovative and Creative Circle (ICC) • 7 New QC Tools • Improving Organisational Performance through Material Cost Saving (MCS) • Quality Management System (QMS):ISO 9001:2008 • Learn Management: Value Stream Mapping(VSM),TPM • 7 Alat QC
	Publish				• Issued Annual Productivity Report	
③④*	Consulting					• Regulatory Review (administrative evaluation)
	Oversea					

Phase	Category of activity	1960s	1970s	1980s	1990s	2000s~
5.New Technology Institutionalization	Qualification				・ 5S certification	・ QE certification
	Awarding			・ International Team Excellence Award (ITEA)	・ Quality Management Excellence Award (QMEA) ・ Prime Minister Quality Award (PMQA) ・ Productivity Award	・ Best Overall ICC Excellence Award
	Convention		・ International Convention on Quality Control Circles (ICQCC) hosted in 1976			・ National Team Excellence (ICC) Convention. ・ National Team Excellence Convention ・ Mini ICC Conventions, Regional ICC Conventions and National ICC Convention. ・ International Convention on Quality Control Circle ・ ICQCC2012 hosted ・ International Exposition on Team Excellence (IETEX) 2008~
	Organizing					・ Productivity-Linked Wage System (PLWS)

* ③New Technology Application ④New Technology Evaluation

“It has the trends from “Provision of Direct Assistance” (training, consultation, etc) to “Reference of Best Practice Data on Productivity and Innovation””.

- (2) Since the turn of the century, MPC has shifted from training and consulting activities towards the collection of best practices for productivity and innovation.

4. Listing and Arrangement of Strategies

The proposed strategies that were described in Chapters 3 and 4 are grouped according to similar characteristics below. Next, the medium and minor categories are reclassified according to the four viewpoints of BSC.

4-1. Grouping of Strategies

Table 13 shows the individual proposed strategies for EKI derived from SWOT analysis and analysis of five similar consulting agencies. The strategies are grouped according to the purpose of each strategy.

Table 13 Grouping of Individual Strategies

Strategy Menu				Associated
Establishment of organization foundations	① Establishment of a revenue base		<ul style="list-style-type: none">• Conversion of EKI into a special corporation• Revision of the proclamation• Covering of 20% of necessary expenses out of operating income	② ⑨ ⑬ ⑮ ⑯ ⑰
	② Establishment of an activity base	Establishment of regional activity centers	<ul style="list-style-type: none">• Establishment of regional EKI offices	
		Deepening of Kaizen activities	<ul style="list-style-type: none">• Kaizen dissemination officer system in regional centers• Kaizen one-day advice in regions	
		Standardizing of consulting and seminars	<ul style="list-style-type: none">• Standardizing of Kaizen consulting• Standardizing of Kaizen seminars	①
		Sale of teaching resources	<ul style="list-style-type: none">• Sale of basic Kaizen technology texts	①
		e-learning	<ul style="list-style-type: none">• Provision of mobile learning opportunities in basic Kaizen• Internet learning	
Development and introduction of Kaizen technologies	③ Development and introduction of new technologies		<ul style="list-style-type: none">• Survey of new technologies by research groups• Applied research• Research into introduction of Kaizen by public agencies• Research into introduction of Kaizen into service industries• Assessment system for new Kaizen technologies	⑥ ⑦
	④ Localization of technologies		<ul style="list-style-type: none">• Adaptation of technologies to Ethiopia	⑥ ⑦
Capacity building and full utilization	⑤ Assignment of the right people to the right places		<ul style="list-style-type: none">• Reform from industrial sector-separate consulting organization to Kaizen function-separate organization• Formation of teams based on consultants’ skills according to needs	⑥ ⑧ ⑨
	⑥ Flexible organizational operation		<ul style="list-style-type: none">• Flexible operation by project organizations• Standardization of seminar menus• Flexible formation of consultant teams according to the consulting and seminars	③ ④ ⑤ ⑧
	⑦ Kaizen consulting capacity building		<ul style="list-style-type: none">• Client-oriented consulting• Individual consulting capacity assessments and capacity building program	③ ⑦ ⑩
	⑧ Management capacity building		<ul style="list-style-type: none">• Management seminars	⑤ ⑥
	⑨ Contribution-based treatment		<ul style="list-style-type: none">• Apportioning part of EKI revenue to performance pay for consultants, etc.• Establishment of a performance assessment system for consultants	① ⑤
Kaizen institutionalization	① Awarding of prizes		<ul style="list-style-type: none">• 5S good practices award, Muda elimination award, MSE Kaizen award, etc.• Excellent consultant award, good practice creation award	⑦
	⑪ Rooting of Kaizen activities through staging of Kaizen achievements presentation meetings / organization.		<ul style="list-style-type: none">• KPT conventions• Regional organization, national organization	

Strategy Menu			Associated	
	⑫ Deployment of a nationwide Kaizen movement		• Incorporation of Kaizen to compulsory education • Joint declaration of an oath of the three guiding principles of Kaizen by labor, management and government	⑭
	⑬ Kaizen via periodic publications		• Issue of the monthly journal “KAIZEN” • Issue of the mail magazine “KPT”	①
	⑭ Labor-management cooperation		• Kaizen proclamation	⑫
	Establishment of Kaizen practitioners’ qualification system	⑮ Consultant qualifications	• Establishment of consultant qualifications • Implementation of seminars (courses) for sitting examinations on consultant qualifications • Formulation and sale of texts for consultant qualification examinees • Consultant examination system	①
		⑯ Kaizen qualifications for corporate personnel	• Formulation of qualifications targeting KPT leaders, Kaizen leaders, and corporate persons aiming for QC certification examinations • Implementation of qualification examination seminars (courses) • Formulation and sale of texts for examinees • Examination system	①
⑰ Fulfillment of center of excellence functions			• Become a host nation • Common consulting, Kaizen-related qualifications • Texts for sitting Kaizen examinations • Kaizen qualification seminars • Preparation of Kaizen training resources (models, manuals, texts, etc.) • Outreach lecturers • Outreach consulting	①

There are various methods for grouping individual strategies, but the following five major categories are indicated here:

- Establishment of the organization foundations
- Development and introduction of Kaizen technologies
- Capacity building and full utilization
- Kaizen institutionalization
- Fulfillment of center of excellence functions

Concerning Kaizen institutionalization, as is also mentioned in 3-1-1, this refers to the dissemination and rooting of Kaizen, and the following proxy variables are considered as means of determining this: awarding of Kaizen prizes, etc., staging of Kaizen conventions, periodic issue of Kaizen journals, labor-management cooperation, and establishment of Kaizen-related qualification systems.

4-2. Arranging of Strategies based on Four Viewpoints

Moreover, the four viewpoints of BSC are generally given as: ① the viewpoint of learning and growth, ② the viewpoint of work processes, ③ the customer's viewpoint, and ④ the financial viewpoint. However, here, in order to more clearly express ③ the customers' viewpoint, the "Clients' Viewpoint" is adopted. Clients here refer to the enterprises, agencies and individuals that receive the Kaizen consulting and training provided by EKI. Also, ④ the financial viewpoint is here treated as the "viewpoint of dissemination of Kaizen activities." As a national agency, EKI is strongly required to make a contribution to GTP2. In GTP2, Kaizen activities are required to boost the competitiveness of export manufacturing industries and import-substitution industries, however, Kaizen alone is not enough to improve competition. Other factors such as trade conditions, product development capacity, manufacturing capacity and so forth are involved.

Figure 6 shows the strategies that were grouped in Table 13, but here divided into medium and minor classifications and further categorized according to the above four viewpoints.

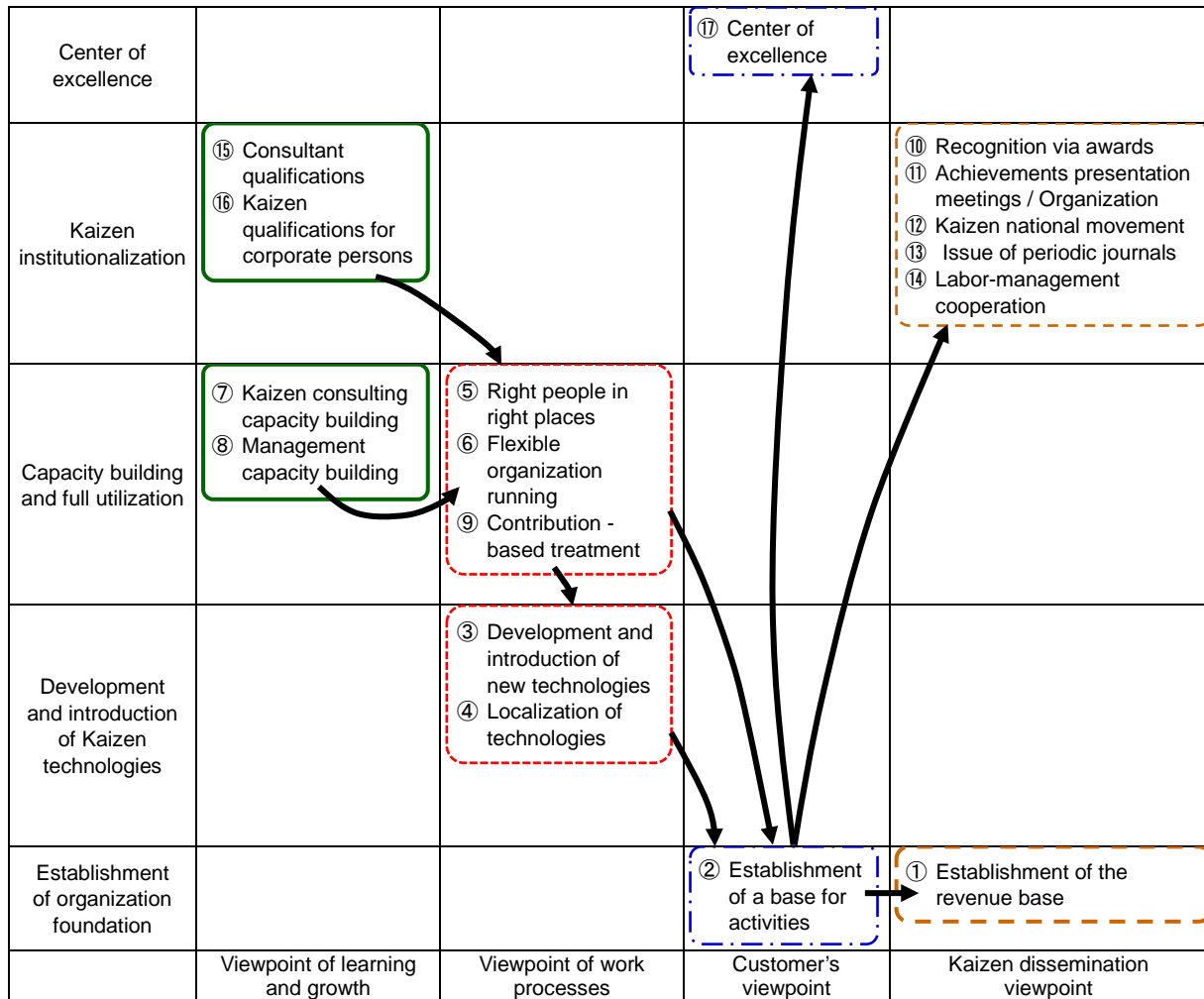


Figure 6 Sort of strategies by four viewpoints

The above figure shows a matrix with strategies grouped according to the type of strategy on the horizontal axis and the stage of Kaizen technology dissemination on the vertical axis. Cause and effect relationships between strategy groups are shown by arrows. Therefore, the strategy groups that are joined by arrows indicate the order by which strategies are executed, i.e. they show a roadmap for strategies.

5. Score Cards

Strategic goals compiled into a score card appear as follows. In addition, the underlined strategic objectives are adopted as a later strategic program.

Table 14 EKI Score Card

View points	Strategic objectives	Key performance indicator (KPI)	Target amount	Leading indicators	Countermeasures	Departments
The point of view of learning and growth	Improve KAIZEN consultancy ability	① The number of trainees who finished basic training course. ② The number of trainees who finished advanced training course. ③ The number of trainees who finished KAIZEN MSc. All the member above should be EKI staff.	① 180 ② 90 ③ 90	Trainings, implementation of MSc	① EKI's own plan ② Implemented by the project ③ EKI's own plan	①③EKI ② Project Team
	Improve management ability	① The number of staff who attend the management seminar. ② The number of trainers of the management seminar.	① 90 ② 2	Implementing of management seminar, Implementation of OJT Seminar trainers.	①②both by the project	Project Team
	<u>Consultant qualification system</u>	The number of qualified consultant	140(130 from EKI and 10 from private sector)	Established consultant qualification system, consultant training course, teaching materials, examination system.	EKI and the project	EKI and Project Team
	<u>KAIZEN related qualification system for private companies</u>	The number of ① KAIZEN facilitators, ② KPT facilitators, ③ 5S facilitators, ④ QC licensing examination	① 100 ② 300 ③ 300 ④ 300	Established each qualification systems, each training course, teaching materials and examination system.	EKI and the project	EKI and Project Team
The point of view of business processes	<u>Allocation of the right person for the right place</u>	Reformation of manufacturing department, Personnel arrangement in accordance with the modified departments	67% of EKI staff	Implementation of ability assessment of each consultant, Standardized of KAIZEN Service	EKI's internal organizational changes	EK
	<u>Flexible organizational management</u>	① The number of established teams of consultant (project teams) ② The number of the clients	① 400 ② 500	Establish KAIZEN service standard, reformation of manufacturing department	EKI's plan	EKI
	<u>Performance-based compensation</u>	① The proportion of performance -based compensation in the salary, ② Wage gap with the private sector	① average 30%, ② Minimum 0%	Secure EKI's own revenue, establish performance-based compensation system	EKI's Salary revision plan	EKI
	Introduced New KAIZEN technics	The number of introduced or developed KAIZEN technics	20 in 5years	Improved technologies that are raised as research theme	Technical research plan	Research Dept.
	Localization of KAIZEN technics	Ethiopianized and improved KAIZEN Technic	20 in 5years	Improved technologies that are candidate of localization.	Technical research plan	Research Dept.

View points	Strategic objectives		Key performance indicator (KPI)	Target amount	Leading indicators	Countermeasures	Departments
Client 's point of view	Establishment of activities foundation	Regional EKI base building	The number of regional EKI bases	6 places	Rental agreement or contract of sale of the building of the base, Securing human resources and budget for the center operation	Utilization of the facilities of Ethiopian Management Institute	EKI
		Allocate KAIZEN extension worker	The number of a base that allocate KAIZEN extension workers	6 places	Securing places and human resources, Trainings for the extension workers	KAIZEN dissemination plan	EKI
		One-day KAIZEN consultation	The number of the days of conducting one-day KAIZEN consultation service 72days = 6 placesx12months	100%	Planning and budget securing of business trip expenses for one-day consultation services	KAIZEN dissemination plan	EKI
		<u>Standardization of consulting services</u>	The number of standardized consulting service	10	Established standardized consulting services	Planning of standardized KAIZEN Service	EKI
		<u>Standardization of seminars and trainings</u>	The number of standardized seminars and trainings	20	Teaching materials and established standardized trainings	Planning of standardized KAIZEN Service	EKI
		Selling of basic KAIZEN text	Consultation revenue/Necessary expense The number of sales of the text	20% 20,000 copies	Charge for consulting and training, income of the text sales, prepared text.	KAIZEN dissemination plan	EKI
		Established e-learning materials of basic KAIZEN	The number of access to the e-learning services. The number of videos of the teaching materials.	5 videos, 20,000 times access	Upload video images of 5S and Muda elimination to YouTube and anyone can watch them.	KAIZEN dissemination plan	EKI
	Fulfill EKI's functioning as a center of excellency		As hosting county, joint operation of KAIZEN related qualification systems and shearing of teaching materials of the qualification systems.	Position of meetings of knowledge shearing	Proposals of knowledge shearing meetings, TV conferenced	Plans of knowledge shearing meetings	EKI
The point of views of KAIZEN Dissemination	<u>EKI as special administration institution</u>		Revised proclamation	Permission to get income	Revise the basis proclamation	EKI's organizational reform	EKI
	<u>EKI's business income covers 20 percent of its necessary expenses.</u>		Consultation revenue/EKI's total budget	20%	Perdition of consultation revenue under the proclamation	EKI's business plan	EKI
	<u>Awarding System</u>		Apply awarding system such as 5S, Good practice awards, Elimination of Muda awards, SMEs KAIZEN awards, TPM Awards, Excellent consultant Awards and Good practice maker awards.	Holding awarding ceremonies periodically	Proposals of the awarding systems, establishment the awards program	KAIZEN dissemination plan	EKI
	Conventions for KAIZEN results / sustainment of KAIZEN activities by organizing KPT		Holding KPT conventions, organized regional organizations and nationwide organization	Conventions and organizations	Proposals of KAIZEN result convention, inaugural meetings of the organizations	KAIZEN dissemination plan	EKI
	Develop national productivity movement		KAIZEN is introduced in compulsory education, enactment of KAIZEN three guiding principles by labor, employer and government constituents.	Text books, Swearing-in ceremony	Reversion of the text books, tripartite declaration of principles	Ministry of Public Service Human Resource Development encourage to Ministry Education.	MoPSHRD
	Publish of periodical magazine "KAIZEN"		Issue quarterly journal "KAIZEN"	Issued "KAIZEN" magazine	Ensure publication budget and the distribution route, holding editor meetings	KAIZEN dissemination plan	EKI Communication Dept.
	<u>Implementation of KAIZEN declaration program</u>		① The number of enterprise which has been registered to the program ② Total number of the employees	① 100 ② 50,000	The determination of the department in charge, proposals, holding a council	KAIZEN dissemination plan	EKI Communication Dept.

6. Action Plan and Action Program

Concerning the difference between action plans and action programs, an action plan is used when a single action is needed in order to achieve a single goal. If multiple actions were needed in order to achieve a single goal, the collection of actions would be referred to as an action program.

First, the following five action programs will be described, and then the action plans will be stated. The action programs are as follows:

- ① Revenue base establishment program
- ② Kaizen services standardization program
- ③ Program for forming flexible teams based on the right people in the right places
- ④ Kaizen proclamation program
- ⑤ Kaizen qualifications system program

6-1. Revenue Base Establishment Program

6-1-1. Reasons for transformation into independent administrative institution of EKI

This program is predicated on the transformation into independent administrative institution⁸ of EKI.

Private sector organizations such as JMA and JUSE, and even the JPC, are operated and maintained based on revenue from activities. The Kaizen promotion agencies of Singapore and Malaysia were initially established by the government but operations like consulting were subsequently incorporated and privatized after activities had become settled. The following benefits can be expected as a result of privatization.

(1) Continuity of the consulting business

EKI currently has the forceful backup of the government and it also receives as much budget allocation as it needs. However, because EKI is not allowed to obtain revenue, it can be viewed as just another cost-incurring government agency. In the event where the government is confronted with a repeated deficit, more people will start doubting EKI's contribution to the economy, there is a risk that the EKI budget will be reduced, or its very existence may be threatened if it is entirely dependent on government funding to survive.

Such fears could be greatly mitigated if EKI were to cover part of its costs with revenue from its activities. In this sense, having an independent source of income is necessary for the continued existence of EKI.

⁸ The independent administrative institution is the system which is incorporated business separated from the policy enforcement section of ministries and aims to enhance quality, efficiency, autonomous operation and transparency of business.

(2) Improvement in the quality of consulting

If consulting services are provided for free as in the case of EKI at present, it is all the same for the client whether it accepts or doesn't accept the consulting. This means that clients stop evaluating the quality of consultants or only give half-hearted evaluations. Without such feedback, it becomes difficult for the consultants to become motivated to improve their skills. In other words, consulting fees are an important factor for sustaining and improving the quality of consultants.

(3) Improvement in degree of involvement of client enterprises in Kaizen

Similarly, when consulting fees are charged, the client enterprises also become more serious about implementing Kaizen and there are greater results from Kaizen dissemination.

(4) Improvement of consulting efficiency through linkage of gains and salaries

If revenues from the consulting business can be linked to increase and decrease of salaries, this provides an incentive for consultants to improve the quality and quantity of consulting and thereby raise profits. Improving the quality of consulting entails improving the quality of consultants as described in (2) and also raising the quality of the consulting itself. Meanwhile, there is a lot of room to improve consulting in terms of efficiency, and establishing this link between profits and salaries can provide the impetus for raising consulting efficiency.

(5) Reduction of wage differential with the private sector

It is said that salaries in the private sector are more than two times higher than in EKI. Low salaries are the prime factor behind job separation by EKI employees, and the effectiveness of measures aimed at retaining consultants, for example, provision of MSc and advanced Kaizen training, are limited. The linkage of profits to salaries described in (4) not only means that salaries can increase but also that they can decrease if profits go down, however, depending on the way linkage is achieved, salary differentials with the private sector can be reduced if a system is established whereby performance pay is combined with basic salary.

The mechanism for introducing new Kaizen technologies and applying them as know-how within EKI is inadequate.

6-1-2. Background of Kaizen of Organization Foundations

(1) In order to continue Kaizen, it is necessary to return the achievements of Kaizen

Isolated improvements are not Kaizen. Kaizen is realized through carrying out continuous improvement⁹. In order to continue improvements, the management level must be raised while rotating the PDCA Deming cycle. However, simply rotating this cycle does not necessarily guarantee that improvement will be sustained.

It is necessary to assess the achievements of Kaizen so that all members can celebrate when achievements exceed expectations, and investigate the reasons and take steps to prevent reoccurrence when achievements do not reach the planned level. Certainly implementing the C and A elements of the PDCA cycle ensures that results are achieved and that Kaizen is continued.

Furthermore, it is desirable to have a system for returning a certain percentage of the benefits of Kaizen (higher profits and/or reduced costs) to the people who participated in the Kaizen activities. In this case, the targets for returning benefits will include employees, trading partners, suppliers and other stakeholders, and EKI (Kaizen consultants) should also be included as the entity that conducts Kaizen guidance.

EKI plays the central role in disseminating Kaizen. The legal basis for its foundation was Regulation 256/2011 of October 28, 2011, with operating expenses being allocated from the government budget. Therefore, it is not legally possible for EKI to receive consulting fees from clients, nor to acquire gains from Kaizen, in part or entirely, in clients.

The wage level of EKI employees is half or less that of private enterprise employees, and many consultants quit the organization in search of better conditions. In such an environment, EKI implements various measures aimed at retaining consultants and limiting the job separation rate to around 10% per year, however, within the given organizational structure, it is limited in the steps it can take. Moreover, many of the people who quit the organization are people who displayed excellent results in training.

The high job separation rate among capable Kaizen consultants is an impediment to the dissemination of continuous improvement, i.e. Kaizen. In order to prevent the outflow of employees, EKI internally operates a master course and provides opportunities for self-development to the EKI consultants. It is also advancing preparations for a doctor course, however, its effectiveness will be limited.

In order to effectively disseminate Kaizen, not only the organized initiatives of EKI but also the skill and enthusiasm of individual Kaizen consultants who conduct guidance and training in

⁹ An overseas English dictionary defines Kaizen as follows: “A Japanese business philosophy that entails implementing continuous improvements in practical work.”

enterprises play an important part. Unlike sales representatives who aim to sell products, Kaizen consultants are subject to assessment of their entire character by clients. In other words, from the viewpoint of clients, the product constitutes the problem awareness, expertise, experience, ideas, perspectives, leadership and so on of the consultants. One look at the inner situation of many Kaizen consultants, who are exposed to such total scrutiny, reveals a feeling of dissatisfaction with pay and issues of motivation and continuity.

(2) Importance of consulting fees as an assessment indicator of consultants

Consulting is assessed according to the profit that is imparted to an enterprise, the costs that have been cut, or the improvement in the enterprise's human skills, and it is eventually based on the consulting fee. The size and duration of the consulting fee may be viewed as an expression of the assessment of consulting by an enterprise. The consulting fee serves as a signpost for guiding consultants as professionals.

Conversely speaking, if there were no consulting fee, this would mean that it wouldn't matter if client enterprises did nor didn't perform Kaizen and the motivation to implement Kaizen would diminish. From the viewpoint of consultants too, if there were no consulting fees, meaning that consulting activities were not assessed based on money, they would have little professional motivation to improve the quality of their consulting.

(3) Problems in the organization base of EKI

As a state agency under the jurisdiction of the Ministry of Public Service and Human Resources Development (MPSHRD), EKI is not able to give special treatment to its Kaizen consultants regarding salary and so on. As a result, EKI is confronted with the following issues:

- ① In order to promote ongoing Kaizen, it is necessary to return the benefits of Kaizen, however, EKI has no system for doing this.
- ② Consulting fees represent cost (investment) for clients and earnings (assessment) for consultants. Consulting for no fee diminishes the motivation of enterprises to implement Kaizen and detracts from the desire of consultants to improve the quality of their consulting.
- ③ In order to overcome problems ① and ②, it is necessary to revise the basic law behind the establishment of EKI.
- ④ There is no decisive mechanism for preventing the job hopping of Kaizen consultants over the long term (for example, 15 years after joining the organization).

6-1-3. Reform Policy

EKI needs to reform to a mode of organization that is able to perform the following things.

- (1) Adopt an organization that is able to charge consulting fees.
- (2) Adopt an organization that allows consulting fees to be returned to employees according to their job performance.
- (3) Since consulting fees alone are not enough for EKI to become self-supporting, adopt the following two measures:
 - Receive a certain percentage of EKI operating expenses from the budget of MPSHRD.
 - When enterprises that have been selected based on set criteria consign EKI or official Kaizen consultants to implement Kaizen training and consulting, MoI pays a certain amount to these enterprises as a Kaizen promotion subsidy¹⁰.
- (4) Build a system by which long-serving consultants in EKI are awarded with benefits.

The above items are described in greater detail in the following paragraphs.

(1) Adopt an organization that is able to charge consulting fees

The Ethiopian Development Research Institute (EDRI), like EKI, is a national survey agency, however, it differs in that it obtains revenue for conducting survey work at the request of the private sector. Since it uses 60% of this revenue to cover a portion of its employees' salaries, it offers a reference model for examining the organizational mode of EKI. As is shown in the attached "EKI and EDRI Comparison Table," in order to make EKI into an organization that can earn some kind of revenue, it is necessary to mention "revenue" in one of its budget clauses. Another difference between the two agencies is the office with jurisdiction: EDRI is under the Office of the Prime Minister, while EKI is under MPSHRD. Further investigation is required to determine whether this difference impacts EKI's ability to acquire revenue.

It is better to compile a target revenue structure according to each source of revenue. Therefore, the revenue structure is provisionally set as follows.

¹⁰ The subsidy is an argument on the premises that MoI provides. EKI has to pressure MoI to work on the establishment of this system through the ministry to belong to. However, the amount concerned shall be directly paid from MoI to the EKI or official consultants.

Table 15 Revenue structure of EKI

(%)

Year	Enterprise			Government body Out of public company	GovernmentBudget allocation
	Private		Public company		
	Consulting	Training			
2015	0	0	0	0	100
2016	1	1	1	1	96
2017	2	1	2	3	92
2018	2.5	2.5	3	7	85
2019	3	4	4	11	78
2020	4	6	5	15	70
2021	5	7	7	20	61
2022	6	8	9	25	52
2023	7	9	11	30	43
2024	8	10	13	35	34
2025	9	11	15	40	25

As is shown in Table 15, whereas EKI conducts consulting and training seminars for private sector enterprises, it also conducts consulting for public corporations and government agencies. Deficiencies in revenue are made up with allocations from the national government budget.

The budget for operations has been indicated for the next 10 years up to 2025. The two activities targeting private sector enterprises are expected to account for 10% of revenue in 2020 and 20% in 2025. The revenue from training (including seminars) is expected to increase rapidly in 2018, when the EKI complex will be completed, and it is expected to account for 11% as opposed to 9% from consulting in 2025¹¹. It is forecast that revenue from state-owned enterprises such as the sugar manufacturing enterprise will account for 5% in five years and 15% in 10 years.

EKI operating costs are currently covered by the government budget allocation, but it is intended to reduce the degree of dependence on the government budget to 70% in 2020 and 25% in 2025.

(2) Adopt an organization that allows consulting fees to be returned to employees according to their job performance

The matters discussed in this section are as follows: ① The level of consulting fees, ② The ratio of consulting fees returned to employees, and ③ The method for determining the amount returned to each employee.

① Level of consulting fees

Consulting fees are broadly divided into seminar fees and Kaizen consultant fees. Table 16 shows one possible plan. The fees here are set with the aim of not recovering all the costs needed for Kaizen but around 40—50% of the cost.

¹¹ In JPC, when it has 100 business income from trainings, consulting business revenue is about 50.

Table 16 Plan of Consulting Fees (for LMEs)

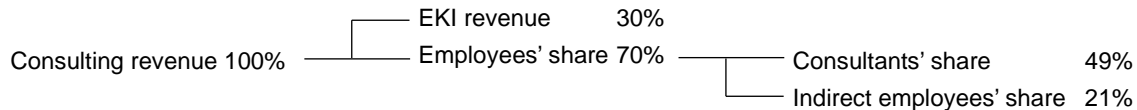
Type of Work	Place	Unit Rate	
Seminar	Training venue	300 Birr/half-day/person, 600 Birr/day/person	
	Enterprise	500 Birr/ half-day, 1,000 Birr/day	Cost of travel to the enterprise
Kaizen consulting	Enterprise	1,000 Birr/team/day	Cost of travel to the enterprise

② Ratio of consulting fees returned to employees

The ratio of consulting fees returned to employees shall be 70%. Employees include consultants and indirect staff, and 50% shall be paid to the consultants and 20% to the indirect staff (proposal).

③ Method for determining the amount returned to each employee

As the method for returning fees to consultants, one way is to calculate the amount according to the degree of contribution of each individual. Alternatively, 35% could be paid according to individual contribution, and the remainder could be distributed evenly over the whole consulting department, for example, in proportion to the amount of salaries. A third pattern is to determine the amount for each employee by dividing the amount allocated to the entire consulting department in proportion to each salary, without assessing the individual contribution of each employee.



	Plan 1	Plan 2	Plan 3
Individual share	0%	35%	49%
Common share*	49%	14%	0%

* The common share is allocated in proportion to salaries.

Figure 7 Examples of Gainsharing

6-1-4. Policies to Support EKI as a New Organization

Since EKI cannot be financially autonomous on consulting fees alone, the following measure is planned.

- Apportion a certain amount of the EKI operating costs from the MPSHRD budget.

Similar to EDRI, EKI obtains revenue from consulting, however, this isn't enough to cover its operating costs¹². On the other hand, if it were attempted to cover all operating costs through consulting fees, the fees would become too expensive for any enterprises to become clients. In this

¹² It is not possible to cover all of EKI's operating costs from consulting fees alone because the consulting market in Ethiopia is not developed enough; moreover, raising dependence on consulting fees would lead to higher fees, meaning that only enterprises that have enough strength to pay such fees would become clients. As a result, it is possible that the total accounting autonomy of EKI would not coincide with the GTP2 goal of strengthening strategic industries.

case, there is a risk of a mismatch arising between the sectors that want to grow through GTP2 and the enterprises that want to receive consulting.

In the case where enterprises have been selected based on set criteria consign EKI or official Kaizen consultants to implement Kaizen training and consulting, the MoI pays a certain amount to these enterprises as a Kaizen promotion subsidy. Not only does such a system increase revenue opportunities for EKI, but it can be linked to the policy of disseminating Kaizen through the provision of Kaizen promotion subsidies by the MoI to enterprises. The following figure illustrates the scheme.

The scheme mainly comprises eight steps, and the ones that should be examined from the policy viewpoint are as follows.

Selection of enterprises that can receive Kaizen consulting: Enterprises in GTP2 priority sectors or the manufacturing sector, exporting enterprises or import substitution enterprises, enterprises that are deemed will produce a Kaizen effect in the preliminary diagnosis, and so on. Selection criteria can otherwise be set according to policy, for example, gender enterprises, labor-intensive enterprises and so forth.

Kaizen consulting contract: This is signed between the client enterprise and EKI, and the consulting fee is decided based on the standard price table (Table 16 Consulting Fees). Part of the fee (for example, 30%) will be paid by the client enterprise, with the remainder coming from the Kaizen promotion fund (paid by MoI to EKI)¹³. Figure 8 illustrates the scheme. Incidentally, certified consultants in the Figure 8 refer to consultants who have worked for at least 15 years in EKI and have passed the requisite qualification certification examination¹⁴. Certified consultants can sign consulting contracts with client enterprises from the same standpoint as subcontracted consultants or EKI.

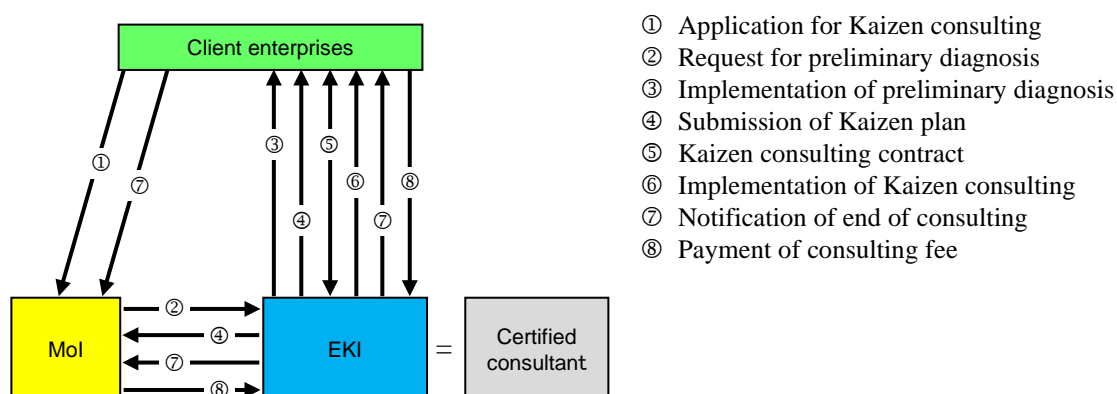


Figure 8 Kaizen Promotion Subsidy

¹³ Since there is opportunity for malfeasance if the flow of Kaizen promotion subsidies is MoPSHRD → Enterprises→EKI (certified consultants), it has been set as MoPSHRD →EKI.

¹⁴ In doing this, EKI consultants who serve for 15 years or more receive benefits, so an incentive to stay employed for the long term is provided.

6-1-5. Reform Steps

It will be difficult to revise the EKI proclamation in a short time; it may not even be possible to do it over the long term either. Since EKI is currently attracting attention for its activities, it can be said that the time is right for revising the basic law with a view to EKI's long-term future.

In revising the proclamation, the following steps and tasks will be required.

- ① Survey of the proclamation revision procedure
- ② Survey of proclamation revision cases
- ③ Confirmation of the wishes of stakeholders concerning revision of the EKI organization
- ④ Formation of consensus among stakeholders concerning revision of the organization
- ⑤ Revision of the proclamation
- ⑥ Decision of the detailed method of operation of the new organization of EKI

Necessary Experience and Knowledge for Advancing Reform

Out of the above steps, the ones that require priority handling are ①-④. The necessary human resources, experts and division of labor in each step are as follows.

Table 17 Division of Duties in Reform of the EKI Organization

Step	EKI	JET	Diet	Other
① Survey of the proclamation revision procedure	✓	✓	✓	
② Survey of proclamation revision cases	✓			
③ Confirmation of the wishes of stakeholders	✓	✓		
④ Formation of consensus among stakeholders	✓	✓		

6-2. Standardization and Modeling of Kaizen Services

The standardization and modeling of Kaizen services is a prerequisite for the effective and efficient implementation of Kaizen activities by EKI staff. Kaizen services are the intangible products retailed by EKI, and they comprise numerous categories. Since current Kaizen dissemination activities do not take these differences into account, there is still room for improvement in terms of making effective use of the consultants who are dispatched to clients.

6-2-1. Classification of Kaizen Services

Kaizen services can be categorized as shown in Table 18 according to the mode of service and target issues and sectors. Mode here refers to the means of providing services and can be divided into the four main types shown in Figure 9.

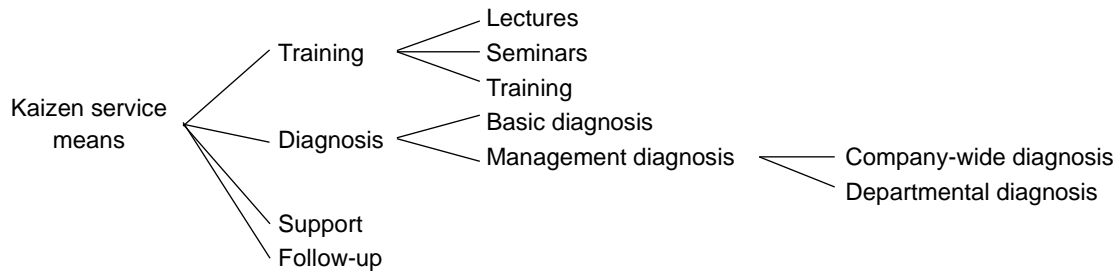


Figure 9 Categories of Kaizen Services by Mode

Training here has broad meaning ranging from the teaching of Kaizen technologies, etc. to trainees assembled in a lecture hall, to the teaching of Kaizen technologies and mastering of skills on the job. Training is separated into three types, namely lectures, seminars and training, based on the five criteria indicated in Table 18, however, these criteria are comparative rather than absolute.

Table 18 Training Classification Criteria

Criteria	Lecture	Seminar	Training
1. Implementation time	Short	Slightly long ~Long	Slightly long ~Long
2. Participants segment	Wide segment	Relatively narrow segment	Narrow segment
3. Number of participants	Generally, a lot	Rather few	Few
4. Conveyed contents	Topics	Knowledge	Technology and skills
5. Two-way communication	Mostly one-way	Some two-way	Two-way

Diagnosis entails the steps of investigating the current conditions of an enterprise, identifying problems, finding the root causes of the said problems, compiling countermeasures into a report, and presenting the report. Moreover, diagnosis can be implemented as a basic diagnosis for generally grasping the overall picture in a short time, and full-scale diagnosis, which can be implemented as a company-wide diagnosis or departmental diagnosis according to the target. Basic diagnoses are often implemented prior to the full-scale diagnosis or “support” that is described later. In diagnoses, the client often receives hearings, however, in the next support stage, the staff on the client side also participate in each phase of problem solving.

In support, the consultant team and client side team (for example, KPT) form a project team for resolving specific problems in the enterprise through analyzing current conditions, analyzing the causes of problems, planning countermeasures, implementing the countermeasures, evaluating results, and advancing the procedure for standardization Kaizen. Support usually lasts longer than diagnosis, however, since participants on the side of the enterprise are also able to learn Kaizen technologies, capacity building is realized in the enterprise.

Follow-up entails offering appropriate advice on the difficulties that enterprises encounter when implementing measures following the diagnosis, and checking that the Kaizen methods introduced in the support activity are being sustained following completion of the project. Compared to the diagnosis

and support stages, the frequency of enterprise visits and number of consultant man-hours fall sharply in the follow-up stage.

As is shown in Table 19, the Kaizen services categorized above can be even more finely divided according to the Kaizen goal, Kaizen method and Kaizen sector on the vertical axis. These vertical axis classifications were selected as the Kaizen goal, Kaizen method and Kaizen sector as expressed in QPCD. In terms of the Kaizen method, highly versatile basic methods have been raised, while advanced Kaizen methods have been omitted since there are fewer needs for them than basic methods. In terms of Kaizen sector, since Kaizen is intrinsically a cross-sector technology not tied to any particular sectors, the various individual sectors are not raised here but rather government agencies and public services have been raised since it is likely that needs will increase in these sectors in future.

In the table, a four-stage evaluation is conducted according to the frequency of combinations. Standardization of Kaizen services need only be done in those services that have frequent combinations.

Table 19 Standardization and Modeling of Kaizen Services

		Lecture	Seminar	Training	Basic diagnosis	Full-scale diagnosis		Support	Follow - up
						Company - wide	Dept'al		
Kaizen goal-separate	Entire plant	◎	◎	○	◎	◎	◎	◎	○
	Quality	◎	◎	○	○	□	□	◎	○
	Productivity	◎	◎	○	○	□	□	◎	□
	Cost	○	○	□	□	□		□	
	Delivery time	○	○	□	□	□		□	□
Kaizen method-separate	Basics	◎	◎	○	□	□		○	□
	5S	◎	◎	□		□		□	□
	MUDA elimination	◎	◎	□		□		□	□
	Layout	○	○	□		□		□	
Kaizen sector-separate	Government agencies	◎	○	□	□		□	□	
	Hospitals	○	□	□	□		□		
	School	○	□	□	□				
	Public services	○	□	□	□	□		□	

◎: Common combination; ○: Sometimes combined; □: Unusual combination

No notation: Combination hardly ever seen

The frequency of combinations is based on Sugimoto's experience and also partially forecast.

6-2-2. Features of Kaizen Services

As shown in the above table, there are various types of Kaizen services. Since the type-separate features are clearly expressed in the Kaizen services shown on the horizontal axis, the following table shows the features of mode-separate Kaizen services in the training, diagnosis, support and follow-up modes while comparing each in terms of the contract period, composition of members and frequent of company visits.

Table 20 Features of Mode-separate Kaizen Services

		Contract Period	Composition of Members	Frequency of Company Visits
Training	Lecture	Short (days or hours)	1 or a few members	In cases of in-company training, it is often conducted continuously once a week or twice a month.
	Seminar	Slightly short	1 or a few members	
	Training	Slightly long	A few members or more	
Basic diagnosis		Short (1 or more days)	1 or a few members	A few consecutive days
Full-scale diagnosis		Months	A few to 5 members	Up to 3 months with a high visit frequency
Support		Few months	A few to 5 members	Around 1 month as needed. At first a lot of people attend with high frequency, but numbers and frequency gradually drop off.
Follow-up		6 months~1 year	1 member	From once every few months to once per month

* The above contents have been compiled from examples by Japanese consulting agencies.

6-2-3. Differences between EKI's Kaizen Services and Consulting Standard

When EKI staff conduct training, it coincides with the features indicated in the above table, however, there are problems regarding diagnosis, support and follow-up. This is due to the fact that EKI consultants are not clearly recognized by management. EKI Kaizen dissemination activities follow the same procedures that were adopted in ICT for LMEs in the previous project. However, ICT is a program geared to nurturing consultants, and it must be kept separate from a program in which EKI conducts Kaizen dissemination activities.

With the standard to say by the standardization of the Kaizen service, we include both “standard of the Kaizen service” and “standard Kaizen service”¹⁵. “The standard of the Kaizen service” here means the standard input of human resources necessary to perform Kaizen service. And “the standard Kaizen service” points to the teaching and materials manuals when Kaizen serves it.

In terms of this point, review of EKI's Kaizen dissemination activities reveals the need to effect the following kind of improvements.

- ① Clarify the types and aims of Kaizen dissemination activities.
- ② Compile work standards corresponding to the types of activities.
- ③ Determine man-hour unit rates according to the rank of assigned consultants.
- ④ Calculate the consulting fees upon taking the consultant costs into account.
- ⑤ Concerning Kaizen services with high frequency, take time to build a store of teaching materials and prepare standards.

Table 21 shows the example of a work standard that combines activities ② to ④ into one.

¹⁵ This corresponds to “work standard” and “standard work” in work management. In other words, “work standard” is something that defines the work methods and conditions, while “standard work” defines the way of doing the work.

Table 21 Work Standard of Mode-separate Kaizen Activities

Mode of Kaizen	Support	Consultant qualification	No. of staff	Person /day	Unit rate (Birr/MD)	Price (Birr)
Contract period	6 months	Consulting manager	1	6	100	600
Consultants	Total 4	Lead consultant	1	12	70	840
	Total 48 days	Senior consultant	1	15	60	900
Company visit frequency	2 times/month	Consultant			50	
Conditions for application of work stand		Assistant consultant	1	15	40	600
① The client plant has no more than 300 employees.		Junior consultant			30	
		Total	4	15		2,940
② 5S are implemented to a certain extends.		Travel expenses ①		15 times	200 Birr	3,000
③ There are no more than 3 Kaizen issues.		Accommodation daily allowance ②		24 nights	150 Birr	3,000
④ Data concerning the Kaizen issues has already been gathered.		Admi. exp. (Total+①+②)×10%				894
		Grand total				9,834

6-3. Flexible Team Building Program based on the Right People in the Right Places

6-3-1. Current Issues in the Organization

(1) It is difficult to assign consultants to appropriate places and to respond to changes

The organization of EKI can be divided into two types depending on the connection with clients. The departments that provide Kaizen services (consulting, lectures and training) to client enterprises and trainees come into direct contact with clients and may be called direct departments, while other departments provide the necessary services to the direct departments in order to facilitate their work. Since such departments do not actually come into contact with clients, they are referred to as indirect departments. Here, the formation of direct department organizations is discussed¹⁶.

EKI's direct departments are divided into the Kaizen Consulting (Manufacturing) Department and Human Resources Development (Capacity Building) Department. The Kaizen consulting department is further divided into industrial sector-separate directorates. The Capacity Building Department is divided according to the targets of training (see Figure 10).

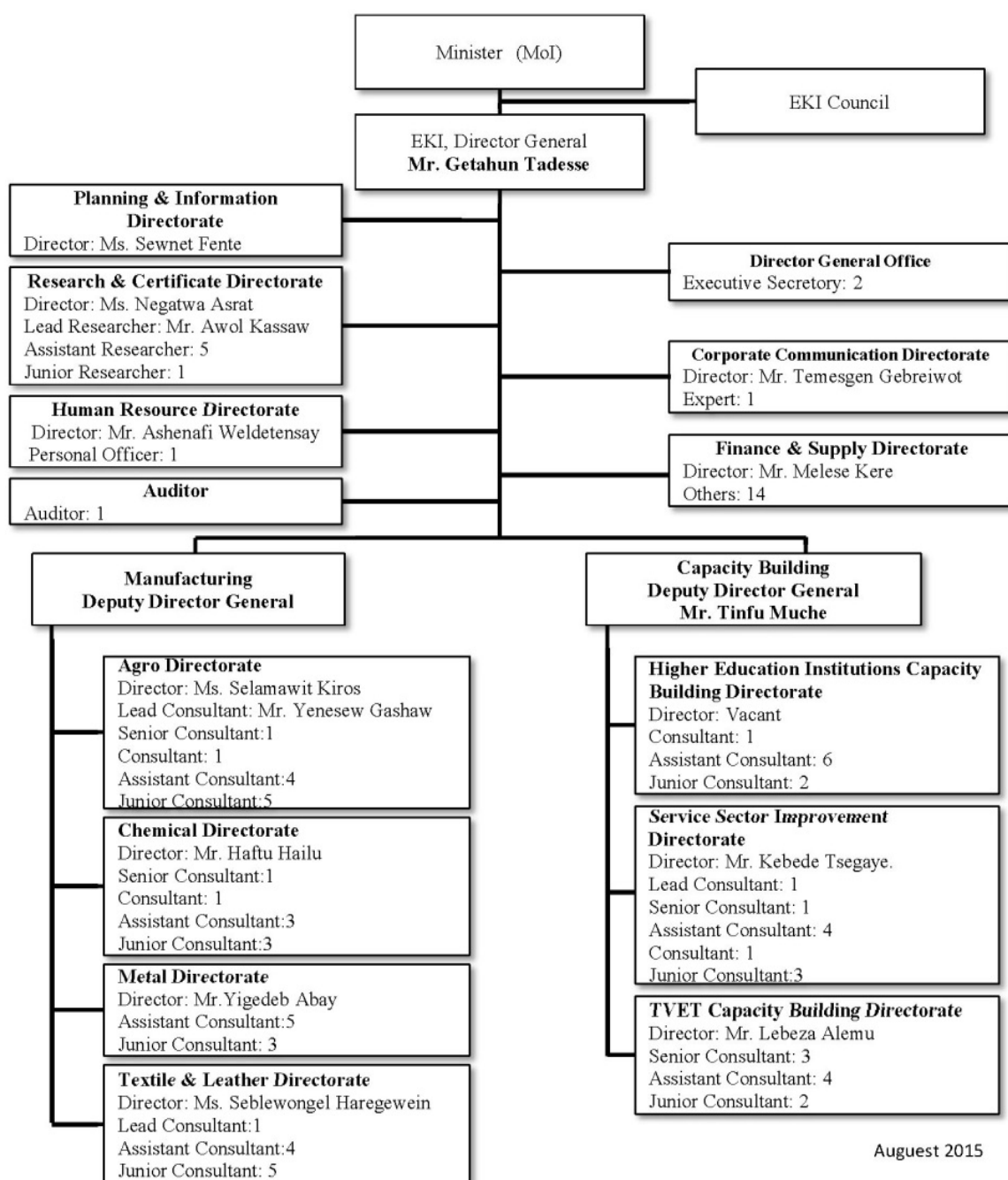
This approach to dividing direct departments may at first glance appear rational, however, it is very different from organization in general consulting firms.

Speaking from the conclusion, direct departments in general consulting firms are basically organized around project teams¹⁷. On the other hand, direct departments in EKI are divided

¹⁶ When we classify it in this way, approximately a one-third of the staff belongs to the indirect section of EKI. This ratio is considerably bigger than approximately 10% of JPC.

¹⁷ Consultant firms that wish to conduct technical projects or development studies for JICA first organize project teams before applying. It is common for the members of the project teams to differ according to the contents of the project.

according to the type of service (consulting and seminars) and, moreover, according to the client and industrial sectors. This hinders the flexible movement of people between the consulting department and seminar department and the flexible formation of teams by assigning consultants to appropriate positions between sectors within the consulting department. Moreover, two (or three) out of six departments do not change the people assigned to positions according to the client. This runs counter to the intended purpose of having consultants learn a lot of jobs in order to gain wide experience. When staff remain in the same positions in the same departments for too long, their work capacity is not broadened and morale is adversely affected.



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Figure 10 Organization of EKI

(2) Kaizen Technologies Traversing Industrial Sectors

The problem of barriers between industrial sectors in the consulting department can be explained in terms of the attributes of Kaizen technologies.

Kaizen can be based on management technologies or specific technologies. The case of improving productivity so that an operator who previously worked on one lathe is now able to operate two machines based on multiple-activity analysis is an example of Kaizen using the management technology of multiple-activity analysis, which is an IE technique. On the other hand, the case of improving productivity through changing the byte material and thereby increasing the lathe operating speed is an example of Kaizen based on the specific technology of changing the byte material. Whereas Kaizen technology based on management technology can be used across sectors, Kaizen technology based on specific technology is specific to certain sectors only (refer to Figure 11).

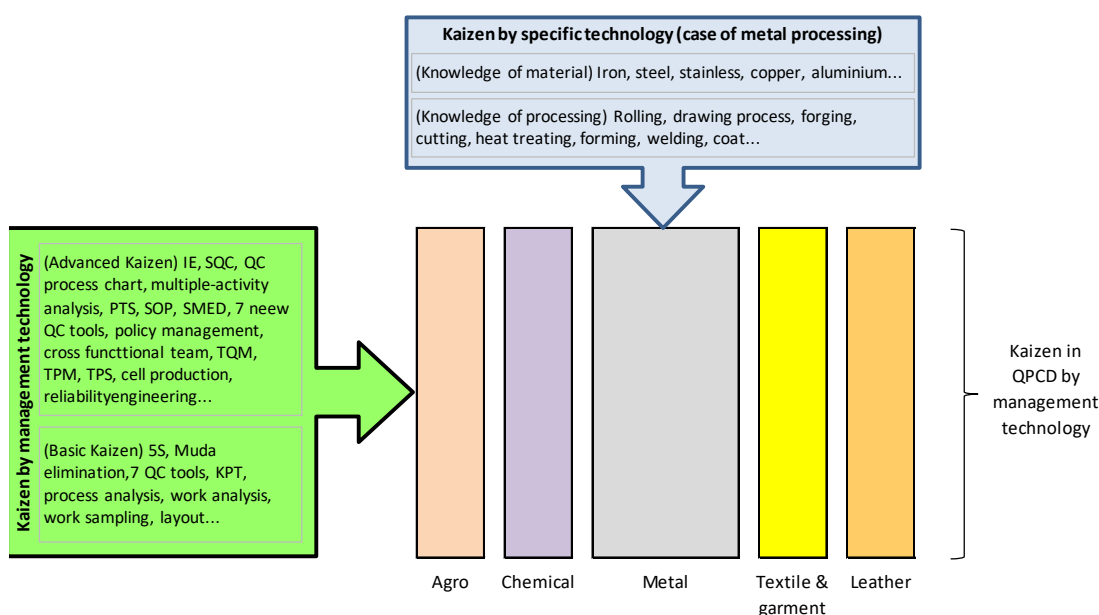


Figure 11 Kaizen by management technology and Kaizen by specific technology

Since the Kaizen consulting conducted by EKI is mainly concerned with management technology, the current organization of sector-separate consulting departments has little significance. In addition, MoI has industrial research institutes. EKI of which the parent ministry has been changed has to focus on the management technology in order to avoid duplication or competition of work derived from the use of specific technologies.

Of course, when management technology is used for Kaizen in reality, the method of application will differ according to the industrial sector. This can be visually expressed as shown in the following figure. Generally speaking, the greater the share of specific technology in Kaizen, often the simple application of management technology alone does not work well. For example,

compared to the general manufacturing industry as shown below, when the management technology of TPM is applied to process industries such as sugar manufacturing and cement manufacturing, it is very different from that used in the general manufacturing industry. As the role of specific technology in Kaizen increases, the method of application becomes important when management technology is used. A sector-separate consulting organization becomes necessary in such sectors where specific technology plays a major role in Kaizen. In other words, in sectors where the role of specific technology in Kaizen is small, there is no need to form sector-separate organizations.

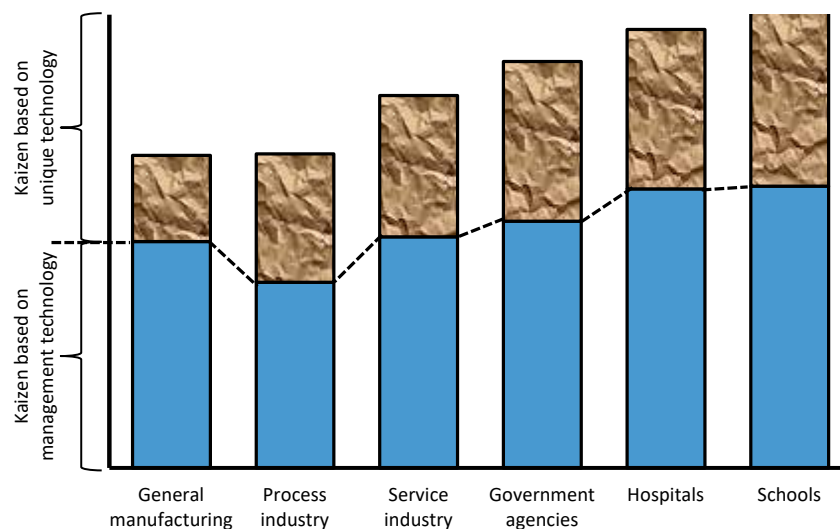


Figure 12 Ratios of Specific Technology Kaizen and Management Technology Kaizen by Industry

If the EKI consulting department were to be divided based on this viewpoint, it would suffice to have general manufacturing department, a process industry department, and a service industry department (the service industry could eventually be divided into government agencies, hospitals, and schools).

Major private consulting firms that use sector-separate organizations often have physical distribution enterprises as clients, or they have numerous clients in sectors such as banking and tourism where industry-specific know-how is essential for conducting consulting.

(3) From the Viewpoint of Developing Consultants that Specialize in Specific Fields

The ideal image of a Kaizen consultant based on the EKI mission and vision is a person who understands basic Kaizen and advanced Kaizen, possesses a specialist field of difficult Kaizen technology, and can act as a seminar lecturer as well as a consultant. In reality, however, consultants have strong points and weak points, for example, someone who is strong in quality Kaizen may be weak in productivity Kaizen; someone who can instruct on shortening delivery times may not be good at reducing costs; and someone who may be good at consulting may be a poor lecturer.

It is common for a team of consultants to be organized in order to deal with a client company. In such cases, the consultants are required to possess not just basic Kaizen knowledge and experience but also a high degree of expertise. It is necessary to build a highly flexible organization that is capable of organizing teams of consultants who possess expertise in different fields according to the needs of clients.

Figure 13 expresses the importance of making a team with consultants equipped with the reverse T-shaped abilities. The specialty degrees of each field of consultants from 1 to 4 are shown with a vertical axis, and it on the premise that there is as a field on quality (Q), productivity (P), cost (C) and delivery date (D) expressed. The left side shows the case that we assign staffs in a sector according to the industry, and the right side shows the case that organized a team in people having the expertise according to the function of QPCD. After having organized a team, we picture the ability as the team of the result that we made the allotment that we made use of each expertise in below. We understand that the team formation utilized the strength of each person is superior obviously.

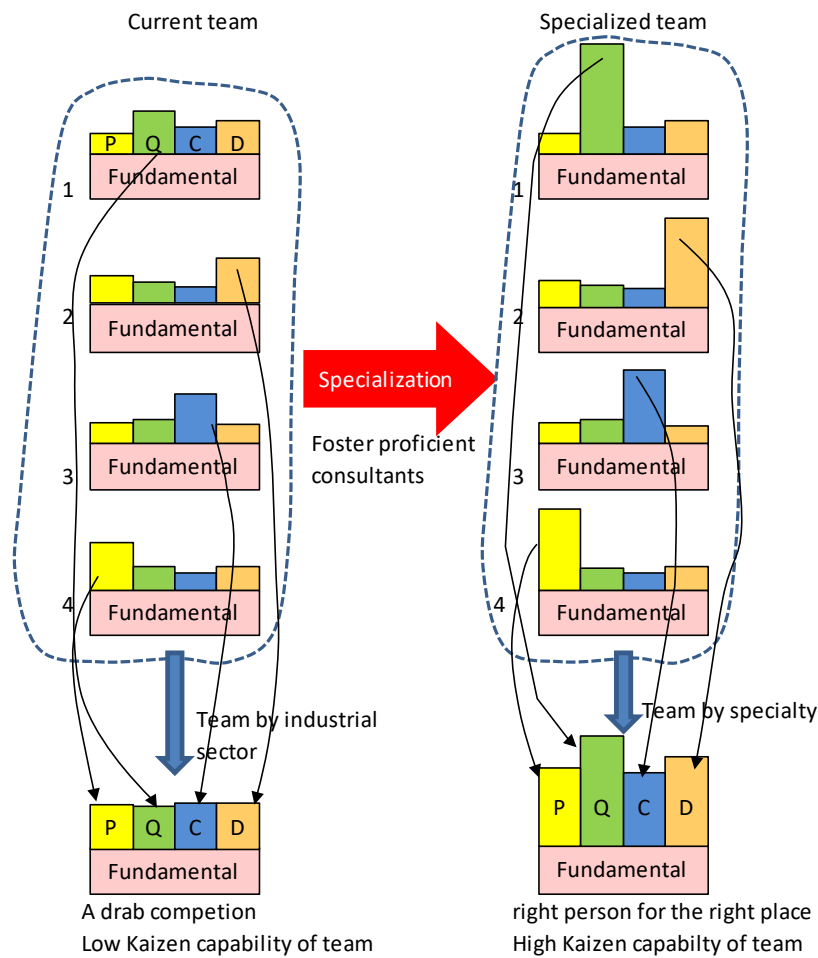


Figure 13 Team building by consultants with inverted T-shaped capability

Moreover, consultants can have more opportunities to advance research of sophisticated Kaizen technologies by becoming members of research groups that work on the Kaizen technologies they are interested in. This also encourages consultants to think about their own career planning.

The following table sums up the issues described above and indicates policies for advancing organizational reform.

Table 22 Policies for Improving Issues in Consulting and Seminar Implementing Organizations

Issues in Current Organization	Organizational Reform Policy
It is difficult to flexibly assign consultants according to changing needs.	Make it possible to flexibly assign consultants who can address the needs of clients (formation of project teams).
It is hard to put the right people in the right places.	Develop an organization where the right people are put in the right places.
It is difficult to develop consultants endowed with expertise.	Develop an organization that can provide not only basic and advanced Kaizen but also address high-level Kaizen needs.
It is hard for consultants to develop their own career plans.	Develop an organization that is conducive to the learning of new Kaizen technologies and self-improvement of Kaizen consulting capacity.

(4) Gap between the Target Number of Kaizen Enterprises and Current Situation

The number of enterprises where Kaizen consulting can be implemented is theoretically determined by the following five factors:

- Total number of consultants
- Number of consultants per team
- Cycle of visits to the same enterprise (weeks/time)
- Number of enterprise visit days per week (days)
- Consulting contract period (months)

Theoretical number of enterprises where consulting can be implemented =

$(\text{Total number of consultants} / \text{Number of consultants per team}) \times \text{Cycle of visits to the same enterprise} \times \text{Number of enterprise visit days per week} \times (12 / \text{Contract period})$

The above expression is sought based on the assumption that all consultants go on the visits in (c) as planned according to the principle of the right people in the right places. The following table shows the results of simulation based on a fixed total number of consultants (50) but variations in the elements of the number of consultants per team, the cycle of visits to the same enterprise, the number of enterprise visit days per week, and the consulting contract period.

Table 23 Simulation on the feasible number of client for consulting

① Total number of consultants	Person	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
② Number of consultants per team	Person/Team	3	3	3	3	3	3	5	5	5	5	5	5	10	10	10	10	10	10	3	3	3	3	3
③ Cycle of visits to the same enterprise	Week/Cycle	1	1	1	2	2	2	1	1	1	2	2	2	1	1	1	2	2	2	5	5	5	5	2
④ Number of enterprise visit days per week	Day/week	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	2
⑤ Consulting contract period	Month	6	6	6	6	6	6	4	4	4	4	4	4	12	12	12	12	12	12	12	12	12	12	12
Number of enterprises	Company	64	96	128	128	192	256	60	90	120	120	180	240	10	15	20	20	30	40	167	250	333	67	67

* In the case of 3 persons/ team, number of team is 16 teams rounding off a fraction.

Under the EKI approach to Kaizen consultants, the number of enterprises that can receive guidance is only 20~30 or so, which is nowhere near enough to realize the Kaizen dissemination target. In order to increase the number of enterprises able to receive Kaizen guidance, it is necessary to reduce the number of consultants per team, reduce the number of enterprise visit days per week (for example, visiting enterprises once every two weeks instead of once per week), or shorten the consulting contract period. For example, if there are three consultants per team, enterprises are visited once per week, and the consulting contract period is six months, it will be possible to visit 128 enterprises for consulting per year.

It is necessary to improve the efficiency of consulting and increase the number of clients through the following kind of measures: Development of consultants with areas of expertise → Formation of small teams of highly skilled consultants having expertise in specific areas → Standardization of consulting advancement methods (determining the cycle of enterprise visits, setting of the ratio of standard enterprise visit days, setting of the consulting contract period based on Kaizen issues).

6-3-2. Organizational Reform Plans

Organizational reform can be briefly described as follows.

- ① The consultants not including the consulting manager (CM) belong to the Kaizen Research Department.
- ② For CM skilled consultants who not only are familiar with multi-Kaizen technologies, for example, IE and quality control, but also are conversant with at least one industrial sector and project management.
- ③ The Kaizen Research Department has a TQM Research Group, Productivity Research Group and other research groups for researching Kaizen technologies according to the objective, and all the consultants apart from the CM belong to one such group.
- ④ Kaizen consulting at a client may be regarded as a type of project because it entails achieving set objectives over a set period. Before the contract is signed with the client, the CM in the

consulting department is made the project manager who determines the necessary number of consultants and skill sets they need in order to fulfill the contract and appoints the specific consultants in discussion with the head of the consulting department, head of the research department, and responsible persons in the related research groups. The following points are taken into consideration when appointing consultants.

- Is there a sufficient number of consultants who are endowed with the skills needed to fulfill the contract?
 - If consultants are working on other projects, are they not overloaded or faced with impossible time constraints?
 - Are opportunities for OJT provided through allowing a certain number of new consultants and consultants with lower skills to work as assistants to project members?
- ⑤ Similarly, when consultants serve as lecturers at training sessions, seminars and conventions, the manager of the appropriate section in the training department estimates the required skills and number of consultants and appoints the specific consultants in discussion with the head of the training department, head of the research department, and responsible persons in the related research groups. If the CM is considered as a lecturer, the head of the consulting department will also join the discussions.
- ⑥ The research department fulfills the role of a human resources dispatch agency in assigning consultants to the consulting department and seminar department.

Figure 14 shows the organization chart of direct department as above mentioned.

In addition, in the case of simpler organization EKI does not establish research department and creates seminar department and consulting department which has research function.

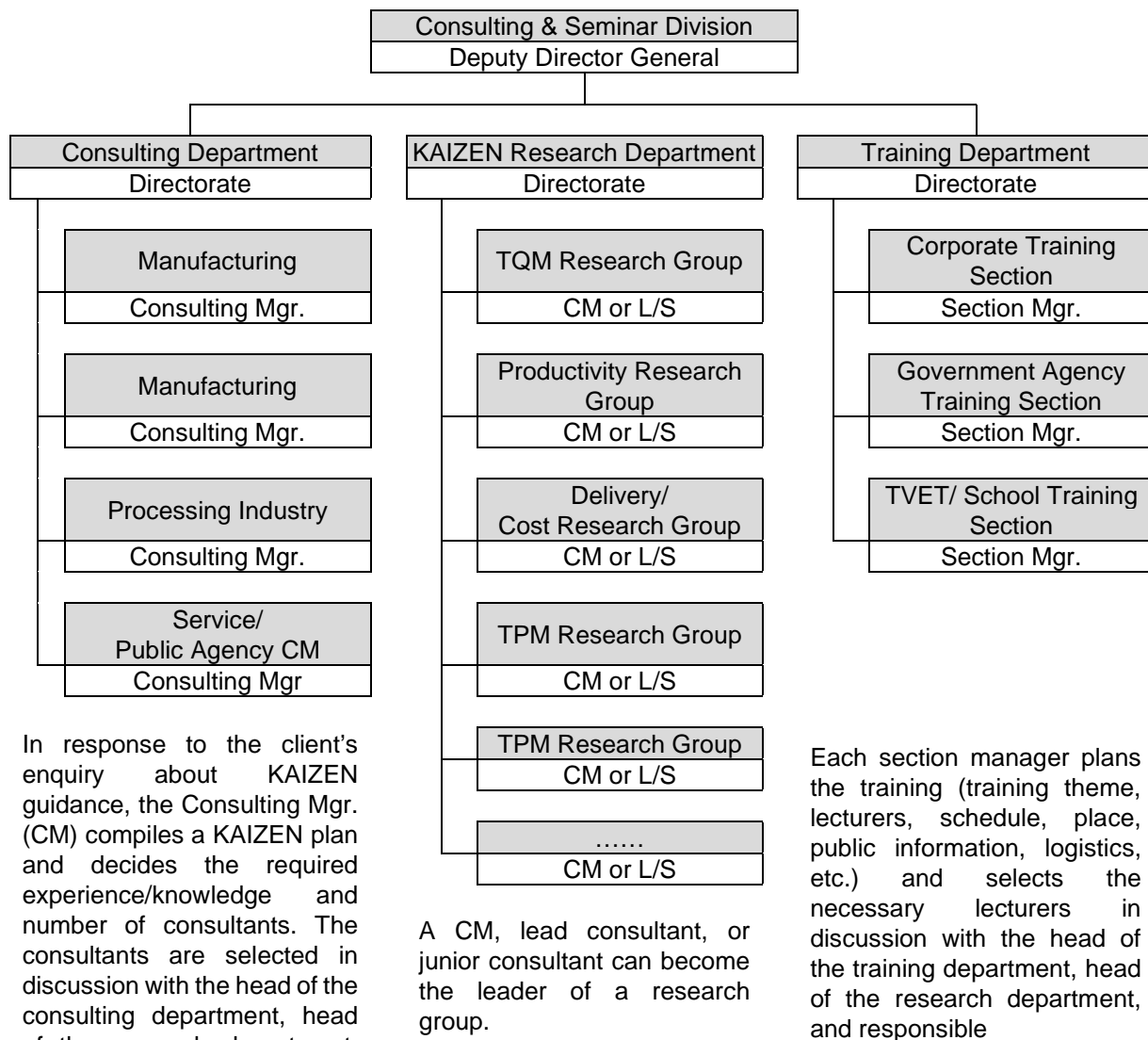


Figure 14 Improvement Plan for the EKI Consulting and Seminar Implementation Organization

Figure 15 shows consultant teams organized according to this method. Team A, which is organized in order to consult for Client Company A has Consulting Manager 1 of the consulting department as the team leader, while the team members comprise consultants C2 and C5 from the research department TQM research group, consultant C9 from the productivity research group, and consultant C13 from the TPM research group. Even though C13 is in charge of his research group, this shows that such a consultant can still become a team member. Team B, which is organized for Company B, comprises one consultant each from the TQM research group, productivity research group, and TPM research group. Moreover, one consultant each is assigned from these three research groups to serve as lecturers in the Kaizen 5-day course seminars. The teams are organized in a cross-functional manner geared to exploiting the expertise of each member.

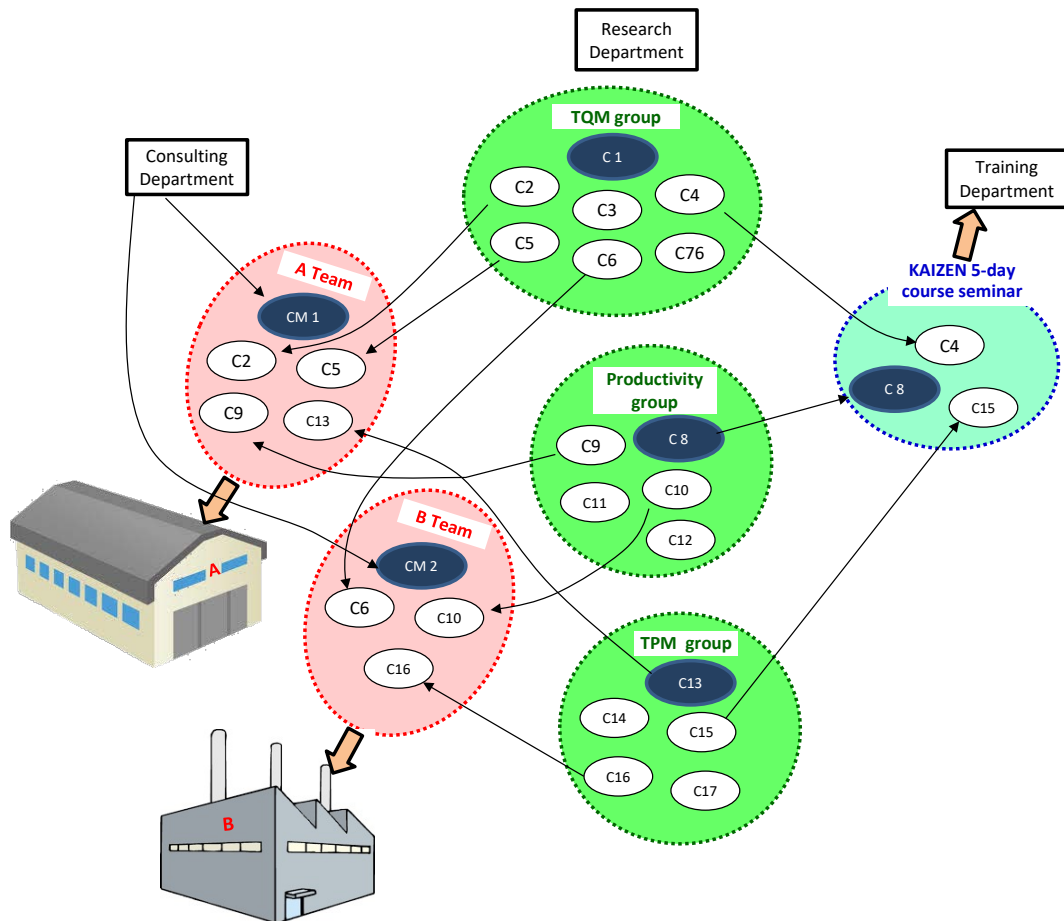


Figure 15 Consultant Team Formation Diagram

6-3-3. Department Functions and Division of Duties of Officers based on the New Organization Plan

Assuming the organizational reform plan proposed in Figure 14, the following table summarizes the functions of each department and division of duties of each officer.

Table 24 Department Functions and Division of Duties of Officers based on the New Organization Plan

Function		Consulting Dept.	Research Dept.	Seminar Dept.
		<ol style="list-style-type: none"> 1) Uncover clients so that EKI can realize its Kaizen dissemination objectives. 2) Coordinate the number of clients and consultants to ensure that the operating rate of consultants is sustained at an appropriate level. 3) Organize consultant teams according to the Kaizen needs of clients, and support problem solving and achievement of initial results in clients via the teams. 	<ol style="list-style-type: none"> 1) Accumulate good practices derived from Kaizen support, and make them available for the consultants to utilize. 2) Collect and research new Kaizen technologies, try them out for practical use, and provide opportunities for other consultants to acquire the useful technologies via the research groups. 3) Nurture and secure the skills and numbers of consultants corresponding to the needs of the consulting department and seminar department. 	<ol style="list-style-type: none"> 1) Uncover trainees so that EKI can realize its Kaizen dissemination objectives. 2) Grasp the Kaizen needs of industry, etc., and plan and implement seminars with a view to enhancing Kaizen recognition and interest. 3) Actualize potential enterprises with a view to uncovering new clients.
Division of Duties	Dept. Mgr.	<ol style="list-style-type: none"> 1) Uncover clients in cooperation with the Seminar Department. 2) Support the C Mgr. to ensure that Kaizen projects progress according to plan. 	<ol style="list-style-type: none"> 1) Nurture and secure consultants with the necessary quality and in the necessary numbers. 2) Introduce Kaizen technologies and adapt them to conditions in Ethiopia. 3) Impart stimuli to the Kaizen technology research efforts of each research group. 4) Make sure that certain people are not overloaded with assignments. 5) Pay attention to overseas new technologies, and research those that have potential. 	<ol style="list-style-type: none"> 1) Achieve the EKI targets for the number of seminar trainees. 2) Cooperate with the consulting department manager in implementing seminars so that the target number of EKI consulting projects is achieved. 3) Establish the seminar structure and implement all the seminar contents at least once by the time the EKI complex starts service.
	Positions below the Dept. Mgr.	C Mgr.	Research Group Leader	Responsible Section Managers
		<ol style="list-style-type: none"> 1) Compile the Kaizen consulting plan, seek the necessary expertise, skills and numbers of consultants, and secure the consultants while discussing with superiors, the research department manager and research group leaders. 2) List the necessary activities for Kaizen and determine the division of duties and schedule. 3) If there are unique conditions in the industry, convey them to the consultants and provide guidance. 4) Nurture new recruits, assistants and junior consultants via OJT. 5) Achieve the consulting objectives. 	<ol style="list-style-type: none"> 1) Decide research themes and schedules for the Kaizen technologies under one's charge. 2) Enhance the technical capacity of members via technical research. 3) Collect and analyze good practices related to Kaizen technologies, compile them into materials, and make them available for any consultant to use. 4) Utilize opportunities to present new Kaizen technologies acquired by members at universities or overseas in order to pass them on to colleagues. 	<ol style="list-style-type: none"> 1) Achieve the broken down targets for seminar trainees. 2) Plan effective seminars for the target clients in each section. 3) Conduct the necessary logistics (venues, materials, break-time snacks, arrangement of lecturers, etc.) for implementation of seminars. 4) Analyze the seminar questionnaires and reflect findings in future seminars.

6-3-4. Comparison of the Current Organization with the New Organization

Compared to the current organization of direct departments in EKI, the Kaizen plan may at first glance appear like a complicated organization, however, the current organization is too rigid to allow the right people to be put in the right places, and it does not foster consultants with outstanding expertise. In contrast, because the reform proposal offers diverse OJT opportunities to even inexperienced consultants through its method of team formation, it is advantageous in terms of developing consultants, even though it cannot thoroughly realize the placement of the right people in the right places. The following table summarizes the merits and demerits of both organizations in terms of five viewpoints.

Table 25 Merits and Demerits of the Existing System and New System

Viewpoint	New Organization	Existing Organization	Remarks
Quality of provided Kaizen services	Good	Poor	Merits and demerits may be reversed in sectors where specific technology accounts for a large part of Kaizen.
Assignment of consultants to right places	Good	Poor	In the new organization, work tends to concentrate around the capable consultants.
Quality and quantity of OJT opportunities	Good	Poor	There is a risk that merits and demerits may be reversed in cases where efficiency is emphasized more than human resources development.
Nurturing of sophisticated expertise	Good	Poor	The advantage of the new organization depends on the leadership of research group leaders.
Effort in forming consultant teams	Poor	Good	In the new organization, it is necessary to select and coordinate members for each project.

6-4. Kaizen Proclamation Program

6-4-1. Background

Kaizen is continuous activity geared to improving quality and productivity, and measures such as establishment of a Kaizen Month, staging of a Kaizen awards ceremony, and organized promotion of Kaizen by the KPT are conducted in order to ensure the continuation of Kaizen.

Through staging various Kaizen events during the Kaizen Month of September, it is intended to turn the attention of business circles and society to Kaizen and periodically stimulate awareness of the importance of Kaizen. The awarding of Kaizen prizes to enterprises that have made great achievements in the field aims to promote recognition and give approval of the enterprises concerned and stimulate interest in Kaizen in industrial circles through displaying role models for other enterprises. Whereas these two activities target enterprises, KPT aims to organize people who work on the frontline of workplaces into small groups and realize the continuity of Kaizen activities within organizations. In order to ensure the autonomous continuation of Kaizen, it is essential to have the ongoing participation of stakeholders and especially employees.

However, in order to ensure the continued participation of employees, in addition to organization, it is also necessary for the gains of Kaizen (higher profits, reduced costs, improved conformity rates, earlier

deliveries, etc.) to be shared among employees. Rather than deciding the method of sharing based on the unilateral judgment of the company, the sure execution of Kaizen can be guaranteed through having the enterprise, employees' representatives, and EKI (acting as a contract witness) agree on a "Kaizen proclamation." Doing so stops the enterprise from arbitrarily manipulating achievements and cancelling shares by the enterprise, while having the national agency of EKI act as a contract witness endorsing the reliability of the proclamation, thereby enhancing interest in Kaizen among employees and encouraging more enthusiastic participation.

Profit sharing based on Kaizen proclamation is implemented while referring to the types of systems that were adopted by numerous American enterprises around the 1950s, for example, the special bonus distribution system, the Rucker plan¹⁸ or the Scanlon plan¹⁹. Such plans focus on the fact that ratios of personnel expenses/added value and personnel expenses/sales are stable over the long term and aim to apportion a certain ratio of added value or sales to labor costs. Since labor costs increase in proportion to added value or sales, not only do they enhance the morale of employees, but they also intend to realize further labor-management cooperation through satisfying self-actualization needs via employees' participation in management.

6-4-2. Kaizen proclamation

The following figure illustrates the mechanism of Kaizen proclamation.

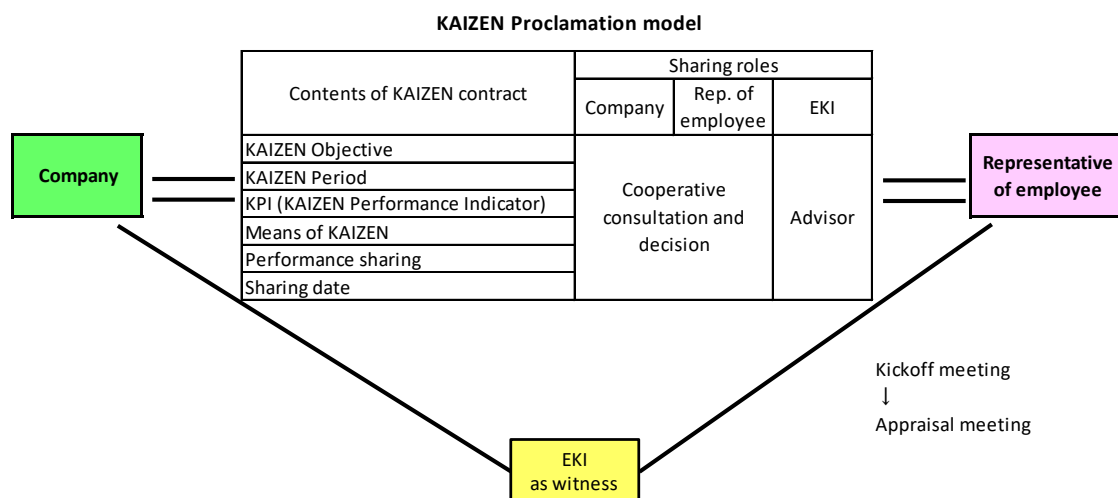


Figure 16 Model of Kaizen declaration

¹⁸ Rucker Plan: A gainsharing system that was devised by the American consultant A.W. Rucker in 1932. The amount derived from multiplying added value by a labor share ratio based on past performance is deemed to be the total possible labor cost, and the difference between this and the labor cost that is actually paid is apportioned to employees as a special bonus separate from normal salary. Because it is clear that employees' share increases if added value increases, this plan increases the motivation of employees. It is adopted in numerous SMEs in Japan.

¹⁹ Scanlon Plan: This gainsharing system was proposed to management by J.S. Scanlon, who was branch leader of an iron and steel labor union. Based on monthly calculation of Bonus capital = Sales x Standard labor cost ratio – Actual paid salaries, 75% of the bonus capital is paid to employees, while 25% is put into a reserve fund for use when the bonus capital becomes negative. At the end of the year, 75% of the reserve fund balance is apportioned to the employees.

The important items in this model are described below.

Contract parties: The parties are the company and its employees, however, the proclamation is signed by the company owner and a representative of the employees. It is desirable to determine the employees' representative in a vote. The EKI representative signs the proclamation as a witness. In reality, the Kaizen objectives, etc. are discussed in a Kaizen committee composed of representatives from the management and employees' sides. Moreover, because Kaizen objectives differ between each workplace, committees should be formed to discuss Kaizen objectives, etc. in each workplace, and the Kaizen committee should consolidate these objectives into company-wide Kaizen objectives.

Contents of the Kaizen proclamation may include the following.

Kaizen objectives: Objectives are related to one out of QPCDSMEG (quality, productivity, cost, delivery, safety, morale, environment, gender). Objectives include those that can be expressed in money terms and those that can't. It is better to express objectives as financial amounts but it is not essential. For example, the objective of reducing work accidents can be expressed in money terms, however, since work accidents expressed in money terms tend to be indirect expressions that are difficult for employees to understand, it is better to express them as the number of incidents.

KPI (KAIZEN Performance Indicators): These indicators measure how far the Kaizen objectives are achieved. Indicators can either be quantal or qualitative.

Gainsharing: For example, gainsharing amounts are sought upon summing up the Kaizen objectives, KPI, gain amounts and share ratios as shown in the following table. The distribution amounts will vary according to differences in the degree of achievement of Kaizen gains in each department. In order to prevent such differences from becoming too large, 70% of the distribution amount is treated as the departmental share, while the remaining 30% is equally apportioned to employees as a company-wide share. This is just one example, but there are various other methods of sharing.

In addition, EKI is not only a witness of what labor and employers determined in consultation, but also to provide technical advices for Kaizen goals and the calculation method for determining the performance indicators and achievements allocations as a position of a third party. Therefore, EKI shall not participate to labor-management consultations and negotiations²⁰.

6-5. Kaizen Qualification Systems Program

6-5-1. Purpose

The aim here is to sustain the quality of Kaizen activities through accrediting employees of enterprises, TVET, EKI and government agencies with the capability of Kaizen promotion leaders, trainers,

²⁰ When EKI participate to labor-management consultation and negotiation, EKI not able to present as a responsible party.

consultants and so on. Since Ethiopia is a qualification-oriented society where emphasis is placed on which university a person has graduated from, what qualifications a person has, and what training a person has received, this program aims to exploit this strong desire for qualifications in order to improve the practical Kaizen implementation ability of individuals. This program will be prepared with a view to creating qualifications that apply not only to Ethiopia but to all countries in Africa.

(1) Expected types of qualifications and necessary knowledge and experience

Table 26 Expected types of qualifications and necessary knowledge and experience

Qualification or examination	Grade	Role of qualifications	Contents	Target	Seminar		Qualification test
				Organization	CRT	ICT	
Kaizen project manager	1	Seek to resolve one or more Kaizen issues in a project.	Concept of Kaizen, QC basics, IE basics, QCC, QC story, project management	Enterprises, administrative agencies, schools	✓	✓	Yes
Kaizen instructor	1	Be able to conduct training in problem solving using basic Kaizen technologies.	5S, elementary MUDA, layout change, IE basics, QC basics	Enterprises, administrative agencies, schools	✓	✓	Yes
KPT leader	1	As a KPT leader, be able to focus the ability of members on resolving problems.	7 tools of QC, QC story, elementary project management	Enterprises, administrative agencies, schools	✓		No
KPT facilitator	1	Be able to offer guidance on KPT organization forming and promoting in-company Kaizen contests.	KPT (QCC), QC story, project management	Enterprises, administrative agencies, schools	✓	✓	Yes
5S instructor	1	Be able to offer guidance on implementing 5S in all organizations of an enterprise.	Why Kaizen, method of advancing 5S, 5S planning, periodic checking method	Enterprises, administrative agencies, schools	✓		No
Government agency Kaizen instructor	1	Be able to offer guidance on Kaizen to government offices and extra-government agencies.	Why Kaizen, method of advancing 5S, 5S planning, KPT, QC story	Administrative agencies,	✓	✓	Yes
Hospital Kaizen instructor	1	Be able to offer guidance on applying manufacturing Kaizen technologies to hospitals.	Kaizen goals in hospitals, method of advancing 5S, KPT/cross-functional team operation, improvement of patient services	Hospitals	✓	✓	Yes
School Kaizen instructor	1	Be able to train teachers on implementing Kaizen in schools and conducting Kaizen education for students.	Concept of Kaizen, Kaizen basics (5S, MUDA elimination), 7 tools of QC, PDCA, QC thinking	Schools	✓	✓	Yes
Quality control examination	3	From the level of being able to implement basic management and improvement activities while receiving support, this is aimed at staff who can take the lead in solving quality issues in their own departments, and managers of departments concerned with quality (QC, QA, R&D, production, engineering).	Concept of quality, 7 tools of QC, QC viewpoint and thinking, how to advance management improvement, quality and process control, certification examination and estimation, correlation analysis, regression analysis, design of experiments, sampling inspection, reliability engineering, quality function deployment, statistical process control	Enterprises, students	✓		Yes
IE examination	3	This is aimed at human resources who understand IE thinking and the theory of Kaizen technologies and have the potential to apply it. Differences in the 3 levels are according to differences in IE technology.	Process analysis, multiple-activity analysis, motion study, PTS method, time study, operation analysis, work sampling method, standard time, plant layout and material handling, economic assessment, approach to improvement	Enterprises, students	✓		Yes
TPM examination	3	Understand TPM thinking and grasp the main points of maintenance activities in each stage from autonomous maintenance to preventive maintenance.	Concept of TPM, autonomous maintenance activities and step deployment of autonomous maintenance activities, planned specialized maintenance activities, 5 measures for zero failures, advancement of equipment efficiency improvement (clarification of losses, equipment general efficiency calculation method, etc.)	Enterprises	✓		Yes
Kaizen consultant	3	This is aimed at people who can understand the background theory for advancing Kaizen in different sectors and can apply Kaizen technologies to solve problems.	Quality control, management engineering, cost control, delivery control, economy calculation, 5S, MUDA elimination, TPS, TPM, TQM, production control, etc.	EKI employees, private sector consultants	✓	✓	Yes

(2) Deployment of qualifications-related businesses

As was stated earlier, Ethiopia is a qualification-oriented society. Exploiting this national trait to establish an attractive system of qualifications would partially lay the foundation for EKI to achieve an autonomous accounting setup. Also, there is potential for deploying qualifications-related operations between countries that cooperate in sharing know-how on Africa.

Qualifications-related businesses include the following:

- Seminars geared to sitting qualification examinations
- Texts for sitting qualification examinations
- Examination fees
- Membership fees

2. GUIDELINE OF ORGANIZATIONAL MANAGEMENT OF CIVIL SERVICE ORGANIZATION



Guideline of Organizational Management of Civil Service Organization

March, 2019

JICA Project Team

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1. A Direction to Go – Customer (Citizen) Centered Value Creation

It goes without saying that any governmental organizations are expected to serve for the society and the citizens. The KAIZEN Implementing organization is not exceptional. Especially, in the long run, the KAIZEN Implementing Organization should be autonomous and financially self-independent. It needs to survive in the market of business training and consulting services against the competitors by providing high quality of the services. What is tested is whether the KAIZEN Implementing Organization is capable of achieving the satisfaction of customers sustainably or not.

The governmental organization consists of the groups of the people who regard themselves as ‘elite’. It is true that the most of governmental officers graduated from foremost universities and obtained rich knowledge. It is understandable that he/she might feel as if he / she were a selected person. However, in the provision of the service of business training and consulting, the elitism does nothing to do with the quality of the services delivered. What matters is whether the members of the KAIZEN Implementing Organization can provide the level of the service which makes the customer (company, organization, individual, etc.) satisfied or not. Therefore, the KAIZEN Implementing Organization needs to make the continuous efforts to improve the quality of the services, as well as to increase the awareness of all its members on serving for the customers and putting the customer satisfaction in the first priority.

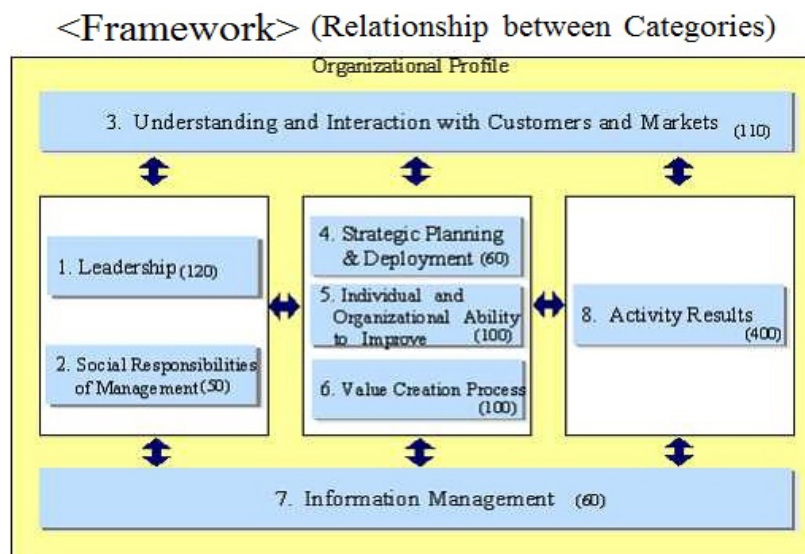
In order to establish the system which enables the organization to achieve the customer satisfaction sustainably, the Business Excellence Model was created in the United State in 1980th. The government of USA established the Malcom Baldrige National Quality Award (MBNQA) in 1988, aiming at the enhancement of competitiveness of the US companies through improving the business process to secure the continuous customer satisfaction. The framework and assessment criteria have been applied to any sectors, not only the business sector (manufacturing, service, SMEs) but also non-profit / governmental sectors. By modeling after MBNQA, the quality awards were set up in more than 80 countries and regions, including Japan, Australia, Singapore, Malaysia, and Europe. Figure 1 shows the current framework of MBNQA, while Figure 2 shows the framework of Japan Quality Award.

Figure 1. Baldrige Excellence Framework (<https://www.nist.gov/>)



* Mr. Malcom Baldrige was the United States Secretary of Commerce when MBNQA was established.

Figure 2. Framework of Japan Quality Award (<http://member.jqac.com/en>)



[Example 1] shows the examples of the application of EFQM (European Foundation of Quality Management) Business Excellence Model to the governmental organizations. By applying the model, these organizations improved their business process and achieved to improve the customer (citizen) satisfaction. Like them, the governmental organization needs to sensitize all the members with the sense of Customer First and train them continuously, as well as to establish business process which enables the employees to provide high quality of the services for the satisfaction of the customers. Business Excellence Model can be the guide for them.

[Example 1] Application of Business Excellence Model to Governmental Organizations

Quality Assessment of a Dental Centre Using EFQM Excellence Model: A Case Study on King Fahd Armed Forces Hospital

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Abstract

This research aimed to investigate the quality assessment of a dental centre using EFQM excellence model a case study on King Fahd Armed Forces Hospital (KFAFH). The literature review reveals that there is an extensive body of research that addresses EFQM model in general but there is less emphasis on the hospital and dental centres in particular. In order to explore this issue, a quantitative method was used to collect primary data through a questionnaire, which was administered in the dental centre at KFAFH in Jeddah- Saudi Arabia. A purposive sampling was used to choose the participants in this research. In total, 50 respondents (managers, faculties, and students) participated in this study. The results confirm significant positive in the influence of EFQM factors on each other's. Furthermore, the results exhibit that hospital management might benefit more by placing more emphasis on an integrated EFQM model and recognizing the EFQM influences on their dental centre. This research contributes to the academic and practical knowledge as being one of the first attempts to investigate empirically the EFQM dental centre at Arab Region. This research integrates, refines and extends the empirical work conducted in the field of health services in Gulf Countries. It raises many implications for managers in this hospital, such as considering the importance of EFQM and the vital role this model plays in the performance of Saudi hospitals. This research provides useful guidelines for further and future research possibilities such as exploring the influence of the EFQM model in the whole hospitals in Saudi Arabia.

Keywords: EFQM, Quality assessment, Dental centre, KSA

1. Introduction

According to Camison (1996), Quality evaluation and appraisal are the latest health services institution buzz word. It is shaped at present as a fundamental strategy for the support and improvement of the competitiveness. The European Foundation for Quality Management (EFQM) excellence model is a non-prescriptive framework and the most comprehensive and prevailing quality models which are applied in many countries and sectors. The European Foundation for Quality Management (EFQM) was founded in 1988 with the endorsement of European commission. EFQM model is a membership based, not for profit organization (Moller and Souzag, 2001). The EFQM excellence model (a multidimensional quality model) was developed by the founding members and introduced the principle of

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The impact of CAF enablers on job satisfaction: the case of the Slovenian Law Enforcement Agency

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Table 1 shows the examples of major points to assess the levels of Business Excellence in Japan Quality Award (JQA).

Table 1. Major Points to be assessed for business excellence (Drawn from JQA)

Category	Points to be assessed
1.Leadership	<ul style="list-style-type: none"> ● Do senior leaders in your organization clearly specify the core values which the organization should create? ● In order to realize the core values set, what systems and structures have they made? ● Do they practice to create a free and liberal organizational climate or culture that encourages employees to be proud and eager to work there? And how?
2.Social responsibilities of management	<ul style="list-style-type: none"> ● Does your organization understand social requirements and decide the extents how to respond to them? ● Does your organization understand the needs of society and implement necessary social contribution activities? ● Does your organization implement to raise employees' awareness of social contribution and motivate them to support the activities by themselves?
3.Understanding and interaction with customers and markets	<ul style="list-style-type: none"> ● Does your organization understand the changes of customers and market? And how? ● Does your organization have the mechanism to update them? ● Does your organization specify the indicators to assess whether to achieve customer satisfaction?
4.Strategic planning and deployment	<ul style="list-style-type: none"> ● How does your organization develop its ideas about what it hopes to be (vision) and the management goal? ● Are the steps and processes which take to achieve the vision or the goal clearly defined and shared among all the employees?
5.Individual and organizational ability to improve	<ul style="list-style-type: none"> ● Does the staff of your organization understand the mission /visions /customer values of the organization? And do they practice daily operation in the way to achieve them? And how does your company check it? ● Can the staff find the issues of the present conditions and make the practical solutions to achieve the ideal condition? ● Does your organization support capacity development (in the short term of the period) and career development (in the long term of the period) of the employees?
6.Value creation process	<ul style="list-style-type: none"> ● What kind of business processes does your organization make, in order to maximize the customer satisfaction? <ul style="list-style-type: none"> ➢ Design of service and products ➢ Production / Delivery ● How does your organization maintain the processes? ● How are they measured?
7.Information management	<ul style="list-style-type: none"> ● Is fact-based management correctly applied into your organization? ● How does your organization select the information and data for measuring own organizational capacities or external business environment, including customers, competitors and other organizations? ● Does your organization establish the information system to share the information?
8.Activity result	<ul style="list-style-type: none"> ● Does your organization clarify the ideal business goal, as a result of customer value creation activities? ● Did your organization actually achieve the results, such as customer satisfaction, employees' satisfaction, and financial results, through management quality improvement activities?

2. Readiness for Transformation into Autonomous Organization

Under the trend of restructuring governmental agencies and organizations, soon or later, KAIZEN Implementing Organizations is facing the reality to be an autonomous entity, due to the nature of the services as providing business consultation and training. For example, the KAIZEN implementing organizations in Japan, such as JPC, Japan Management Association, Japan Union of Science and Engineering, are operated and maintained based on revenue from activities. The Kaizen promotion agencies of Singapore (SPRING Singapore) and Malaysia (Malaysia Productivity Corporation) were initially established by the government but operations like consulting were subsequently incorporated and privatized after activities had become settled. Any governmental agencies, including the KAIZEN implementing organization, should be prepared for the transformation into an autonomous organization with creating certain level of revenue in the long run.

However, there are the following benefits by being ready for charging the fees on its service provision.

(1) Continuity of the consulting business

Without obtaining the revenue from its services, the KAIZEN Implementing Organization can be viewed as just another cost-incurring government agency. In the event where the government is confronted with a repeated deficit, more people will start doubting its contribution to the economy, there is a risk that the budget of the KAIZEN Implementing Organization will be reduced, or its very existence may be threatened if it is entirely dependent on government funding to survive.

Such fears could be greatly mitigated if the organization were to cover part of its costs with revenue from its activities. In this sense, having an independent source of income is necessary for the continued existence of the organization.

(2) Improvement in the quality of consulting

If consulting services are provided for free, it is all the same for the client whether it accepts or doesn't accept the consulting. This means that clients stop evaluating the quality of consultants or only give half-hearted evaluations. Without such feedback, it becomes difficult for the consultants to become motivated to improve their skills. In other words, consulting fees are an important factor for sustaining and improving the quality of consultants.

(3) Improvement in degree of commitment of client enterprises in Kaizen

Similarly, when consulting fees are charged, the client enterprises also become more serious about implementing Kaizen and there are greater results from Kaizen dissemination.

(4) Improvement of consulting efficiency through linkage of gains and salaries

If revenues from the consulting business can be linked to increase and decrease of salaries, this provides an incentive for consultants to improve the quality and quantity of consulting and thereby raise profits. Improving the quality of consulting entails improving the quality of consultants as described in (2) and also raising the quality of the consulting itself. Meanwhile, there is a lot of room to improve consulting in terms of efficiency, and establishing this link between profits and salaries can provide the impetus for raising consulting efficiency.

(5) Reduction of wage differential with the private sector

In developing countries, it is often said that salaries in the private sector are more than two times higher than the governmental organizations. Low salaries are the prime factor behind job separation by the employees of the KAIZEN Implementing organization. The linkage of profits to salaries described in (4) not only means that salaries can increase but also that they can decrease if profits go down, however, depending on the way linkage is achieved, salary differentials with the private sector can be reduced if a system is established whereby performance pay is combined with basic salary.

3. Organizational Development

Why is Organizational Development required?

- In order to achieve the organizational objectives effectively and efficiently, the organization needs to utilize the capacities of the individuals and the team of the people.
- However, the people are diverse and they have different capabilities.
- Manager needs to put together the members as the team and lead to the achievement of the objectives.

The followings are the actions often observed in the good team.

- 1) Cooperate together to achieve common objectives.
- 2) Respect each other and listen to others actively.
- 3) Discuss frankly and exchange the opinion freely.
- 4) Understand each role and try to fulfill the roles.
- 5) Understand the team process/ rules and keep them.
- 6) Check the progress and the results, and solve the problems in cooperation.
- 7) Work on capacity development voluntarily and support for the development each other.
- 8) All the members trust and encourage each other.

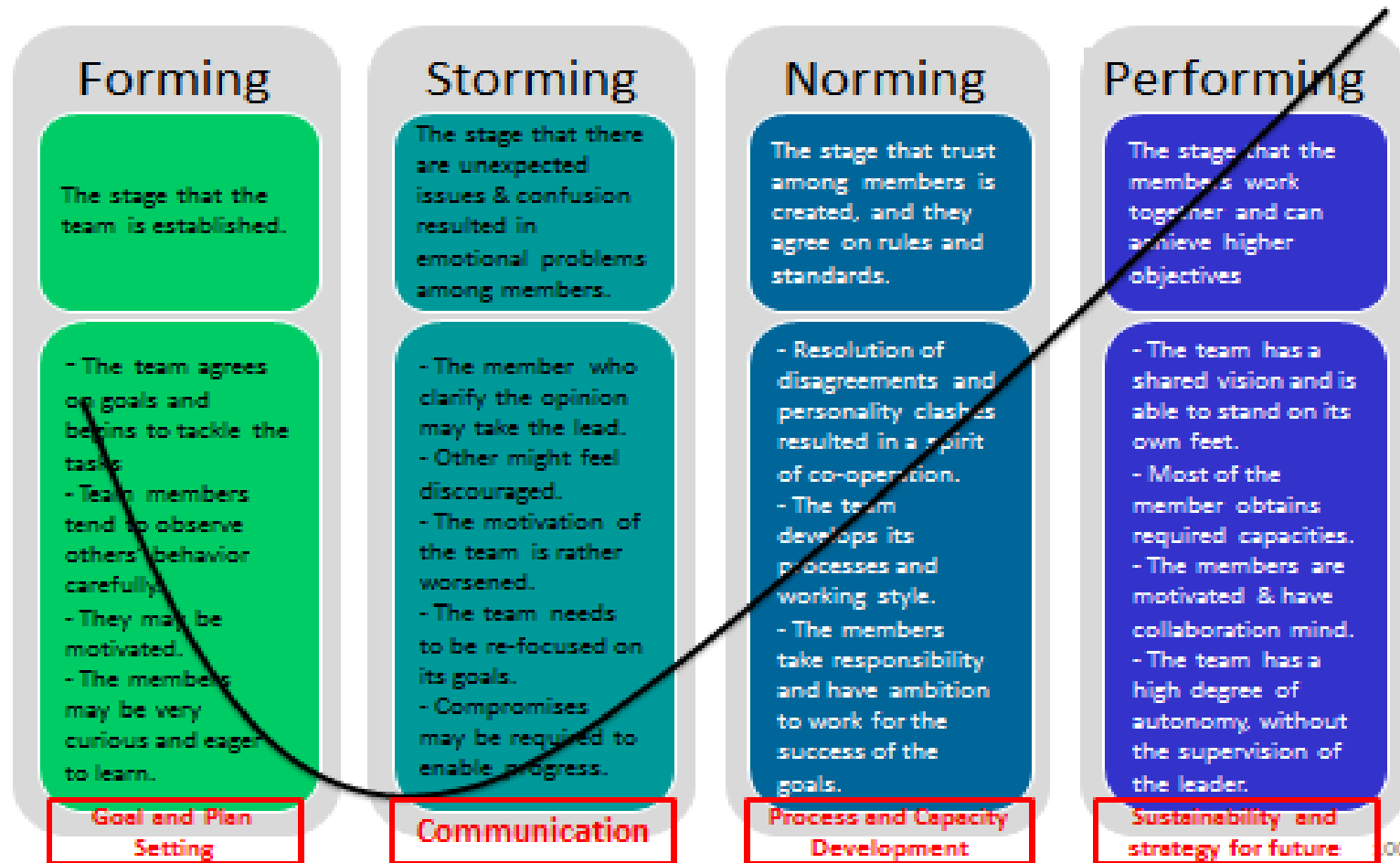
Considering these elements, the manager needs to create appropriate environment / atmosphere where the members of the team can make use of their capacities fully.

[Example 2] shows Team Development Model (Tuckman Model). Team is classified into 'Forming', 'Storming', 'Norming' and 'Performing'. In each stage, the necessary actions are required by the managers with their initiative and leadership.

* Bruce Wayne Tuckman (1938-2016) served as professor of educational psychology at The Ohio State University (theory of group dynamics). In 1965, he published one of his theories called 'Tuckman's stages of group development (Tuckman Model)'. In 1977, he added a fifth stage named 'Adjourning'.

[Example 2]

Team Development Model (Tuckman Model)



4. Mission, Vision and Roles of Top Leaders and Managers

The structure below (Figure 3) shows the functions of the organization. In the beginning, the head of the organization should clarify the management thoughts with the stakeholders of the organization, in order to set the direction of the organization based on the mandate defined at the establishment.

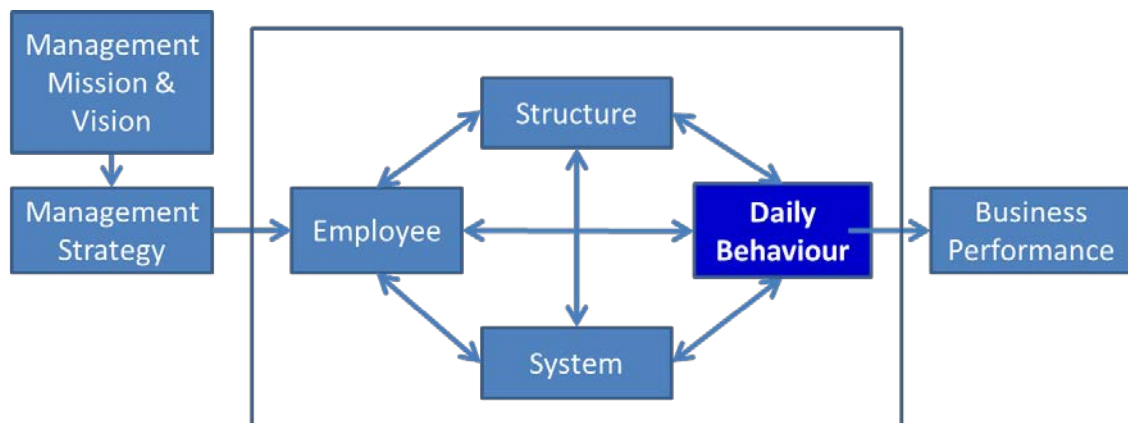
The management thoughts are often described as Management Philosophy, Mission, and Vision.

Management Philosophy → Basic thought for organizational activity

Mission → How to contribute the stakeholder

Vision → Status how the organization wants to be.

Figure 3. Functions of Organization



Management mission and vision are established by top management. Based on the mission and vision, management strategies are formed considering the changes of business environment. The management mission, vision and strategies are realized through organization which consists of employees, structure, system and daily behavior. Then business results are created.

[Role of Top Leaders]

- To create management mission and vision which can unite all the members of the organization.
- To make the management strategies and plan, considering the changes of business environment.
- To establish the structure and the system of the organizational activities
- To achieve the organizational objectives

[Roles of Middle Managers]

- To share the mission, vision, and strategies among subordinates (the vector is the same).
- To control daily behavior of the subordinates for achieving the objectives of the department.
- To train subordinates.

The following Table 2 shows the examples of mission and vision of the productivity related organizations.

Table 2. Mission, Vision and Core Values of 3 Productivity Related Organization

	SPRING Singapore	Malaysia Productivity Corporation	Japan Productivity Center
Mission	To help Singapore enterprises grow and to build trust Singapore products and services	To deliver high-impact services to achieve performance excellence through innovation for the betterment of life.	To promote the increase of employment, cooperation between labor and management, and fair distribution of the fruits of productivity improvement (Three Guiding Principles)
Vision	Global Singapore Enterprise	The leading organization in productivity enhancement for global competitiveness and innovation	To solidify the trust and cooperation between labor & management to tackle the challenges facing productivity in Japan and the world
Core Value	<ul style="list-style-type: none"> ● Vibrant SME ● Local Champions in Key Sectors ● Trusted & Enabling Social & Commerce Infrastructure 	<ul style="list-style-type: none"> ● Enterprise Innovation ● Business Excellence ● Knowledge Management ● Global Competitiveness ● Regulatory Review 	<ul style="list-style-type: none"> ● Hub-Platform ● Innovation in socio - economic system of Japan ● Foster Core HR ● Development of Service Sector & SMEs ● Global Alliance

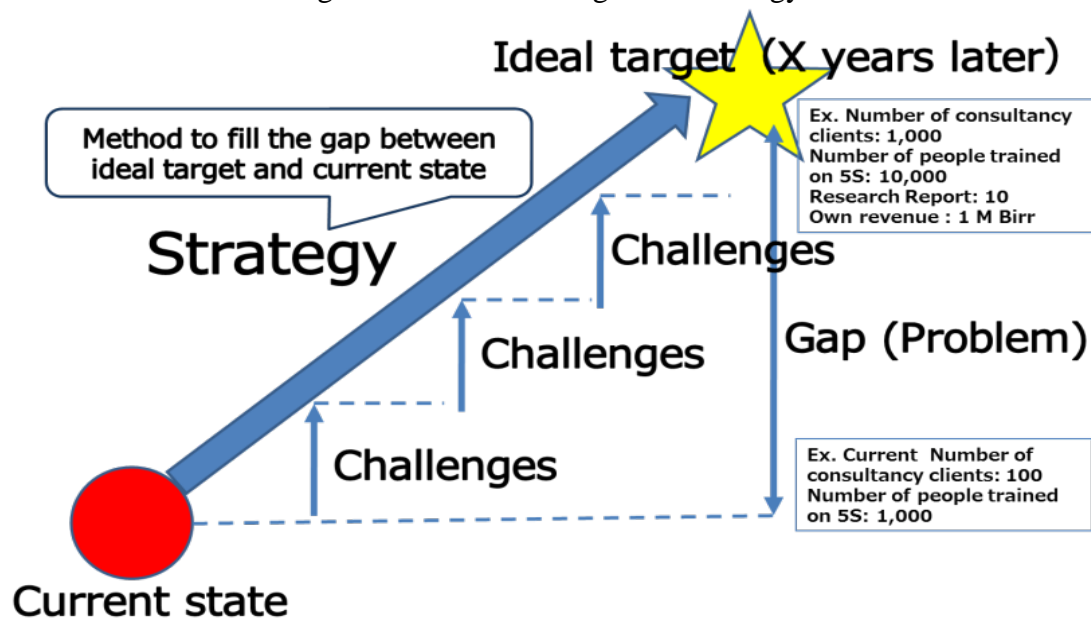
5. Management Strategies and Management Plan

It is often said in Japan that life cycle of company or organization is for 30 years. Darwin's Quote: "It is neither the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change". The organization always needs to observe the changes of business environment, as well as the changes of technology, and continue to innovate itself to cope with external conditions. But it is not easy to change the organization, because people do not want to change themselves in the nature.

This is why the head of the organization is responsible for initiating the innovation of the organization. He or she needs to consider the establishment of a long range management plan based on the management strategies, in the view of sustainable development of the organization.

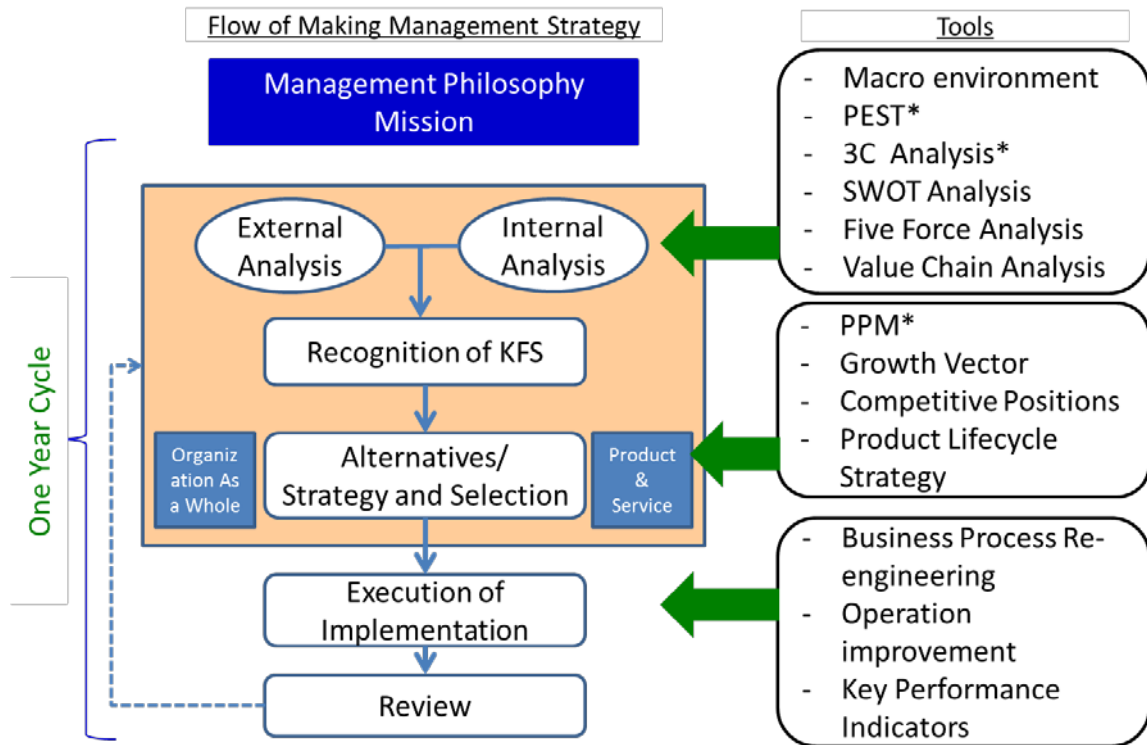
Needless to say, management strategy is the road map to narrow the gap between ideal target and current status, shown in Figure 4. The flow how to create management strategy is illustrated in Figure 5, as well as the tools which be used in the stage of forming the strategy.

Figure 4. What is Management Strategy?



Based on the management strategy, management plans should be made according to the necessity of the organization. Figure 6 lists various management plans which are necessary for managing the organizations in the short-term and long-term.

Figure 5. Flow of Making Management Strategy



- * PEST...Political Factor, Economic Factor, Social Factor and Technological Factor
- * 3C Analysis...Analysis on Customer, Competitor and Company
- * PPM... Project Portfolio Management

Figure 6. Various Management Plans, Decision Makers & Their Contents

Planning flow	Decision maker	What decides
Long range plan (10years)	Board of Directors	Organization policy, long term vision
Mid range plan (3~5years)	Board of Directors	Mid term vision, organizational strategy (market, services, investment)
Annual plan (single year)	Board of Directors/ senior managers meeting	Revenue, contribution margin, revenue by division, monthly plan
Monthly plan	Senior managers meeting	Monthly break down, plan vs actual analysis, recovery action
Weekly plan	Section manager	Weekly analysis and follow up
Daily plan	Manager /individual	Daily weekly action

(Source) Yoshihiro Takeguchi, Management Consultant, JPC

One of the examples of mid-range management plan (objectives) is shown as [Example 3. Case of Japan Productivity Center (JPC)], while an example of Annual Plan as [Example 4. Case of Malaysian Productivity Corporation (MPC)].

[Example 3] Mid-Range Management Objectives

Objectives of the First Mid-term (2018–2020) of Japan Productivity Center

"To establish the foundation required for the new productivity movement as the population declines"

April 1, 2018

Reinstating the resolution taken at the time of founding the Japan Productivity Center, we will solidify the trust and cooperation between labor and management to tackle the challenges facing productivity. We will further endeavor to rebuild Japan's economic system. In order to achieve these objectives, we have designated the next three years to be the intensive period during which we will establish the foundation required for the new productivity movement as the population declines. To resume the productivity movement, we will activate the following five pillars:

1. The establishment of a system that will function as the hub-platform of productivity.

1) We will substantiate and reinforce the human network and the research system with regard to productivity and, utilizing the outcome, we will deploy policy recommendations as well as the activities required to put the adopted principles into action.

2) We will institute a "Standing Committee on Productivity" for the purpose of studying the challenges facing productivity and of making policy recommendations. We will edit and publish the committee's work in "the First White Paper on Productivity" for a convention held to commemorate the 65th anniversary of the founding of the center.

3) We will establish a "Productivity Platform" to share knowledge, information, and experience related to the productivity challenges faced by each industry and business category and to promote productivity innovation in both micro and macro perspectives.

2. Deploy activities that will form consensus in order to innovate the socio-economic system of Japan.

1) We will organize a national movement to form a new consensus and establish a "Committee for Economic Development and Distribution" to reinforce policy recommendations with regard to introducing comprehensive innovation in employment practices, human capital, regional revitalization, and the social security system.

2) In an attempt to build a society where diverse human resources can fully demonstrate their abilities, we will accelerate the advancement of new ideas in work-style variations. We will undertake actions to form a national consensus on the new methods while promoting workforce diversity and aiding the development of sound relationships between labor and management.

3) We will provide core business systems to help to increase the productivity of public sectors that focus on medical welfare and social insurance.

3. A re-building of Japan's human resource strategies and nurture of core human resources.

1) We will institute an "Innovation Conference" to discover excellent venture entrepreneurs while we promote the development of their business management environment.

2) We will help to foster leaders and core human resources who can be adapted to the era of globalization as well as can promote innovation management.

3) Through the activities of "Japan Akademela", we will help to develop political leaders and the core talent in every field who will form the future of Japan. We will also support the development of college students who will lead the next generation.

4. Productivity innovation focused on the increase of value added and the creation of a positive circulation of growth and distribution.

1) Through "the Service Productivity & Innovation for Growth (SPRING)", we will take on activities that will help to improve the productivity of the service industry that has high potentials for growth.

2) We will provide management consulting aimed at improving the productivity of medium- and small-sized service industries, and will practice on the development of human resources assigned to support regional revitalization and management of local communities.

3) We will reexamine the entire philosophy of management from the perspectives of the customers and, promote quality-management activities to induce the creation of new values through self-innovation.

5. The institution of a global alliance system.

1) We will initiate dialogues on productivity with corporate executives in Europe and in the U.S., and we will in stages, establish a collaboration to organize international conferences with Europe, the U.S., and Asian countries, information exchange, and research projects.

2) Taking inspiration from "the Karuzawa Conference", which will soon be initiated with Japan Akademela as its foundation, we will set up an intellectual think-tank and invite intellectuals from Europe, the U.S., and Japan to discuss and channel the global agenda.

3) We will help to increase productivity of Asia and Africa by promoting human and intellectual exchanges, including the technical transfer of Japanese-style management techniques.

(Resolution reached at the regular Board of Directors meeting on March 22, 2018.)

(Source: https://www.loc-net.jp/en/mission/objective_2018-2020.html)

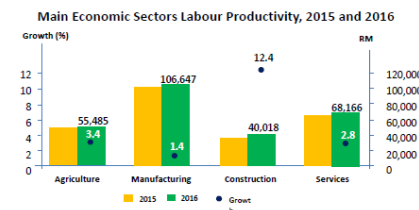
[Example 4] Mid- Term Plan of Malaysian Productivity Cooperation (Malaysia Productivity Blueprint 2018-2020)

Malaysia Productivity Blueprint

11MP has set the target to achieve national labour productivity growth of ...



To achieve this national target, each sector must raise labour productivity growth to target levels



Priority Sectors		Year	
		2017	target 2020
Manufacturing	M&E	4.2%	2.6%
	Chemicals	4.7%	5.7%
	E&E	2.5%	4.7%
		5.9%	3.8%
Services		4.7%	4.1%
	Agriculture	1.5%	3.6%
Mining and Quarrying		6.3%	1.1%
	Construction	2.2%	9.6%

The Blueprint Outlines

- Productivity must be addressed holistically and in tandem – at the national, sector and enterprise levels



Outline policy priorities to uplift national productivity

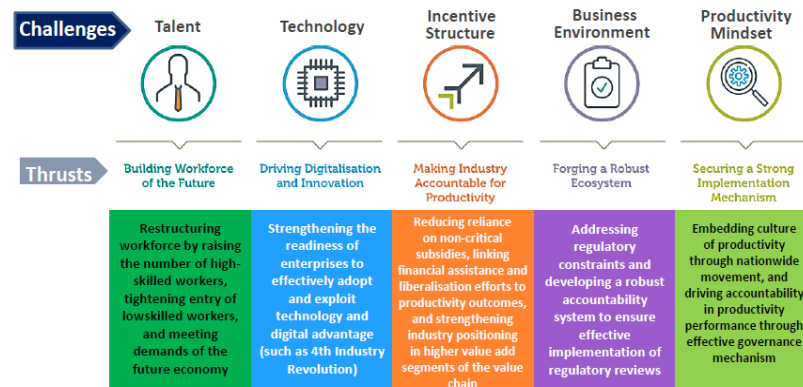
Outline explicit sector strategies to address sector-level productivity barriers

Outline specific enterprise strategies to enhance operations related to productivity improvement

- To be led by core government ministries and agencies
- Targets governance of productivity policies impacting all economic sectors
- To be led by key industry associations and anchor enterprises for each sector
- Targets acceleration of productivity uplift, impacting large enterprises and SMEs at sector level
- To be led by management at enterprises (including SMEs) with guidance from sector Productivity Nexus
- Targets productivity improvement at enterprise level

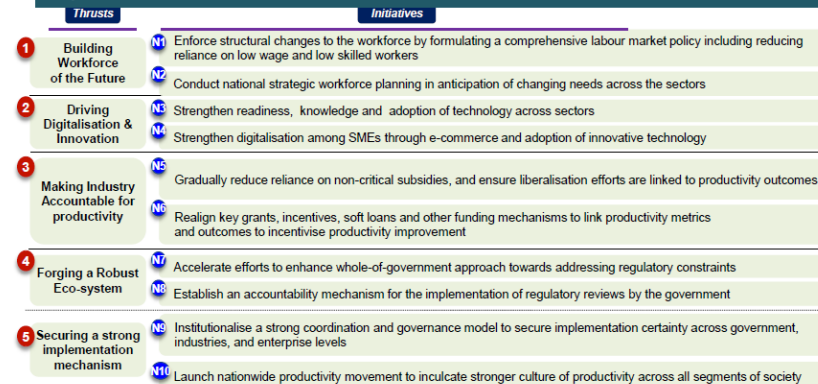
Driving Productivity of the Nation

5 Strategic Thrusts aimed at addressing challenges impeding Productivity Growth across sectors



National level: 5 thrusts and 10 initiatives with 16 activities

These initiatives complement other medium- and long-term incentives which are on-stream, such as implementation of the National Education Blueprint. These initiatives must be implemented urgently over 18-24 months to accelerate productivity in the ecosystem



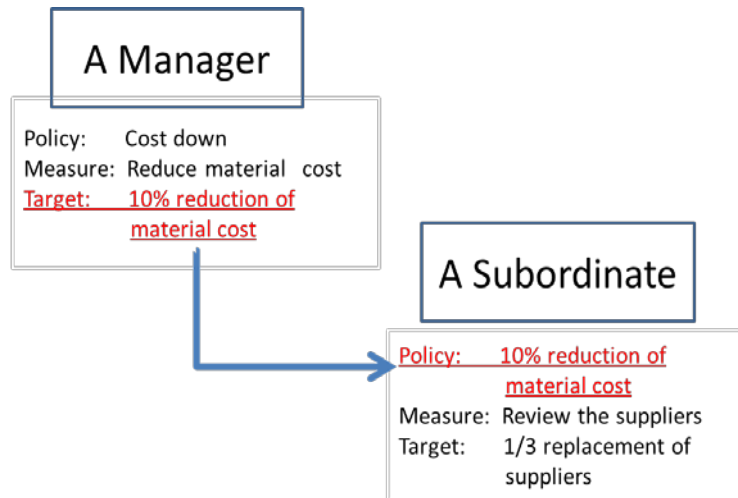
6. Policy Deployment

Policy Deployment is the process of setting the objectives of the follower, based on the objectives of the senior.

In the governmental organizations, the annual objectives are set by the higher authority, according to the mandates of the organization. They are cascaded down from the head of the organization to the department directors, eventually to the entire employees in the organization.

Figure 7. Policy Deployment

For example, shown in Figure 7, a Manager's Target is '10% reduction of material cost'. This becomes the policy of A Subordinate. Based on the policy, the target of A Subordinate is set as '1/3 replacement of suppliers'.



7. Key Performance Indicators (KPIs)

In order to monitor and assess the achievement level of the organizational objectives, performance indicators are set. They are often called as Key Performance Indicators (KPIs). KPIs are the most important indicator to assess the achievement level of the activities in the organization. There are three types of KPIs, such as financial KPIs, non-financial result-based KPIs, and activity-based KPIs. Among them, Activity based KPIs are also regarded as process indicators (Table 3).

As one of the example of KPIs, the ones of MPC are attached as the reference (Example 5).


Table 3. Various Key Performance Indicators (KPIs)


Kinds of KPIs	Examples
Financial KPIs	Sales Value, Profit, Operation Profit Rate, ROI, Average Revenue Per User
Non-Financial Result-Based KPIs	Customer Satisfaction Rate, Defect Rate, Total Number of Customers,
Activity Based KPIs	Times of Visit to Customers, Numbers of the Agents, Numbers of New Products Developed


[Example 5] Key Performance Indicators of Malaysian Productivity Cooperation














CORPORATE SCORECARD 2011

 Achievement of 90% and above

 Achievement of 51-89%

 Achievement of 50% and below

Perspective	KPI	Target 2011	Actual Achievement of 2011	Performance Achieved Against Target 2011	Status
Financial	Gross Operating Revenue (RM)	10,000,000	10,977,888	109%	
	Utilization of Operation Budget (%)	98%	98%	100%	
Customer	Total cost savings (ICC)	100m	187m	187%	
	No. of organisations adopted BEF	1,100	1,107	107%	
	Overall no. organisations participated	10,000	7,604	76%	
	Overall no. of participants	110,000	116,156	106%	
Business Process	No. of new products / services	30	21	70%	
	Research Programmes	80	82	103%	
	No. of Regulatory Review Projects	24	26	108%	
	Enterprise Innovation Intervention Programmes (EIIP)	173	183	106%	
Learning & Growth	Average training hours per employee (%)	45	50.1	111%	

In setting the KPIs, there are 6 key points, so to speak, ‘SMART+C’. They are Specific, Measurable, Achievable, Relevant, Time-Bound and Controllable. The detail explanation is shown in Table 4.

Table 4. SMART+C- Key Points of Setting KPIs

Key Points	Explanation
Specific	KPIs should be made so that the managers and employees easily understand what they need to achieve.
Measurable	KPIs need to be assessed by the data from business activities, and should be quantitative.
Achievable	KPI should be realistic and feasible with consensus among managers and employees.
Relevant	KPIs need to be consistent with organizational goals.
Time-Bound	KPIs need to be achieved in the limitation of own activities (not influenced outside conditions so much).

8. Management by Objectives (MBO)

Currently, a tool called as Management by Objectives is used for performance management of white collar workers. The concept of MBO was developed in General Electric Inc. in the USA and it was introduced to Japan in the late 1960-70th. Since then, it was used as one of the main concept in personnel management of corporate management in Japan.

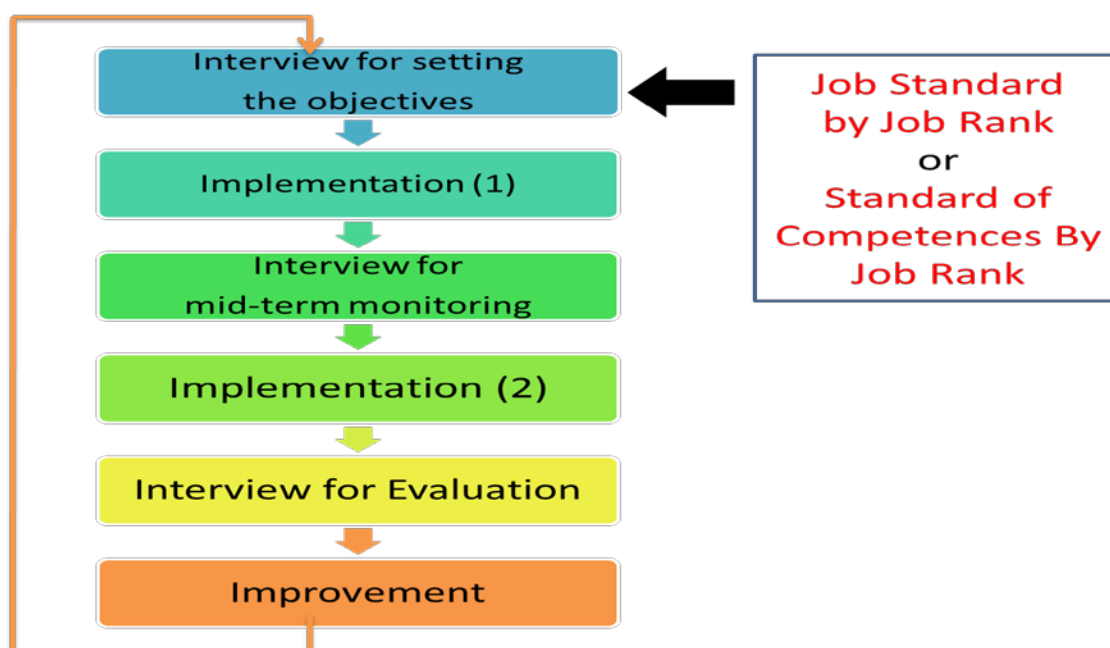
In the governmental agencies and organizations in most of the countries, Balanced Score Card is introduced as a tool for effective performance management (Shown in Example 5 of the case of MPC). As one of the supplemental tool of Balanced Scorecard, MBO can be used for setting the objectives based on the mutual understanding between the manager and the subordinate.

The concept of MBO is to involve the subordinate participate in the process of making the objectives of the jobs, in order to encourage the subordinates to do the jobs with their initiatives.

The steps of implementing MBO are shown in Figure 8. First, the directions of the job objectives are cascaded down from the objectives of the department. Based on ‘Job Standard by Job Rank’ or ‘Standard of Competences By Job Rank’[Example 6], each subordinate makes the draft of MBO sheet [Example 7], following the directions,. In the interview between the boss and the subordinate at the beginning of the financial year, they

agree on the MBO. At the middle of the financial year, the boss and the subordinate have the interview and check the progress of the activities as well as the results achieved so far. If the progress is behind the plan, the plan is adjusted and the necessary countermeasures are taken. In the end of the financial year, the boss and the subordinate meet again and conduct the final evaluation.

Figure 8. Steps of Management by Objectives



[Example 6] is one of the examples of ‘Standard of Competences By Job Rank’ in a company engaged in consulting activities. It specifies the competencies which each level of consultant needs to have.

[Example 7] is the sample of MBO Sheet. According to the activities, the quantitative and qualitative objectives are set and how to achieve them are clarified. In the final interview, the subordinate does the self-evaluation, while the boss also does the evaluation of the subordinate.

[Example 6] Standard of Competences By Job Rank (Consultation Field) in A Corp. in Consultation Business			
Rank	Standard Duration to Stay	Definition	
Junior Management Consultant	3-5 Years	Knowledge	<ul style="list-style-type: none"> - Have basic knowledge of management consultation. - Have enough knowledge of 1-2 specific business management fields (academic) or have practical experiences in actual business management for more than 5 years.
		Skill	<ul style="list-style-type: none"> - Be able to conduct management consultation with the assistance of higher ranked consultants. - Be able to collect necessary management data for consultation by himself/herself. - Be able to explain the importance of management consultation.
Management Consultant	8-10 Years	Knowledge	<ul style="list-style-type: none"> - Have the knowledge of management consultation with practical consultation cases and experiences in specific business fields. - Have the expertises in 3-4 specific areas of business management and support other consultation projects in these areas as an expert.
		Skill	<ul style="list-style-type: none"> - Be able to conduct management consultation by himself/herself. - Be able to lead consultation project as a leader of the team. - Be able to promote consultation and find the clients.
Senior Management Consultant	About 10 Years	Knowledge	<ul style="list-style-type: none"> - Have enough knowledge of management consultation with practical consultation cases and experiences in various business management fields, in order to coach Junior Management Consultant / Management Consultants. - Have the knowledge on new business management theories and tools in the world.
		Skill	<ul style="list-style-type: none"> - Be able to lead consultation project on new and innovative themes as a leader of the team. - Be able to train Junior Management Consultant/ Management Consultant. - Be able to promote consultation in the new business management fields and find the clients.
Executive Management Consultant	About 10 Years	Knowledge	<ul style="list-style-type: none"> - Have rich knowledge of management consultation with practical consultation cases and experiences in various business management fields, in order to coach every ranked consultants.
		Skill	<ul style="list-style-type: none"> - Be able to represent the organization and be the speaker of its consultation activities. - Be able to create new theories and tools on management consultation. - Be able to train other consultants on new theories and tools.

[Example 7] Sheet of Management By Objectives									
Name	XXXX			Director	YYY		Interview - Set Objectives	15th April, 2014	
Department	Consulting Department			Manager	ZZZ		Mid- Interview	(October, 2014)	
Job Stage / Career Rank	Management Consultant	2nd year					Final- Interview	(February, 2015)	
Job In Charge or Challenging Target	Contents of Jobs/ Target / Objectives		Process for Implementation	Job Load	Current Status and Plan for the 2nd Half		Achievement Level and Improvement for the Next Year		
Consultation project for A Company	This project continues from previous year. To improve the satisfaction of the clients, maintaining the profit target as of the previous year. (Quantitative Objective) - Client satisfaction: 85% (75% in the 2013 FY) - Profit 2,000 (Qualitative Objective) - New consulting module for production process improvement is developed.	(Sales) 5,000	- To identify the issues for production process improvement (by May) - To allocate additional consultant on process improvement, if necessary (by June). - To revise the action plan (by June). - To implement action plan (by July). - To check the results (by October). - To take the countermeasure (by December). - To complete the consultation project (by February).	(In Charge) Main	(Progress)	(Sales)	(Achievement)	(Sales)	Self- Ass
		(Cost) 3,000		(Plan for the 2nd Half)	(Cost)	(Improvement for the Next Year)	(Cost)	a b c	
		(Profit) 2,000			(Load) 30%		(Profit)	(Profit)	Mana- Ass
Development of new consultation project	The new consultation projects related to productivity and quality improvement are developed. (Quantitative Objective) - 3 project proposals are made to the clients and 1 project, at least, is started within 2014 FY. - Profit 800 net-1,000 (Qualitative Objective) - The procedure and module for making consultation proposal is revised and standardized.	(Sales) 2,000	- To plan Consultation Promotional Seminar (by May). - To implement the Promotional Seminar (by June). - To specify the 3-5 essential clients (by July) - To get contact with the essential clients and make the proposal for consultation (by August and continuously) - To conduct Trial Diagnosis with minimum charge (by October and continuously) - To get the contract with the clients (by December) - To start the consultation project (by January)	(In Charge) Main	(Progress)	(Sales)	(Achievement)	(Sales)	Self- Ass
		(Cost) 1,200		(Plan for the 2nd Half)	(Cost)	(Improvement for the Next Year)	(Cost)	a b c	
		(Profit) 800			(Load) 30%		(Profit)	(Profit)	Mana- Ass
...	(Quantitative Objective)	(Sales)		(In Charge)	(Progress)	(Sales)	(Achievement)	(Sales)	Self- Ass
		(Cost)		(Plan for the 2nd Half)	(Cost)	(Improvement for the Next Year)	(Cost)	a b c	
		(Profit)			(Load)		(Profit)	(Profit)	Mana- Ass
...	(Quantitative Objective)	(Sales)		(In Charge)	(Progress)	(Sales)	(Achievement)	(Sales)	Self- Ass
		(Cost)		(Plan for the 2nd Half)	(Cost)	(Improvement for the Next Year)	(Cost)	a b c	
		(Profit)			(Load)		(Profit)	(Profit)	Mana- Ass

9. PDCA – Management Cycle of Organizational Activities

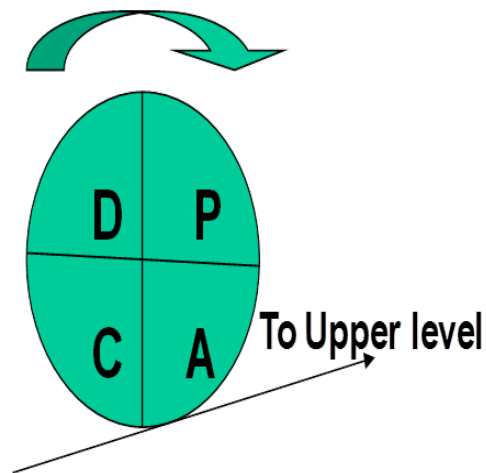
a) Definition

PDCA (Plan, DO, Check and Act) is a management cycle of business and organizational activities. It aims at a continuous improvement of the business process. PDCA can be applied to entire organization, departments, and individuals. PLAN includes the organizational documents, such as job procedure, operation standard, manual.

Table 5. Definition of PDCA

	Definition
Plan	Analyze current condition and make the activity plan
Do	Implement the plan
Check	Monitor and evaluate the results
Act	Revise the plan, the processes and the implementation system, etc

Figure 9. PDCA



Why is PDCA important? By making concrete implementation PLAN, the job duties are allocated appropriately, so as to achieve organizational objectives effectively. In addition, the team is empowered and the collaboration of the team is promoted by making the PLAN through collaboration of the team.

CHECK is crucial in each process, in order to complete the activities before the deadline. The gaps between the plan and the result are needed to be analyzed. The necessary countermeasures should be taken (ACT) to fill the gaps timely and appropriately.

b) Key Points for Implementation

[PLAN]

PLAN is to specify necessary activities, their order, necessary management resource, and to visualize them, in order for the achievement of management objective. There are the following points to implement them.

- Consistent with management objective

- Setting basic policy for making the plan
(EX) We focus on XX business in the next 3 years.
(EX) We establish the compliance policy and follow it.
- The jobs often can be divided into two classifications, ‘Ordinary Jobs’ and ‘Exceptional Jobs (special tasks or jobs related to solving specific issues)’. It is sometimes better to make the PLAN by separating ‘Ordinary Jobs’ and ‘Exceptional Jobs’ and allocate the jobs according to the capacity and the aptitude of the subordinates (Table 6).
- In making the PLAN, the items such as the person in charge, the deadline, the cost allocated, should be clarified. In addition, the expected obstacles and their countermeasures should be also considered in the planning stage.

Table 6. Example Sheet of the PLAN Dividing Ordinary Jobs and Exceptional Jobs

	Job	Who	Deadline	Cost	Status of Implementation	Expected Main obstacles and Countermeasures
Ordinary Jobs	1.					
	2.					
	3.					
	4.					
Exceptional Jobs	5.					
	6.					
	7.					
	8.					

[DO, CHECK and ACT]

- The plan always requires the revision, coping with unexpected events or change of external condition. People are often satisfied with making the beautiful plan. Periodical monitoring (CHECK) is important. Otherwise might be too late to solve the issues which occur.
- It is important to make subordinates accustomed to periodical reporting.

[Example 8] exhibits 3 examples of the PLAN, ‘Activity Plan Based on Gant Chart’, ‘Monthly Plan’ and ‘Daily Plan’.

[Example 8]

Activity Plan Sheet Based on Gant Chart- 5th Top Management Seminar in 2008

as of 31st May, 2008

			April 2008				May 2008				June 2008				July 2008				Aug 2008				Sept 2008			
Activity	Person In Charge	Plan Actual	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1. Planning	Elsa	Plan																								
(1) Analysis on the results in the previous year	Elsa/Binyam	Actual																								
(2) Designing the basic concept of the program	Elsa/Binyam	Actual																								
(3) Revising it by the discussion with the colleagues and experts	All	Actual																								
(4) Designing the detail seminar program	Elsa/Binyam	Actual																								
2. Arranging the speakers	Elsa	Plan																								
(1) Selecting the candidates of the speakers	Elsa/Dejere	Actual																								
(2) Requesting the candidates (if necessary to visit them)	Elsa/Dejere	Actual																								
(3) Requesting and collecting the presentation materials /sending logistic info.	Dejere	Actual																								
(4) Sending the letter of thanks (after the seminar)	Dejere	Actual																								
3. Collecting the participants	Binyam	Plan																								
(1) Making the budget and setting the target number of participants	Elsa/Binyam	Actual																								
(2) Making the brochure	Dereje	Actual																								
(3) Promoting the seminar by Web, E-mail, and telephone	Binyam/Betel	Actual																								
(4) PR in the advertisement in the newspaper	Binyam	Actual																								
(4) Confirming the acceptance of participation to the applicants	Betel	Actual																								
(6) Sending the invoice and confirming the collection of the fee	Betel	Actual																								
4. Relationship with ministries	Elsa	Plan																								
(1) Visiting Ministry of Finance	Elsa	Actual																								
(2) Visiting other ministries	Elsa	Actual																								
5. Relationship with media	Binyam	Plan																								
(1) Visiting for the explanation and invitation	Binyam	Actual																								
6. Arranging the logistics	Dereje	Plan																								
(1) Arranging the seminar venue	Dereje	Actual																								
(2) Communication with speakers	Elsa/Dejere	Actual																								
(3) Other preparations	Dejere / Betel	Actual																								
7. Implementation of the seminar	All																									
* Refer to the seminar organization procedure																										
8. Organizing the seminar (post days)																										
(1) Setting the meeting and discussing the issues for further improvement	All	Actual																								
(2) Completing necessary payments	Betel	Actual																								
(3) Analyzing the results of the seminar	Elsa/Bin/Dejere	Actual																								

Monthly Plan

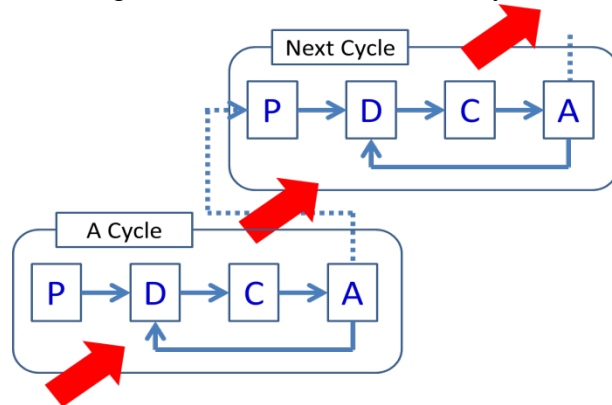
Month	September																													
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Output 1. Implementation structure for the new training and consultancy programs for SMEs at KIBT is established																														
[1-1] Conducting analysis on needs of private enterprises																														
[1-2] Preparing a activity plan																														
[1-3] Developing a guideline																														
[1-4] Developing an implementation tools																														
[1-5] Model training open to SMEs																														
Output2. KIBT lectures for the new training and consultancy programs for SMEs are empowered																														
[2-1] Selection of master trainer candidates and trainer candidates																														
[2-2] Setting of measurable indicators for each KIBT leturers																														
[2-3] Conducting of the classroom training																														
[2-4] Organisation of on-site consultancy																														
[2-5] Evaluation of the ability of KIBT lecturers																														
Output3. Indications to show business performance improvement at select pilot enterprises are found																														
[3-1] Selection of pilot enterprises																														
[3-2] Conduct of a baseline survey on the pilot enterprises																														
[3-3] Assessment of achievements in pilot enterprises																														
[3-4] Dissemination seminar																														

Weekly and Daily Plan

	8	9	10	11	12	13	14	15	16	17
11/9 (Mon)	Group MTG	Consul: A Ltd.				Report: A Ltd.	Weekly MTG		Training material	
12/9 (Tue)	Prep: Consul-B	Training material				Prep: Visit to D. Ltd.		Consul: B Ltd.		
13/9 (Wed)	Meeting New Client: D Ltd.	Attending MKG at ministry				Report: B. Ltd.		Prep: Training		
14/9 (Thu)	Training Program- Marketing & Sales at Laico Hotel									
15/9 (Fri)	Training Program- Marketing & Sales at Laico Hotel									
17/9 (Mon)	Group MTG	Prep: Consul-B	Evaluati on of Training			Evaluati on of Training	Weekly MTG		Evaluation of Training	
18/9 (Tue)		Consul: C Ltd.				Report: C. Ltd.		Proposal: D Ltd.		

There are two cycles of PDCA. One is PDCA within one cycle of business operation. The other is PDCA of consecutive years' project. The former, we need to CA, and improve D. Implementing C periodically and taking D quickly is important. The latter, based on the results of previous year (A), the P of the next year should be made.

Figure 10. 2 Phases of PDCA Cycle



10. Capacity Development and Career Development of the Employees

(1) Basic principles

The Panasonic's founder Konosuke Matsushita once said, "A company is its people," and expressed his belief that the priority in business management should be to help its people develop and thrive themselves and to make the best use of what they have to offer. Mr. Konosuke Matsushita, the God of Business Management, made an ingenious reference to his company: "Panasonic produces people. We also produce appliances".

Training of the subordinate is regarded as one of the main roles of the manager. Why? If the manager does not train the subordinates, the subordinates cannot complete the jobs by himself / herself, the boss always needs to supervise the subordinates. For achieving the higher productivity and motivating the subordinates, the manager needs to support the development of the capacity of the subordinates.

There are the three methods of capacity development of the employees namely, On the Job Training (OJT), OFF the Job Training (OFF-JT) and Self-Training (Table 7).

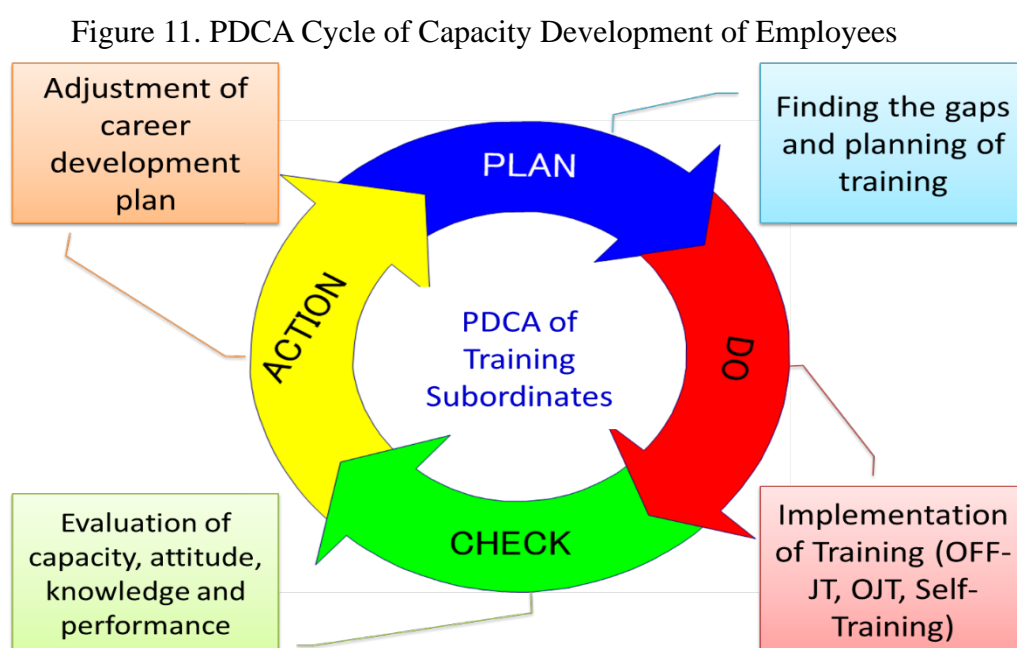
Table 7. 3 Methods of Capacity Development

Key Points	Explanation
On the Job Training (OJT)	<ul style="list-style-type: none"> ● To learn from the job experiences. ● Manager gives necessary knowledge and instructions to the subordinates.
OFF the Job Training (OFF-JT)	<ul style="list-style-type: none"> ● To learn from the training opportunities provided by the organization to which one belongs.
Self-Training	<ul style="list-style-type: none"> ● To learn himself/herself apart from working hour. ● The organization (company) supports it. The manager is responsible for encouraging it.

There are two ways of developing the capabilities of the employees. One is the capacity developing to cope with the current job duties. Considering the gaps between the levels of the jobs and their actual capacities, the necessary training should be provided.

The other is the career development to enhance the capacities of the employees, considering the career plan of the employees in the long term period. It may seem to be responsibility of the employees themselves, but in order to increase the retention of the employees, the organization also needs to consider the support for their career development as a part of human resource development system. Especially, for the organization which is mostly engaged in white collar jobs (in the other words, knowledge creation jobs), human resource is the most crucial asset for providing high quality of the services. If the employee leaves from the organization, the investment for training is wasted. The support for career development of the employees is worthwhile being implemented.

Figure 11 shows the PDCA Cycle of implementing the capacity development of the employees. [Example 9] is an example of Career Development Sheet (B Organization). In the beginning of the year, the boss and the subordinate discuss on the objectives of OJT and Off-JT/Self-Training in this year and complete the Career Development Sheet. During the year, both monitor the progress. In the end of the year, both check the results and discuss on the issues.



[Example 9]

Career Development Sheet

Dept.: YYYYYY

Name: XXXXXX

	FY 2014	FY 2015	FY 2016
(A) Objectives for capacity development through by OJT for this FY			
(A) OFF-JT and Self-Learning which wish to take in this FY			
(B) Achievement	(OJT) (OFF-JT/ Self Learning)	(OJT) (OFF-JT/ Self Learning)	(OJT) (OFF-JT/ Self Learning)
(B) Challenge for the next FY			
(B) Comments from manager			
(A) Setting Date			
(A) Name of Manager			
(B) Evaluation Date			
(B) Name of Manager			

The followings are key points to conduct OJT, OFF-JT and Self-Training.

[OJT]

Morgan McCall and his colleagues working at the Center for Creative Leadership (CCL) in USA are usually credited with originating the 70:20:10 model in 1996, based on the survey asking nearly 200 executives. 70% of them replied 'Learning from the jobs', 20% replied 'Learning from people', and 10% replied 'learning from training and reading'. This suggests the importance of OJT.

When the manager trains the subordinate through OJT, he/she should consider:

- To train the subordinate in professional skills. Important to transfer fundamental thoughts, knowledge, and skills through OJT.
- To widen the view of the subordinates. The worker who makes many mistakes may only pay attention to own process, regardless of both previous and next processes. To give the questions (or send the message) to change the viewpoint
- To assign the jobs considering of the capacity of individuals, as well as the aptitude.
- To make the subordinate practice (execute the jobs) as many as possible, and correct their mistakes when they occur.
- To encourage the subordinate to summarize the report periodically, in order to confirm what they learnt.
- To give a bigger (more responsible) job.
- To give a new job.
- To give the whole, not a part.

The manager should advise the subordinate the necessary contents of OJT. The objectives of OJT should be recorded in the Career Development Sheet and the results be assessed in the end of the year.

[OFF-JT]

The organization should provide the training opportunities, according to the necessity of the job duties, as well as the willingness of the subordinate based on their long term career development. Linkage with job duties (now and future) should be considered. The objectives of OFF-JT should be recorded in the Career Development Sheet and the results be assessed in the end of the year. After the subordinate participates in the training program, it is necessary to ask the subordinate to make the report of the results.

[Self-Learning]

The manager should advise the subordinate the necessary contents of self-training. Linkage with job duties (now and future) should be considered. The objectives of Self-Training should be recorded in the Career Development Sheet and the results be assessed in the end of the year.

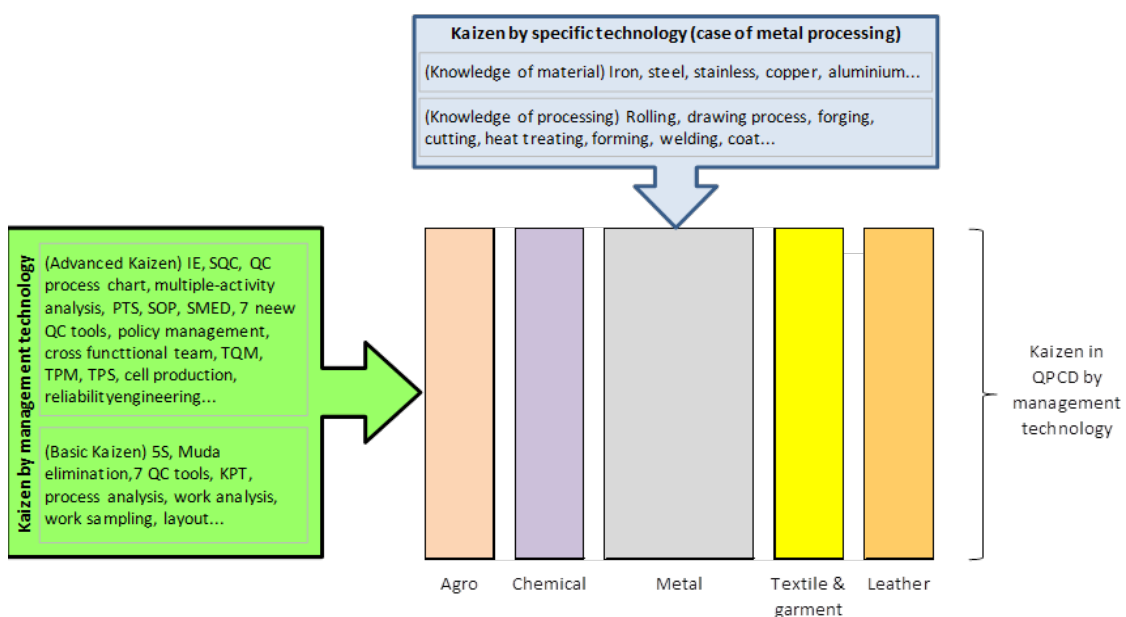
(2) Capacity development in KAIZEN Implementing Organization

a) Individual capacity development

As for the individual capacity development of the consultant in the KAIZEN Implementing Organization, the enhancement of the knowledge / the skills both on management technologies and specific technologies is necessary to provide practical solution to the companies (refer to Figure 12).

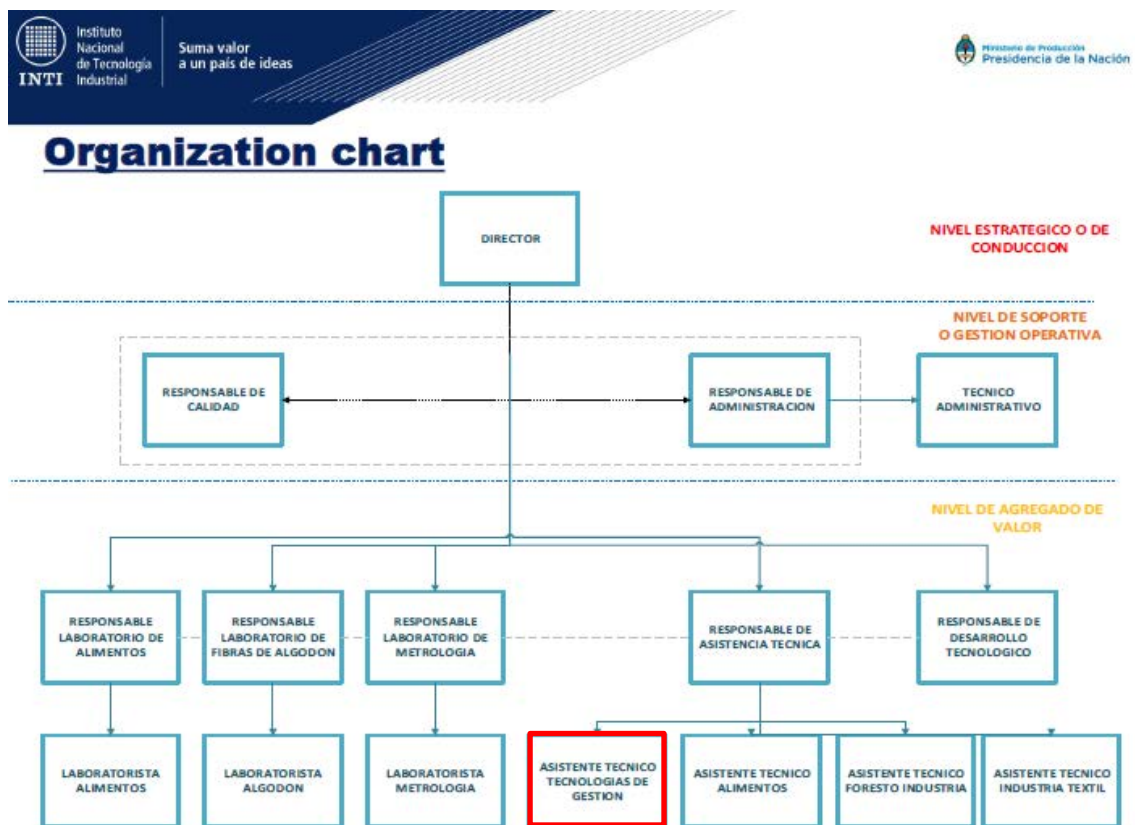
Taking the case in metal industry, an operator who previously worked on one lathe is now able to operate two machines after the application of KAIZEN according to multiple-activity analysis, one of KAIZEN management technology. On the other hand, in order to improve productivity through changing the byte material and increasing the lathe operating speed, the application of changing the production system based on specific manufacturing technology is needed. Whereas KAIZEN technology based on management technology can be used across sectors, KAIZEN technology based on specific technology is applicable to certain sectors only.

Figure 12. KAIZEN By Management Technology and Specific Technology by Sector



Considering the combination of KAIZEN management technology and KAIZEN specific technology by sector, another good example is suggested by INTI (Instituto Nacional de Tecnología Industrial), a KAZEN Implementing Organization in Argentina. Shown in [Example 10], originally, INTI has the function of testing laboratories for various industrial sectors and it now also provides the consulting on KAIZEN (coordinated by the department called ‘Asistente Tecnico Tecnologias de Gestion’). When a consulting request which requires high level of KAIZEN solution is sent by a company to INTI, it forms a cross functional project team which consists of the experts in management technology and the experts in specific technology by sector from specific laboratories. It enables the team to conduct deeper analysis and provide practical KAIZEN proposals for the company.

[Example 10] Organization Chart of INTI (Santiago Del Estero Branch)

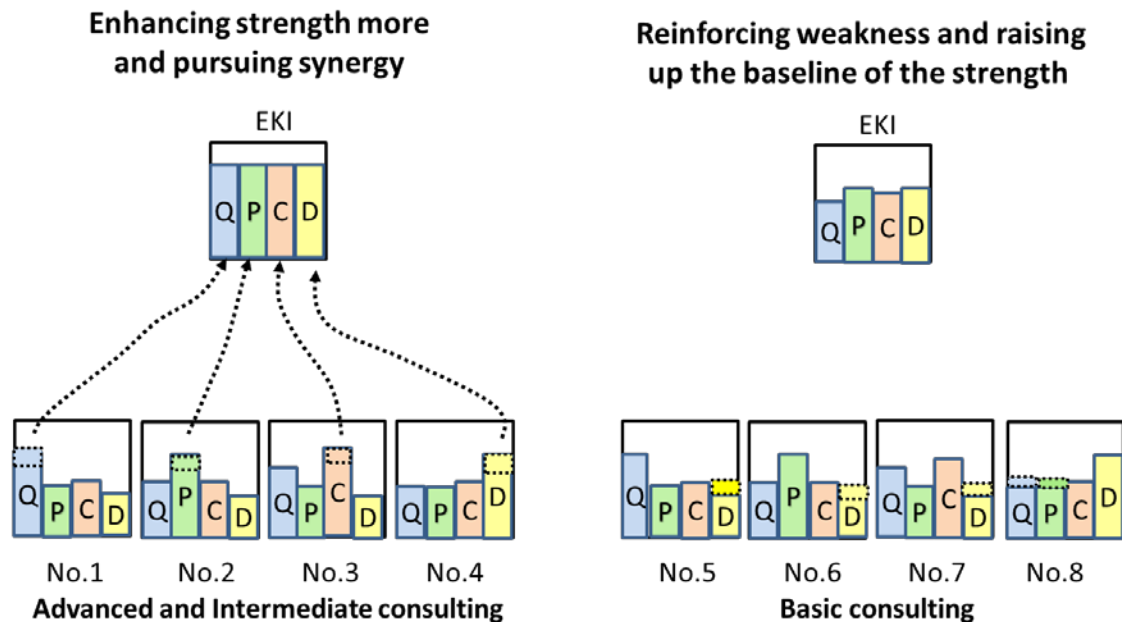


In order to improve the high quality level of the solution in consulting activity, the KAIZEN Implementing Organization needs to enhance the capacity of each consultant both on Management Technology and certain level of Specific Technology by Sector, in addition to the collaboration with industrial sector organizations.

b) Capacity development as a Team

When looking at the consulting ability as an organization, there are two ways of thinking (Figure 13). Both the left and the right figure assume a case where four people form one consultant team.

Figure 13. Approaches for Capacity Development for Consulting Activities



In the left figure, the consultants of No. 1 to No. 4 are lined up side by side, and the consulting ability of each person consists of 4 aspects (Q: Quality, P: Productivity, C: Cost, D: Delivery time). The length of the bar indicates the degree of ability. The longer the bar is the higher ability it is.

The difference between the left the right figure lies in which ability is to be strengthened in trainings and OJTs when the opportunities are given. In the left figure, the focus is put on “To further extend each person's superior ability” (extended margin is indicated by the dotted line), whereas in the right figure the training opportunity is utilized “reinforce weaknesses”.

The other difference is that in the left figure, each person's superior ability (further strengthened) is combined to have consulting ability far beyond individual level as an organization, but in the right figure, each person has no weak point, but organizational ability also remains at a level that is not much different from each person's ability. In other

words, the left figure enhances the ability of the organization by synergistic effect of multiplying the strength of each person, but in the right figure it can be said that the organization remain just as plain one (having no weakness but also no outstanding feature).

The idea of the right figure is not an absolute mistake. In order to train consultants below the basic level, this idea is also necessary.

In case of putting emphasis on the capacity development of the consultants of intermediate level and the above, or aiming for Center of Excellence, it is recommended to take the way of thinking shown in the left figure.

11. Knowledge Management

Considering the productivity of the organization, as well as efficient knowledge creation within the organization, Knowledge Management (KM) is very important. The definition of KM is to find, create, share, and manage the knowledge utilized for achieving organizational goal. The merits of KM are as follows:

- To achieve the good results in business effectively, by sharing technical knowledge and best practices.
- To improve productivity by utilizing methods used in the past.
- To eliminate the waste of searching information

The process of KM consists of Collecting Knowledge, Developing Knowledge, Creating Knowledge and Integrating Knowledge. Then to make KM database which makes people easy to search and to utilize (Figure 14).

Figure 14. Knowledge Management



The key points for successful KM are:

- Focus on the knowledge which most of the members can utilize, or which can be used for solving current issues. To make the segmentation of the information and put the priority of the information shared. Otherwise the maintenance of the information becomes heavy burden to the members.
- Clarify the goal, involve all the members and monitor periodically.
- Utilize the database and intranet.
- Share the knowledge by discussion and common experiences.

12. Useful KAIZEN Tools and Ways of Implementation

(1) KAIZEN

a) Definition

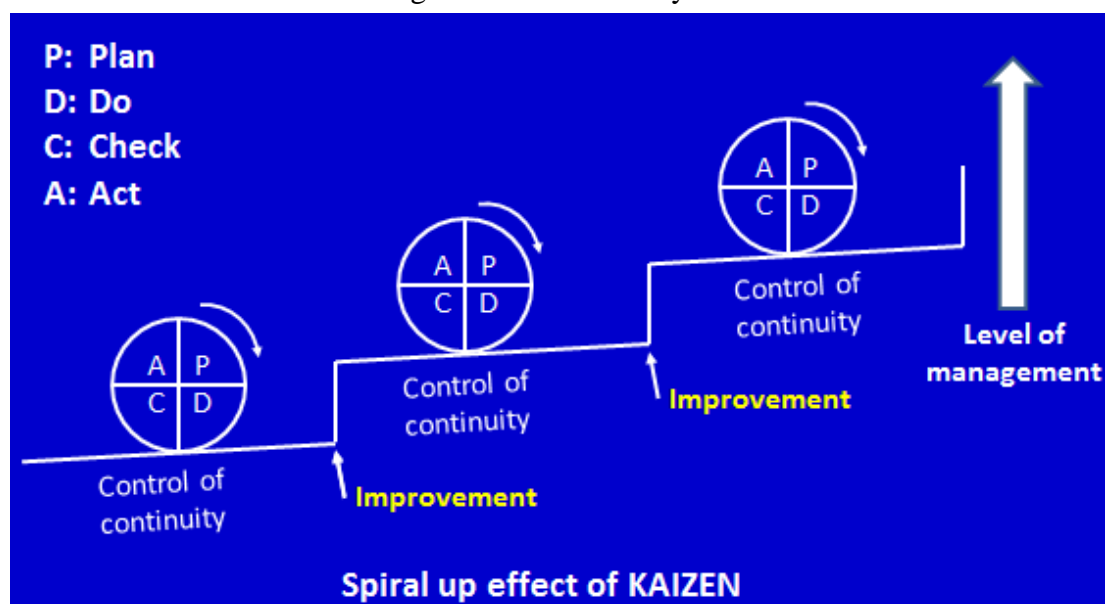
The word KAIZEN comes from the Japanese language. It means to change for the better. When we talk about KAIZEN, in the broad sense, we can define it as to “change for the better”. KAIZEN is regarded as a continuous activity that conducts problem-solving or issue achievement after identifying problems or issues.

b) Characteristics

There are 4 major characteristics of KAIZEN.

Continuity...KAIZEN needs to be implemented continuously with PDCA cycle (PDCA→ Referred to ‘9. PDCA – Management Cycle of Organizational Activities’). Then the culture of the KAIZEN is rooted in the organization and the bigger results can be achieved.

Figure 15. KAIZEN By PDCA



Participatory approach...KAIZEN is characterized by a bottom-up approach with participation by the concerned organizations and personnel. The characteristics of KAIZEN can be especially found in the participation of cross-functional organizations and small groups such as Quality Control Circle (QCC. In Ethiopia, it is often called as KAIZEN Promotion Team). Small problems in the workplace can be resolved within the department or QCC concerned, however, problems that involve multiple organizations cannot be solved by a single organization. Important problems in enterprises often exist across different departments.

In addition, emphasis is placed on introducing the suggestion system for utilizing individuals' ideas and the training of related personnel

Accumulation of small improvements...It is wrong to expect major outputs from implementing KAIZEN one time. KAIZEN, which can be started by anybody, anywhere and anytime, places emphasis on the accumulation of small outputs. For example, let's assume that conducting a small KAIZEN change for a week leads to a 1% improvement in productivity. If this is repeated every week, productivity will increase by 68% in a year. This is because the outputs of KAIZEN are accumulated in compound fashion.

Improvement without major investment...KAIZEN begins with improvements of the things that can be improved before making big investment. If mechanization is promoted without eliminating waste from work and motion, the wasteful works will end up becoming mechanized too. No matter how much wasteful work and motions are mechanized or automated, this will not enhance added value.

One of the examples is 5S (5S is explained later in this guideline). The base for KAIZEN is made by introducing 5S. 5S can be realized without any money (practically with a little investment).

c) What can be achieved in KAIZEN

In manufacturing sectors, KAIZEN is often implemented to improve **P** (productivity), **Q** (quality), **C** (cost) and **D** (delivery). How can we utilize KAIZEN in civil service? Table 8 shows some examples of the objectives of KAIZEN considering the application into civil service sector. As it is shown, KAIZEN can help to improve PQCD in civil service sector and it has already been applied in many countries.

Table 8. Possible Application of KAIZEN into Civil Service Sector

	Examples of Objective	Examples of KAIZEN Tools
P	<ul style="list-style-type: none"> ● Decrease of working hours ● Elimination of unnecessary procedures ● Unbalance of job allocation 	<ul style="list-style-type: none"> ● 5S ● Standard operation procedure ● Line balance / Time study
Q	<ul style="list-style-type: none"> ● Less waiting time for citizens ● Eliminating the errors 	<ul style="list-style-type: none"> ● 5S ● Root cause analysis ● Standard operation procedure
C	<ul style="list-style-type: none"> ● Reduction of unnecessary labor cost ● Reduction of unnecessary procedure ● Reduction of unnecessary space 	<ul style="list-style-type: none"> ● Operation analysis ● 5S / layout
D	<ul style="list-style-type: none"> ● Delay of the services ● Shortening the delivery time 	<ul style="list-style-type: none"> ● 5S ● Root cause analysis ● Standard operation procedure ● Operation analysis

d) Relationship between KAIZEN and ISO

What are the differences between KAIZEN and ISO?

- KAIZEN is technology for enabling producers to make better products with greater speed and lower cost, while ISO is technology for enabling buyers to continuously buy better products. The characteristics of ISO are expressed by the fact that enterprises must acquire ISO in order to export to the EU.
- KAIZEN focuses on the change for better. ISO is a standard: Standard focuses on the effort to keep “Status quo”, that is to define a rule, to keep the rule and to show an evidence of having kept the rule.
- Quality as one of KAIZEN target corresponds to ISO 9001. Environment as one of KAIZEN target corresponds to ISO 14000.
- Productivity, cost and morale do not correspond to ISO. ISO focuses mostly on “Check” in Deming cycle (PDCA).
- In overlap zone, KAIZEN and ISO (standard) are mutually complementary.
- ISO has certification systems and authorities, but KAIZEN has no.

(2) 5S

a) Definition

5S is an entrance to KAIZEN. Quality or productivity improvement cannot be conducted without implementation of 5S. In other word, 5S is the foundation building of any other KAIZEN activities.

5S is “SEIRI”, “SEITON”, “SEISOU”, “SEIKETSU” and “SHITSUKE.” 5S is derived from these five Japanese initials. Table 9 shows the English translation of 5S and their definitions.

Table 9. Definition of 5S

Japanese	English	Definition
SEIRI	Sort	To clear the work area. Any work areas should only have the items needed to perform the work in the area.
SEITON	Set in order	To design the locations. All the necessary items (materials, tools, products, etc.) are placed.
SEISOU	Shine	To clean the workplace.
SEIKETSU	Standardize	To set the rules to continue previous 3S.
SHITSUKE	Sustain	To integrate 5S into the culture.

5S in Factories (Before and After)



b) Benefits of 5S

The followings are the benefits of 5S.

- To eliminate the time to search materials/parts/tools
- To visualize the waste of process/operation
- To improve safety and working environment
- To make inventory control easier
- To utilize space
- To improve the mindset of staff to implement further productivity improvement

5S in an Office (Before and After)








c) Implementation of 5S

Table 10 shows the process of implementation of 5S. [Example 11] includes the implementation tools of 5S, such as 5S Audit Sheet (for office), Red Tag for implementing 1S (SERI-Sort)

Table 10.

How to Implement 5S

1S (SEIRI) 	<ol style="list-style-type: none"> 1. Set standard to keep or abolish each item, according to the frequency of use 2. Separate necessary items and unnecessary items at workshop. 3. Put Red Tags on what are not needed. 4. Discard what are not needed.
2S (SEITON) 	<ol style="list-style-type: none"> 1. Decide where each item should be placed 2. Decide how each item should be placed. 3. Place each items accordingly.
3S (SEISOU) 	<ol style="list-style-type: none"> 1. Conduct Big Cleaning Day by participation of all the staff 2. Check the sources of dirtiness and take countermeasure 3. Start daily cleaning (floor, machines, equipments, tools, etc)
4S (SEIKETSU) 	<ol style="list-style-type: none"> 1. Set rules and standards of "1S", "2S" and "3S", by Visual Control (signs, pictures, lines, coloring) 2. Monitor them
5S (SHITSUKE) 	<ol style="list-style-type: none"> 1. Training individuals by self-checklist 2. Training through company-wide activity (daily morning meeting, team activity, etc)

[Example 11] Implementation Tools of 5S

5S Audit Sheet - Office							
Company:			Date of Audited:				
Place:			Auditor:				
Category	No	Subject to be Checked	Remarks	Score			
				1	2	3	4
Floor and Door	1	Tidy and no dust.					
	2	No rubbish in the corner or under the furniture.					
	3	No hole/ crack/torn/etc.					
	4	Room tag is set.					
Arrangement on Work Table	1	Tidy and properly arranged.					
	2	Method of arrangement is able to create a comfortable environment.					
	3	Method of arrangement is able to reduce the work process period.					
Work Table	1	No unnecessary items					
	2	Items are clean and tidy.					
	3	Stationeries are not scattered on the desk or in the drawer.					
	4	Only the required paperwork is present at the workstation. Out-dated or otherwise unnecessary posters, memos, announcements, reports, etc. are removed from the workplace.					
Shelves	1	Tidy and no dust.					
	2	Documents are filed and arranged.					
	3	Files are sorted by items.					
	4	Item tags are put on the shelves.					
Total				0	0	0	0
[Scale of Score] 1= Not done at all, 2= Done but not sufficient, 3= Done well, 4= Done very well				Total Score /60		0	
				Total Score %		0%	

RED TAG			
Classification	1. Raw material		5. Machine
	2. Material in process		6. Mold, jig
	3. Fabricated materials		7. Tool
	4. Product		8. Others
Name			
Quantity		Amount (Bs.)	
Reason	1. Unnecessary		5. Unexplained
	2. Defective		6. Others
	3. Not urgent		
	4. Mill ends		
Department			
Action	1.Put off 2.Return 4.Special keeping		of red tag one
Date	Paste	Action	
No.			

(3) 7 Wastes (Muda)

The Toyota production system is famous all over the world as the best practice of KAIZEN and gets attention from a lot of enterprises. It was Mr. Taiichi Ohno, a former vice president of Toyota, who devised this production system. He purported the idea of starting factory KAIZEN from the elimination of 7 MUDA (wastes). These are the famous 7 MUDA.

Table 11. 7 MUDA (Wastes)

Kind of MUDA	Explanation
1. MUDA in overproduction	<ul style="list-style-type: none">● Overproduction is excess production over actual demand. Under the condition of changes of market demands, the excess production amounts might be amortized and wasted.● Overproduction induces excess of transportation, storage area and interest, and risk of quality deterioration.
2. MUDA in waiting	<ul style="list-style-type: none">● Waiting of workers or machines occurs from various reasons, such as the shortage of work to be processed, unbalanced job allocation, shortage of raw materials, breakdown of machines.● This is caused by delay or shortage of work in the prior processes.
3. MUDA in transportation	<ul style="list-style-type: none">● Transportation does not create any value added except for transportation companies. Transportation is usually difficult to be totally eliminated but reducing is possible.● Layout improvement aims mainly to KAIZEN in transportation.
4. MUDA in processing	<ul style="list-style-type: none">● Processing is not always the value-added process. MUDA in processing is often improved by using new designs and jigs.● Value engineering is useful for elimination of MUDA in processing.
5. MUDA in inventory	<ul style="list-style-type: none">● Inventory includes a stock of raw materials, work in process and final products. Excess inventories needs more stock space, excess transportation and interest.● Acceptance of excess inventories hides many problems such as machine breakdown, long delivery time, quality problems.
6. MUDA in motion	<ul style="list-style-type: none">● MUDA in motion is without value-added, unnecessary motion, and slow motion.● It induces increase of workers and man-hour, hiding of unskilled work, instability of work and unnecessary motion.
7. MUDA in defect	<ul style="list-style-type: none">● MUDA in defect consists of defect itself and adjusting of work.● Defect in market brings complaints from customers.● If inspectors are increased for reduction of defect, it does not mean the real action for defect.

(4) QC (KAIZEN Promotion) Story

QC story is problem solving steps as well as KAIZEN reporting procedure. It is based on scientific problem-solving techniques. It comprises the following 10 steps for related persons to understand.

[10 Steps of QC Story]

- 1) Preface
- 2) Selection of KAIZEN Subject
- 3) Comprehending the Current Situation
- 4) Activity Planning
- 5) Cause Analysis
- 6) Countermeasures
- 7) Comprehending results
- 8) Standardization & Training
- 9) Remaining Problems
- 10) Future Planning

In these steps, the appropriate 7 QC tools are utilized (7 QC tools are explained the next chapter).

[Features of QC Story]

- QC story consists of 'Scientific problem solving procedure' and 'Easy to understand presentation scenario'.
- QC story is available not only for quality problems but also for other problems such as productivity problems and cost problems.
- QC story has scientific problem analysis techniques, such as 7 QC tools.

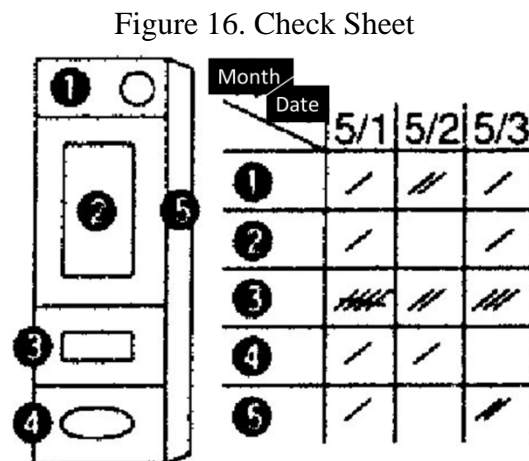
(5) 7 QC (KAIZEN Promotion) Tools

The 7QC Tools are tools that, in the performance of KAIZEN, allow for the quantification and visualization of phenomena, so that anyone can understand any problems instantly, or so that problems can be easily explained. 7 QC Tools include check sheet, Pareto chart, cause-and-effect diagram, histogram, scatter diagram, stratification and control chart.

a) Check sheet

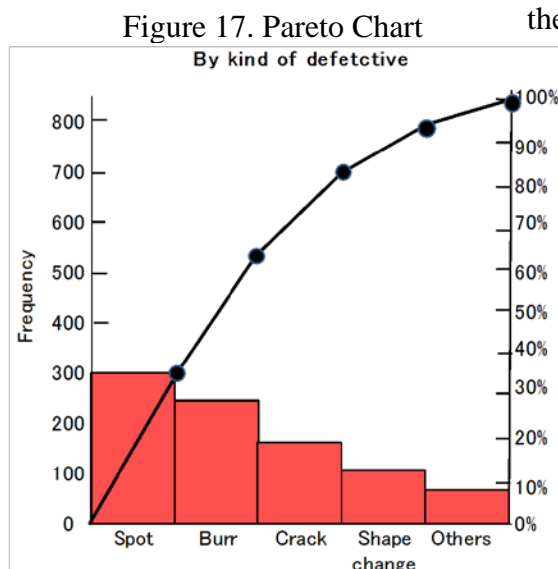
A check sheet is a predesigned sheet that allows for data to be divided up and collected easily. In [Example 12], it is easy to enter numbers into the sheet divided by location of defect and by day. A well designed check sheet also has the advantage of allowing all areas that require checking to be checked without missing any out.

Check sheets are often used when collecting the data required for Pareto charts and histograms, which will be explained later.



b) Pareto chart

A Pareto chart collects data on problems that are happening on-site, such as defects, complaints or accidents, and categorizes them by phenomenon and cause, then arranges



them in descending order in terms of the number of defective units or financial losses incurred, and represents those sizes on a bar chart. It is useful for prioritizing the phenomenon and cause.

This image shows the number of defects divided into separate phenomenon for plastic injection molding. The bar chart is arranged from left to right in descending order of number of defects. The horizontal axis represents each phenomenon. The line chart takes the total of the bar chart as 100%, and displays the % of the total for

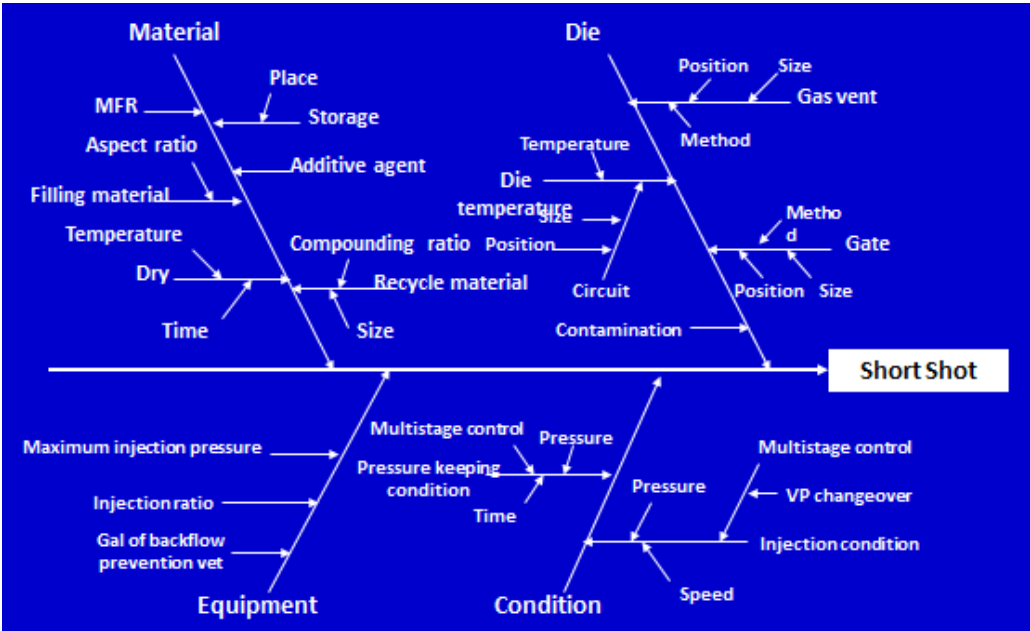
each bar; here it is showing that the two phenomena of “black spots” and “flash” account for 60% of defects.

c) Cause-and-effect diagram

A cause and effect diagram was created by Dr. Kaoru Ishikawa called the Japanese father of quality management. It is used to find problems, gather opinions from related persons for improvement, analyze causes supposed to have the biggest impact and evaluate results after improvement. A cause and effect diagram arranges the relationship between

problems and the causes believed to be behind them in a fish-bone style diagram. A cause and effect diagram can be used not only in problem analysis, but also when creating countermeasures.

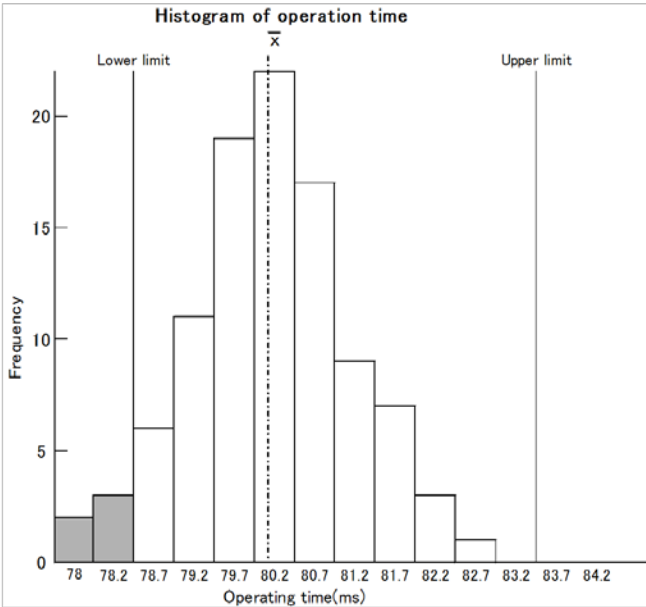
Figure 18. Cause & Effect Diagram



d) Histogram

A histogram takes data acquired by measuring quality characteristics, categorizes it into certain ranges and then creates a bar chart showing the number of cases within each range. In the case of many data, classify data into several ranges between maximum and minimum and indicate frequency of data on bar graph. It is easy visually to understand bias of variation and average of data.

Figure 19. Histogram



e) Scatter diagram

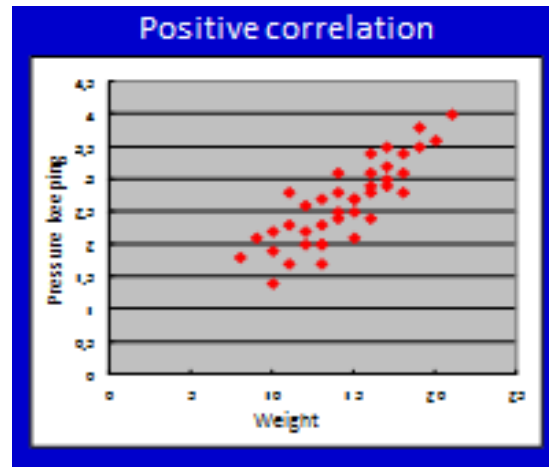
Scatter diagram is used to examine the relationship between two contrasting pairs of data.

For investigation of correlation between two kinds of data, plot measured figures on the graph of which horizontal axis indicates characteristic A and vertical axis indicates characteristic B.

This diagram is used mainly for investigation of cause, product development and production preparation.

When there is relationship between result and factors on cause and effect diagram, consider countermeasures to control factors.

Figure 20. Scatter Diagram



f) Stratification

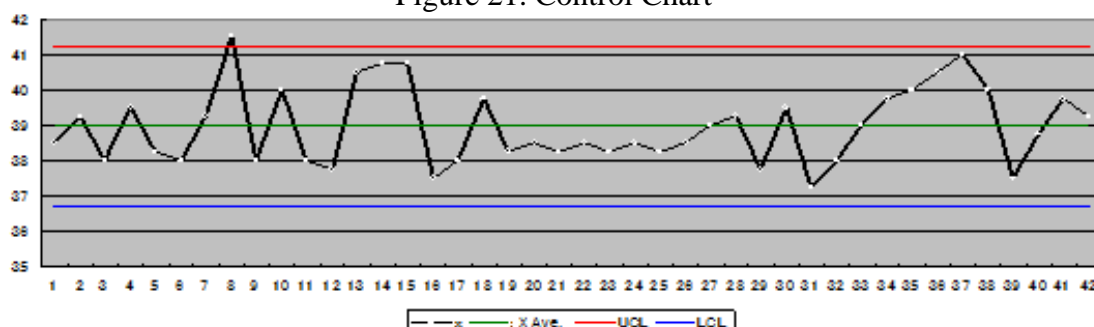
Stratification is to classify the data by the attributions of data. Compared with classified groups, take some hints to resolve problem. Stratification is an effective tool in terms of determining the root cause among several possible causes. It is very simple, but it is very useful at quickly cutting a problem down to size.

g) Control chart

Control chart is the tool to find the variance of the data. Even when created using the same materials, machine and process there will always be variance in the characteristic values of a product. This variance in the data is because there is a cause in the process that creates this variance in quality.

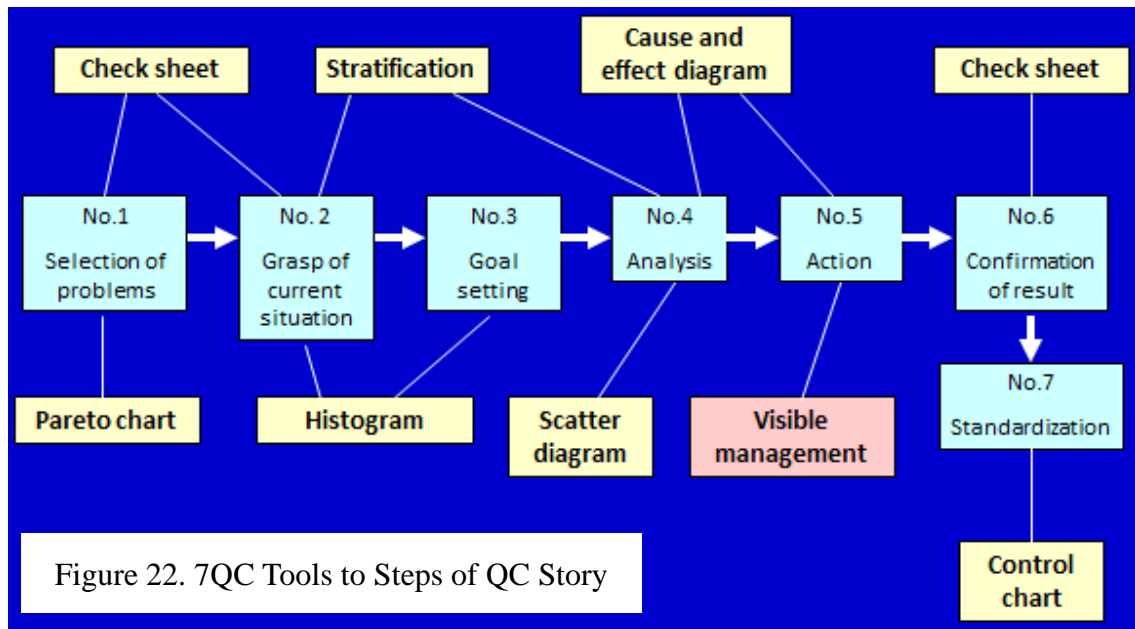
The figure above is the example of the control chart. The red line is the upper control limit (UCL), while the blue line is the lower control limit (LCL). There is one data beyond the UCL, which is regarded as abnormality and the cause is needed to be examined.

Figure 21. Control Chart



h) Application of 7QC Tools to steps of QC Story

Figure 22 shows how to apply each 7 QC Tools to QC Story.



(6) QCC (KAIZEN Promotion Team: KPT)

a) What is QCC?

Quality Control Circle (QCC) is small groups consisting of first-line employees who continuously control and improve the quality of their work, products and services. Born in Japan, QCC activities are now widely practiced around the world. QCC activities aim:

- To develop members capabilities and achieve self-actualization
- To make the workplace more pleasant, vital and satisfying
- To improve customer satisfaction and contribute to society

In Ethiopia, EKI renamed it as KPT (KAIZEN Promotion Team), instead of QCC.

b) Basic principles of QCC activities

There are the following principles of QCC activities.

- To operate autonomously
- To organize the members in different job rank (frontline workers, supervisors, managers, etc.) and focus on cooperative activities among the members
- To utilize QC Story and 7 QC Tools (other QC Tools)
- To tap members creativity and promote self-and mutual development

c) Activities of QCC

QC Circles carry out the following activities

1) Study on QCC

- Understanding the significance and basic of QCC
- The way to carry out QCC activities

2) Study on enhancing problem-solving skill

- Ideas based on QC
- Understanding and solving problems based on the problem solving approach.
- QC methods used for problem-solving

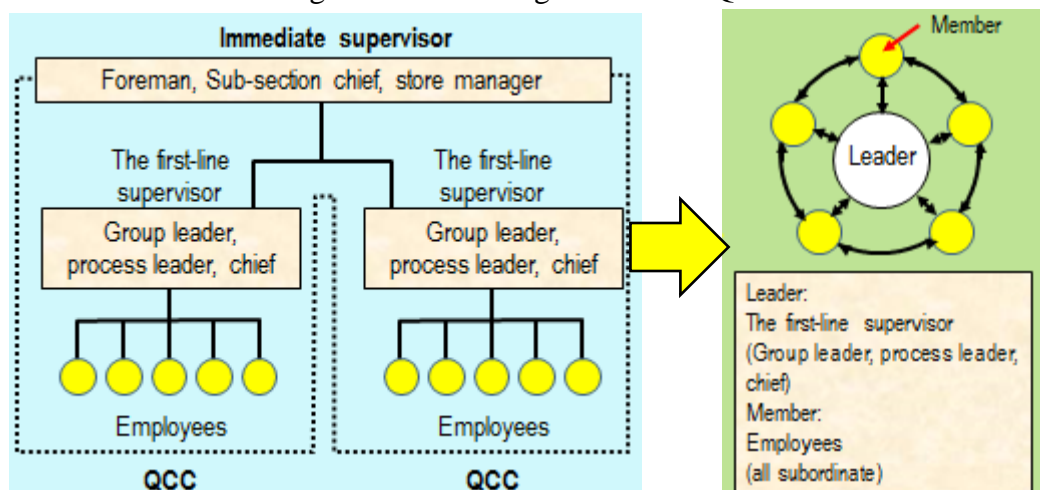
3) Study on undertaking work smoothly

- Knowledge required proceeding with work, such a work details, and operational procedure, or structure and handling of facilities.
- Technique and skills required for carrying out tasks, such as smooth machine adjustment, accurate and first measurement technique etc.
- Management skills required for achieving policies and target.

d) Basic organization of QCC

Figure 23 shows the basic organization of QCC. The appropriate size for a QCC is 5 to 7 members. More than 7, it becomes difficult for everyone to voice an opinion in meetings, but less than this, and the burden placed on each member becomes too large for good ideas to emerge. QCC leaders may be line leaders, process managers, and chiefs.

Figure 23. Basic Organization of QCC

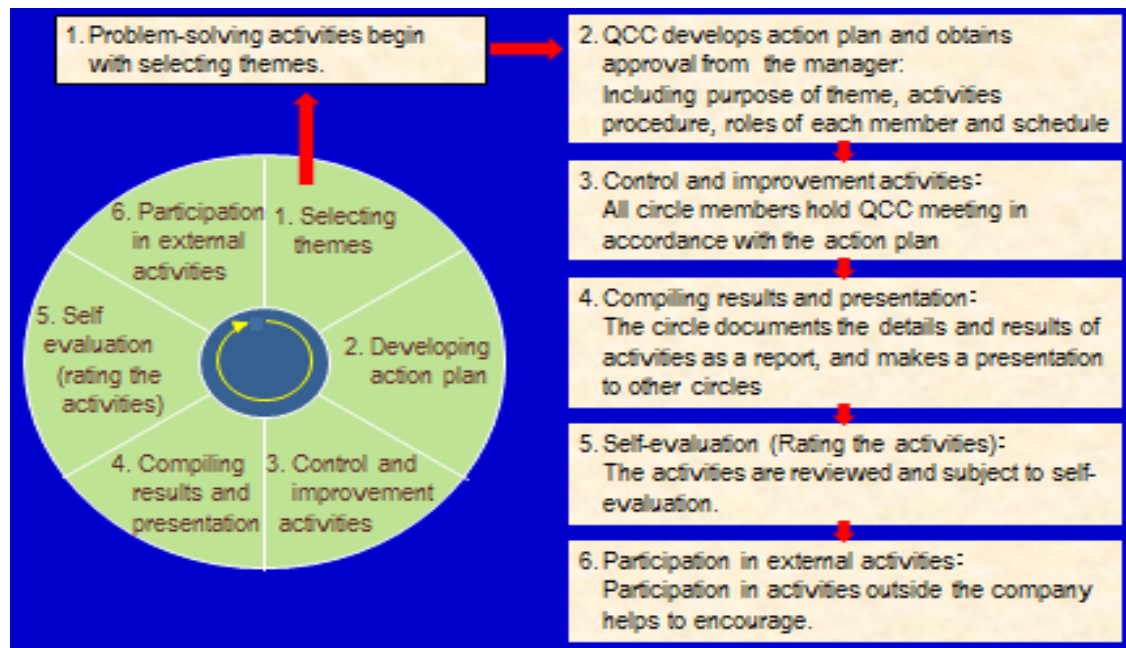


Source: JUSE

e) Implementing QCC Activities

Figure 24 shows that QCC develops an action plan and obtains approval from the manager after it finishes selecting problems. Future activities are conducted based on this plan. After the countermeasures are implemented, the results are recorded and presented to other QCC at the appropriate times. At the same time, the circle conducts self-evaluation. The members may attend external presentation meetings.

Figure 24. Basic Organization of QCC



Source: JUSE

f) Education of Fundamental of QCC

Figure 25 shows a training plan for a QCC. It comprises two days of activities, and the frequency of group discussions increases towards the end.

Figure 25. An Example of QCC training curriculum (day course)

Time		Outline	Point
Day 1	Morning	1. Lecture by senior management 2. Basic of QCC (What are QCC activities?)	- Purpose of QCC activities - Expectations for QCC activities - Use "the fundamental of QCC" as a textbook
	Afternoon	3. QC concepts and procedures for control and improvement 4. Group discussion	- QC concept and problem-solving procedures - Practice of problem-solving procedures
Day 2	Morning	5. QC methods 6. Group discussion or practice	- Significance of QC member - How to learn technique - Practice of problem-solving procedures or practice of QC methods
	Afternoon	7. Group discussion (presentation) 8. Keys to implementing and operating of QCC activities.	- For understanding Problem-solving procedures - For implementing activities

Source: JUSE

g) Awarding QCC activities

Awarding QCC activities leads to the activation and promotion of these activities. It is important to establish an award system. Figure 26 shows the example of the awarding system.

Figure 26. An Example of QCC Awarding System

Type of award		Presenter	Description
Theme Completion award	Presentation within department	Department /Section director	Recognizing circles for their presentation at department-level or section-level QCC presentation meeting
	Improvement proposals	According to rank classification	Awarding circles based on results of review in the proposal system
QCC conference awards in a business unit		Director of business unit	Awarding circles for their presentation at QCC conference held at the business office
Company wide QCC conference awards	Company-wide QCC conference presentation awards	Top management	Awarding circles for their presentation representing their respective department at a company-wide QCC conference
QCC activities awards	Annual awards for activities		Awarding circles for their exemplary activities through the year.

Source: JUSE

[End]

3. CONCEPT AND APPLICATION OF KAIZEN INDICATOR



CONCEPT AND APPLICATION OF KAIZEN INDICATOR

The gap between the ideal and the current situation is “room for Kaizen”, and Kaizen is an activity to fill this gap. Kaizen Indicator (KI) is defined as the rate of the gap filled (improvement) by Kaizen against the room, and shows how much Kaizen is progressed.

June 2020

Ethiopian Kaizen Institute (EKI)

JICA Kaizen Project Team

Concept and Application of Kaizen Indicator

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1. Background

When measuring and evaluating the result of Kaizen practices, EKI had used the following two figures commonly as Kaizen index. The first one is the ratio of the Kaizen value after Kaizen against that of before Kaizen (i.e. $\frac{\text{The value after Kaizen}}{\text{The value before Kaizen}}$). The other one is the ratio of Kaizen achievement to the target (i.e. $\frac{\text{The value after Kaizen}}{\text{The Kaizen target}}$). However, these two methods have the disadvantage. In the first method, the Kaizen index differs greatly depending on which numerical value is used for the denominator. For instance, let us take the improvement of the defect. When the defective rate before Kaizen is 4% and that of after Kaizen is 3%, the Kaizen index is $3/4$, which is 75%. When we use good product rate, the rate before Kaizen is 96% and that of after Kaizen is 97%. Then, the Kaizen index becomes $97/96$, which is 102%. Both deal with the same thing, but each Kaizen index are different. Thus, this method cannot be said to be logically correct. On the other hand, in the case of the second method, the target to be set is arbitrarily determined by the subject of Kaizen. Thus, the result is also arbitrary and is not always inappropriate.

From the above reasons, the new definition of Kaizen Indicators (KIs) is proposed in order to measure, compare, combine and evaluate the results of the Kaizen implementation. Figure 1 and Table 1 show the comparisons of the methods of calculating Kaizen index.

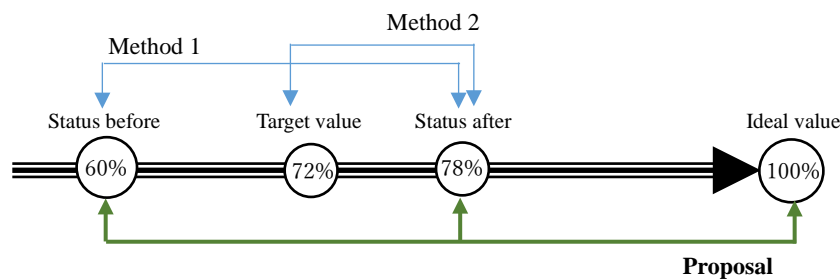


Figure 1: Comparison of indices of Kaizen performance

Table 1: Comparison of indices of Kaizen performance

Method	Formula	Sample calculation	Remarks
1. The ratio of the Kaizen value after Kaizen against that of before Kaizen	$\frac{\text{The value after Kaizen}}{\text{The value before Kaizen}}$	$\frac{78}{60} = 1.30$ (130%)	
2. The ratio of Kaizen result to the target	$\frac{\text{The value after Kaizen}}{\text{The Kaizen target}}$	$\frac{78}{76} = 1.03$ (103%)	The Kaizen index varies depending on the target set.
Proposal: Kaizen Indicator (KI) - The ratio of change for the better to room for Kaizen	$\frac{\text{Improvement by Kaizen}}{\text{Room for Kaizen}}$	$\frac{78-60}{100-60} = \frac{18}{40} = 0.45$ (45%)	

2. Basic concept of Kaizen Indicator (KI)

Kaizen indicator (KI) is expressed as the ratio of change for the better by Kaizen against room for Kaizen before the Kaizen. Here, the room for Kaizen is calculated by:

Ideal status – Status before Kaizen

$$\text{Kaizen Indicator (KI)} = \frac{\text{Change for the better by Kaizen}}{\text{Room for Kaizen before Kaizen}} \times 100 (\%)$$

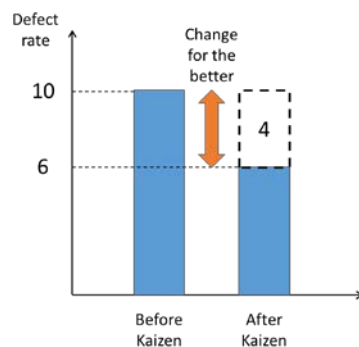


Figure 2: Concept of KI

For instance, if the defective rate of a product is initially 10%, and it is improved to 6% after Kaizen implementation, the value of the Kaizen indicator will be:

$$\begin{aligned} \text{KI} &= \frac{\text{Change for the better}}{\text{Room for Kaizen}} \times 100 \\ &= \frac{|6-10|}{|0-10|} \times 100 = \frac{4}{10} \times 100 = 40 (\%) \end{aligned}$$

Here, the ideal figure of defective rate is 0%, so the room for Kaizen in this case is 10%.

As is well known, it is commonly accepted that Kaizen is defined as an activity that reduces or eliminates the gap between the ideal situation and the current situation. Therefore, this formula is derived from this definition of Kaizen.

When there is a large room for Kaizen (for example, 30%), it is necessary to fill the room of 30% by 15% in order to achieve the KI of 50%. When there is little room for Kaizen (for example, 2%), in order to achieve KI of 50%, it is necessary to fill the room of 2% by 1%. This does not mean that the former needs 15 times more effort putting into Kaizen than the latter. In fact, the large room for Kaizen leaves many measures that have not been

implemented yet, and there is a high possibility that some measures will bring great Kaizen effects. On the other hand, if there is little room for Kaizen, many measures have already been taken to bring the situation closer to its ideal status. In addition, it is likely to require a lot of labor and money to take new measures. It is easy to reduce the defective rate by 1% in the process that has a defective rate of 30%. But it is much harder for the factory with a defective rate of 2% to achieve a defective rate of 1% than the former.

3. Advantages of Kaizen Indicator

When using Kaizen indicator (KI), it is possible to measure the outcomes of Kaizen activities with the same scale, no matter what the activities aim for. There are different ways of KI use by considering its characteristics.

First, the KI can be used for the evaluation of the performance of individual trainees in ICT, as well as for relative evaluation among the trainees. Secondly, they can be used for overall Kaizen evaluation of ICT companies, as well as for the relative evaluation among the companies. Thirdly, they can be also used for overall Kaizen evaluation of respective ICT batch and its relative evaluation among the batches. As the same KIs are used in various ways, starting from individual Kaizen theme in ICT to the indicators of PDM, it is possible to secure the consistency throughout. Fourthly, calculating the average of KI by each Kaizen theme such as quality, productivity, cost and delivery time, we can see what kind of Kaizen theme was difficult for trainees.

In addition, the KI can contribute to personnel management. If the evaluation with KIs is applied to Kaizen consulting service to be provided by EKI consultant, the following uses and advantages can be expected:

- (1) Use in performance evaluation of consultants: Even though each consultant is in charge of different sector and different theme, it is possible to ensure fair evaluation as the same scale (i.e. KIs) is used.
- (2) Use in personnel placement: If the data of KIs is accumulated for each consultant, the strength and weakness of the consultant will be numerically revealed. When personnel placement and team formation considering the strength of individual consultant is made, the organizational strength of a company is enhanced.
- (3) Use in individual capacity development: The data of the indicators can be used for appropriate training plan for individual consultant.

4. Definition and calculation of major Kaizen Indicators

4.1 Quality Kaizen Indicator (QKI)

As mentioned above, QKI is expressed as the ratio of change in quality to room for Kaizen in quality. When taking an example below, the change in quality is the quantity of decreasing in defective rate of a product, i.e. to decrease to zero (0).

$$QKI = \frac{\text{Change for the better in quality}}{\text{Room for Kaizen in quality}} \times 100 (\%)$$

Example:

If initial defective rate = 5% and final defective rate after Kaizen = 3%,

$$\text{Then, } QKI = \frac{|3-5|}{|0-5|} \times 100 = \frac{2}{5} \times 100 = 40 (\%)$$

Even in such a simple case, the following mistakes often happen.

“Since the defective rate of 5% has dropped to 3%, it is a positive change. Such changes should be calculated so that an index of 100% or more is obtained. Therefore, the denominator and the numerator are reversed. Then, calculate $KI = 5 \div 2 \times 100 = 250.0\%$.”

Or, replacing the defective rate with the non-defective rate, and say

“95% has improved to 97%, so putting the actual value before Kaizen in the denominator and that of after Kaizen in numerator, calculate $KI = 97 \div 95 = 102.1\%$.” This is an example of distortion.

The relationship between defective rate and non-defective rate is always “defective rate + non-defective rate = 100” That is, (defective rate : non-defective rate) is (5% : 95%) and (3% : 97%). Thus, whether the Kaizen index is calculated using the defective rate or the non-defective rate, the results must be the same. When using the KI formula, the results shall be the same as follows.

When calculating from the defective rate,

$$KI = \frac{(5-3)}{(5-0)} \times 100\% = 40\%$$

When calculating from the non-defective rate,

$$KI = \frac{(97-95)}{(100-95)} \times 100\% = 40\%$$

Many of the mistakes are due to the sensory perception of indicators rather than the logical definition. For instance, when KI shows a good direction for management, it is then intended to make the KI be more than 100% or positive. Conversely, when KI shows a negative direction for the management, it is then intended to make the KI be less than 100% or negative value, by exchanging the numerator and denominator, or subtracting the value before or after Kaizen from 100 and then putting the numbers in the numerator or denominator, without any valid reasons.

4.2 Productivity Kaizen Indicator (PKI)

Similarly, the Kaizen indicator of productivity (PKI) is also calculated as follows:

$$PKI = \frac{\text{Change for the better in productivity}}{\text{Room for Kaizen in productivity}} \times 100 (\%)$$

Here, the denominator = Room for improvement
= Ideal productivity – Current productivity

Example: The production of mask

If initial productivity = 2000pcs/hour,

ideal productivity shown in the specification of machine = 2500pcs/hour,

productivity after Kaizen = 2200psc/hour,

$$\text{Then, PKI} = \frac{2200-2000}{2500-2000} \times 100 = \frac{200}{500} \times 100 = 40 (\%)$$

As shown in the example above, in order to find the denominator, which is the room for Kaizen in productivity, it is necessary to find the ideal productivity. Here after, we shall see the three cases.

The first case is when we consider the work done by machines only. In this case, we can use the production amount determined by machine standard (the amount yield by the machine without breakdown or stoppage) as the ideal amount of production.

The second case is the multiple or combined work of machine and man. In this case, we shall do multiple activity work analysis to find the most efficient (lean) combination value, and use this value as the ideal value.

If the Kaizen case you deal with is not applicable to the above two, the ideal value can be provisionally set as “Initial productivity x 2.” If you realize that the value is too ambitious after the Kaizen implementation, you can adjust this value to 1.5 times or 1.8 times.

When we evaluate PKI, we need to confirm the way how to make the improvement at the same time. So, we have to bear it in mind that the partial optimization does not contribute to the performance of a company. The typical partial optimization examples are to increase the productivity by make the lot size larger, or to continue to manufacture products without receiving an order (some company does there to save set-up time of machine). Toyota Production System (TPS) strongly warns these. In TPS, the focus of process control is to make it on time (Just-in-time), and high productivity is pursued under the condition to meet delivery time, which means that it should not be too late or too early. Why do they insist on this priority? This is because even if the productivity increases by large lot production without the base of demand, it does not increase profits for the company. It would just bring self-satisfaction to the work-site.

Productivity of equipment (M)

Overall equipment effectiveness (OEE) is a kind of productivity of equipment. It consists of three factors: (1) operation ratio (availability), (2) performance ratio and (3) good product ratio.

$$(1) \text{ Operation ratio} = \frac{\text{Actual operation hours}}{\text{Scheduled operation hours}} \times 100 (\%)$$

$$(2) \text{ Performance ratio} = \frac{\text{Actual production capacity}}{\text{Designed production capacity}} \times 100 (\%)$$

Note that actual production capacity usually includes number of defective products.

$$(3) \text{ Good product ratio} = \frac{\text{Number of good product}}{\text{Number of all products}} \times 100 (\%)$$

Kaizen indicator of OEE is calculated as follows:

$$\text{KI of OEE} = \frac{\text{Change for the better in OEE}}{\text{Room for Kaizen in OEE before Kaizen}} = \frac{\text{Change for the better in OEE}}{85 - \text{Initial OEE}} \times 100 (\%)$$

Example:

If initial OEE = 53% and OEE after Kaizen = 58%, then

$$\text{KI of OEE} = \frac{58 - 53}{85 - 53} \times 100 = \frac{5}{32} \times 100 = 15.6 (\%)$$

There are some remarks for the formula of Kaizen indicator of OEE. First, regarding the denominator of the formula, it is proposed to use “85” as practically ideal OEE, although the extreme figure is “100”. The value of 85 is also recognized as practically the largest value of OEE in Japan.

The following examples show the comparisons of the two cases.

$$\text{* Denominator} = 100 - \text{initial OEE} = 100 - 53 = 47$$

$$\text{KI of OEE} = \frac{5}{47} \times 100 = 10.6 (\%)$$

$$\text{* Denominator} = 85 - \text{initial OEE} = 85 - 53 = 32$$

$$\text{KI of OEE} = \frac{5}{32} \times 100 = 15.6 (\%)$$

In case that a client company does not keep all the three data of OEE mentioned above, it is recommended to use any one or two ratios to calculate KI.

Example:

If initial operation ratio = 69% and operation ratio after Kaizen = 78%, then

$$\text{KI} = \frac{78 - 69}{100 - 69} \times 100 = \frac{9}{31} \times 100 = 29.0 (\%)$$

The above example shows the Kaizen on improving operation rate. It is one of the factors (parameters) of productivity improvement. In this case, we shall use “100” as the ideal operation ratio. Among the Kaizen indicators of productivity, all related to operation and maintenance of machine and equipment using Total Productivity Maintenance (TPM) is taken as “M” of Kaizen indicators.

4.3 Cost Kaizen Indicator (CKI)

CKI has some aspects that are different from other indicators such as QKI and PKI. The first different aspect is that there are many ways to improve this indicator, but there are few decisive measures. So, we often use the combination of several effective methods. Second, there is generally little room for Kaizen. Third, it is advisable to analyze manufacturing costs from the two perspectives, quantity used and purchasing unit price

(quantity x purchasing unit price). Fourth, when a new product is introduced¹ or innovation occurs in a product-related field, the room for Kaizen in cost becomes wide. Once the production of a new product begins, it is less likely to review the manufacturing cost on a zero basis.

The cost incurred in factory is called “manufacturing cost.” The items of manufacturing cost can be classified into three categories according to the characteristics. The first one is the “raw material cost”, the second is “labor cost”, and the third is “manufacturing expense”. The labor cost in the factory is divided into the labor cost of the site worker and the labor cost of the supervisors and the above who belongs to the factory. The latter is included in the division of “manufacturing expense”. “Manufacturing expense” includes electricity, fuel and water costs, utilities, factory rent, depreciation costs, etc.

In relation with operation capacity, “Manufacturing cost” can also be divided into “variable costs” that fluctuate in proportion to the production volume and “fixed costs” that are not affected by fluctuations in the production volume. Raw material cost is a typical example of the former, and depreciation costs are an example of the latter.

CKI compares the ideal standard cost with the actual cost before Kaizen; and the amount that the actual cost exceeds the ideal standard cost is taken as room for Kaizen. The ideal standard cost here is the cost occurs when the raw materials and labor are procured at the lowest unit price, and production is performed with the highest efficiency level that can be achieved by using the current equipment. This does not include impairment, damage, and no work. It is easy to describe the ideal standard cost in words. But it is not easy to obtain it theoretically. Therefore, in many small and medium-sized enterprises, instead of the ideal standard cost, the cost at the lowest cost achieved within the past 5 or 10 years may be used.

There are two types of methods for obtaining CKI, depending on the degree of precision.

¹ In the manufacturing industry, about 90% of the manufacturing cost is often determined when planning and developing a new product. Focusing on this fact, the cost reduction is thoroughly considered and decided at this stage. This process is called “Cost planning”. If the cost planning is insufficient and 90% of the total cost is practically decided, it is possible to control the cost of only 10% at maximum, even though we try to completely eliminate waste in the processing and assembling processes. Pareto’s law suggests that efforts should be focused on the cost planning stage to achieve significant cost savings. In cost planning, VE (Value engineering), VA (Value analysis) and DR (Design review), which are often used to reduce raw material costs, are also carried out, so that we can examine whether or not there is room for cost reduction from many sides.

- (a) **Comparison method:** A method of comparing the difference between the ideal standard cost and the actual cost
- (b) **Analysis method:** A method of analyzing the difference between the ideal standard cost and the actual cost by dividing it into two aspects: a difference due to the difference in quality and a difference due to the difference in the quantity to use.

We can see these two methods in detail here below.

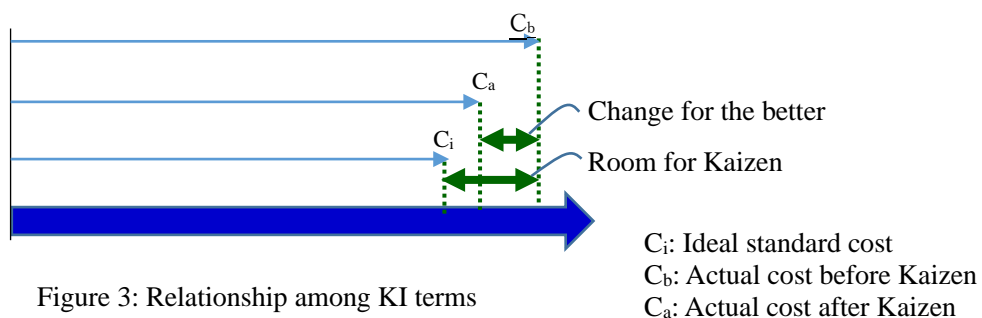
(a) Comparison method

In the comparison method, the CKI is calculated by comparing the difference between the ideal standard cost and the actual cost. The way of thinking is not different from other KIs. The calculation formula of CKI, like other KIs, is also expressed by how much of the room for Kaizen is reduced by Kaizen.

$$\text{CKI} = \frac{\text{Change for the better in cost (Kaizen effect/reduced cost)}}{\text{Room for Kaizen in cost}} \times 100 (\%)$$

The relationship of each term can be expressed by the length of the bar in Figure 3. The figure is the same as Figure 2 above except one thing. CKI is to measure how the excess cost is decreased, while other KI is to know the shortage or progress of Kaizen. Therefore, we will calculate CKI by the following ways:

- (i) Finding room for Kaizen by use of bar chart
 - (ii) Finding room for Kaizen in view of unit price and quantity of raw materials
- (i) Finding room for Kaizen by use of bar chart



Here, the room for Kaizen is the cost that exceeds the standard cost in the actual cost before Kaizen, that is, $C_b - C_i$. The amount of Kaizen that is filled up with Kaizen (change for the better) is expressed by $C_b - C_a$.

Therefore,

$$CKI = \frac{C_b - C_a}{C_b - C_i} \times 100 (\%)$$

(ii) Finding room for Kaizen in view of unit price and quantity of raw material

The room for Kaizen and change for the better can be determined depending on the nature of the target cost item of Kaizen. For instance, if the target of Kaizen is on variable cost, we can use the variable cost rate; if the target is on fixed cost, we can use the monetary amount. Here below, let us see the calculation of CKI in the case of a sugar production.

Table 2: Three situations of sugar production

Item		Unit	Ideal situation	Actual situation before Kaizen	Actual situation after Kaizen
Final product (sugar)		ton	20	20	20
Quantity of raw material (sugar cane): Q		ton	140	170	150
Unit price of raw material (sugar cane): P		Birr/kg	2.0	2.3	2.2
Cost (Quantity x Unit price): C		Kilo birr	280	391	330
Difference from ideal situation	Cost	Kilo birr	-	391-280 = 111	330-280 = 50
	Quantity	Kilo birr	-	2.0 x (170 – 140) = 60	2.0 x (150 – 140) = 20
	Unit price	Kilo birr	-	(2.3 – 2.0) x 170 = 51	(2.2 – 2.0) x 150 = 30

The table above shows the quantity of raw material consumption and unit price of raw materials (sugar cane) in the three situations: ideal situation, actual situation before Kaizen, and actual situation after Kaizen, taking the followings, and assuming the production volume of the finished product is set at 20 tons in all three cases.

C _i : ideal standard cost	P _i : ideal unit price	Q _i : ideal quantity
C _b : actual cost before Kaizen	P _b : actual unit price before Kaizen	Q _b : actual quantity before Kaizen
C _a : actual cost after Kaizen	P _a : actual unit price after Kaizen	Q _a : actual quantity after Kaizen

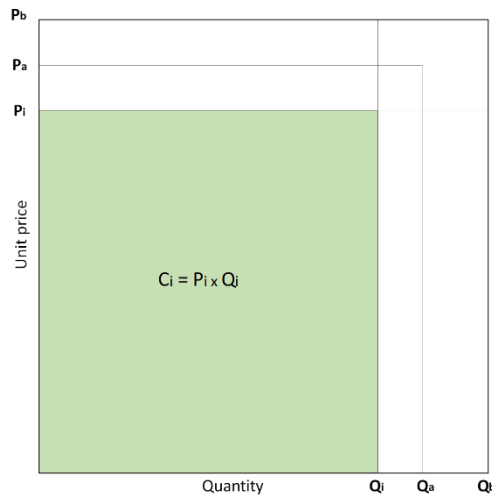


Figure 4: The relationship of cost, unit price and quantity of three situations

To find the CKI, first determine the “room for Kaizen” that comes in the denominator. It is the difference in cost between “Ideal” and “Actual before Kaizen” regarding the raw material costs required to make the same volume of final product (sugar).

Room for Kaizen

= Cost before Kaizen – Cost of Ideal situation

$$= C_b - C_i$$

$$= (P_b \times Q_b) - (P_i \times Q_i)$$

Effect of Kaizen = Reduced cost

$$= C_b - C_a$$

$$= (P_b \times Q_b) - (P_a \times Q_a)$$

Therefore,

$$CKI = \frac{\text{Kaizen effect}}{\text{Room for Kaizen}} \times 100 = \frac{C_b - C_a}{C_b - C_i} \times 100 = \frac{(P_b \times Q_b) - (P_a \times Q_a)}{(P_b \times Q_b) - (P_i \times Q_i)} \times 100 (\%)$$

When calculating using the numbers of the examples,

Room for Kaizen $(P_b \times Q_b) - (P_i \times Q_i)$

$$= (170 \times 2.3) - (140 \times 2.0)$$

$$= 391 - 280$$

$$= 111 \text{ Kilo birr}$$

Effect of Kaizen $= (P_b \times Q_b) - (P_a \times Q_a)$

$$= (170 \times 2.3) - (150 \times 2.2)$$

$$= 391 - 330$$

$$= 61 \text{ Kilo birr}$$

Therefore,

$$CKI = \frac{\text{Kaizen effect}}{\text{Room for Kaizen}} \times 100 = \frac{61 \text{ K birr}}{111 \text{ K birr}} \times 100 = 55.0 (\%)$$

Figure 5 illustrates the calculation of the example.

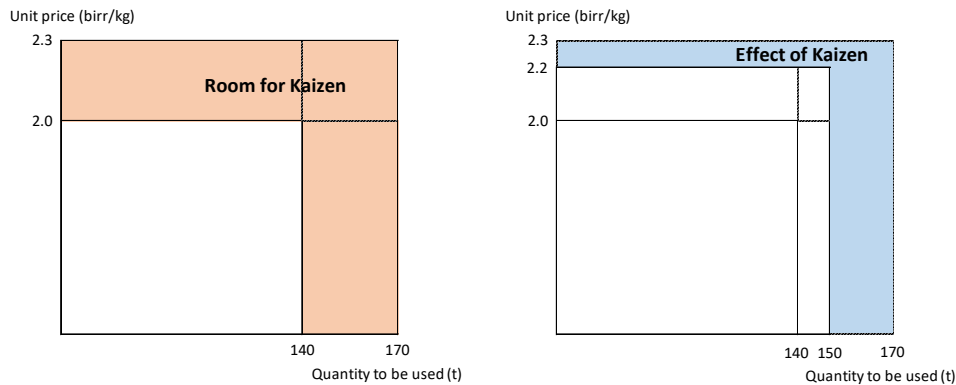


Figure 5: Room for Kaizen and effect of Kaizen

(b) Analysis method

We can also see the degree of contribution of change in quantity and change in unit price to the Kaizen in cost (i.e. CKI), by breaking down and comparing the effect by quantity and by unit price.

Effect of Kaizen in unit price

$$\begin{aligned}
 &= (\text{Unit price before Kaizen} - \text{Ideal unit price}) \times \text{the quantity before Kaizen} - \\
 &\quad (\text{Unit price after Kaizen} - \text{Ideal price}) \times \text{the quantity after Kaizen} \\
 &= (P_b - P_i) \times Q_b - (P_a - P_i) \times Q_a
 \end{aligned}$$

Effect of Kaizen in quantity

$$\begin{aligned}
 &= \text{Ideal unit price} \times (\text{the quantity before Kaizen} - \text{Ideal quantity}) \\
 &\quad - \text{Ideal unit price} \times (\text{the quantity after Kaizen} - \text{ideal quantity}) \\
 &= P_i \times (Q_b - Q_i) - P_i \times (Q_a - Q_i)
 \end{aligned}$$

When calculating the figures of the example,

Effect of Kaizen in unit price

$$\begin{aligned}
 &= (2.3 - 2.0) \times 170 - (2.2 - 2.0) \times 150 \\
 &= 0.3 \times 170 - 0.2 \times 150 \\
 &= 51 - 30 \\
 &= 21 \text{ Kilo birr}
 \end{aligned}$$

Effect of Kaizen in quantity

$$\begin{aligned}
 &= 2.0 \times (170 - 140) - 2.0 \times (150 - 140) \\
 &= 2.0 \times 30 - 2.0 \times 10 \\
 &= 60 - 20 \\
 &= 40 \text{ Kilo birr}
 \end{aligned}$$

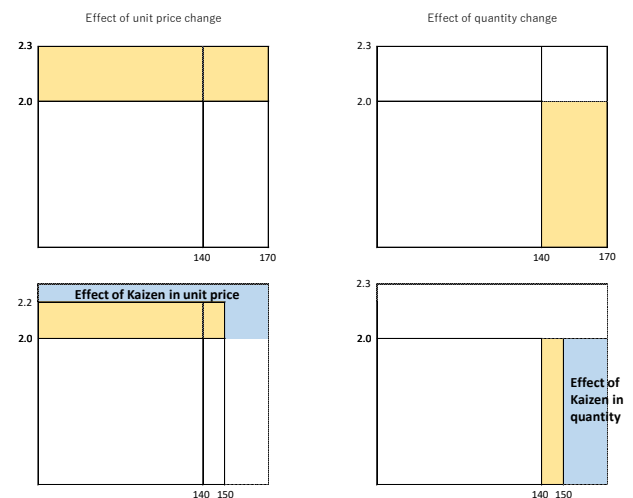


Figure 6: Comparison of Kaizen in unit price and quantity

Figure 6 illustrates the comparison of Kaizen effect in unit price and in quantity to use respectively. As you can see above, the contribution of change in quantity is larger than that of change in unit price.

In this case, the Kaizen consultants may consider the following ideas for the sugar factory:

- Introduction of use of sugar cane with high sucrose content
- Improving processing technology to increase the yield rate in processing.

In case that the change in unit price contributes to the CKI larger, the consultant may consider the following as the Kaizen methods:

- Improving sugarcane yield per hectare.
- To stop cultivation by the sugar factory, and the factory procures sugar cane from farmers at market prices.

The above measures cannot be implemented only by the department that manages costs. It requires the cooperation of the stakeholders of the work site.

Where does this part (S) belong to?

As discussed, room for Kaizen in cost is $C_b - C_i$, and is expressed as follows (see Figure 7).

$$\begin{aligned} \text{Room for Kaizen} &= C_b - C_i \\ &= (P_b - P_i) \times Q_i + \underbrace{(P_b - P_i) \times (Q_b - Q_i)}_S + P_i \times (Q_b - Q_i) \end{aligned}$$

Where does this part “S” belong to? “S” is added to the difference in price. This is because it is more difficult to make the difference in price than that of quantity, as the quantity tends to be under the internal control, but the price is determined externally. The amount of the difference in quantity is influenced by quantity of consumed raw material.

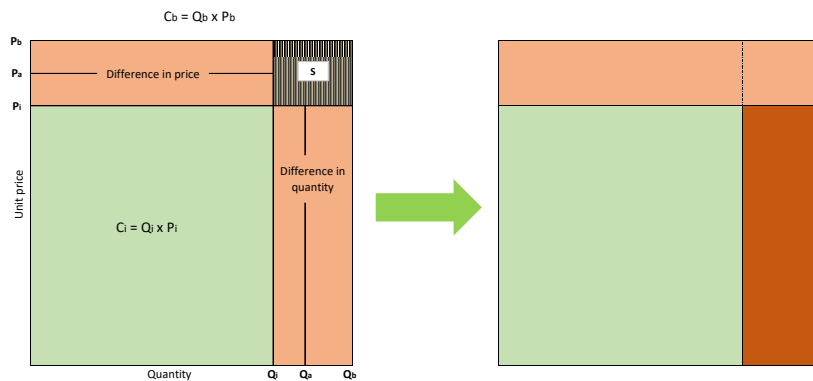


Figure 7: How to divide room for Kaizen

4.4 Delivery Kaizen Indicator (DKI)

The delivery time may be very unremarkable competitiveness factor, compared to cost and quality. There is a tendency that citizens of lower income level are price-oriented. The income level rises little by little, then, the inclination to quality appears. When the income level goes up further, people seek for product / service on when they want. That is, delivery time becomes an important competitive factor.

Let us see the following example. When sending a suit to a laundry shop in Addis Ababa, it usually takes 10 days. You can receive the suit next day if using express service. But it charges you 1.7 times as much as ordinary laundry price. What if this laundry shop unifies the service to only one – “three-day finishing”, after they notice that there is no difference in work load, even finishing by next day or finishing in 10 days, and think out the way of controlling the work load variance? In order to appeal the swiftness of the service, what if they charge only half price for four-day finishing, and take no charge for receiving after five days? This shop would be prosperous.

There is the way of thinking that the delivery time should be “on-demand”. This view point of “on-demand” is usually based on business custom that had been established through long period of time. For instance, supposing that when ordering a set of drawing-room furniture, any furniture shops offer 10-day delivery of the goods. In this case, 10-day delivery is “on-demand”, even though the customer wants the goods immediately. In such a situation, one new-type furniture shop joins, which runs the business based on “make-to-stock production”. The shop arranges different types of furniture of attractive designs and colors in a display window, and appeals that the selling point is “delivery upon order”. The delivery time of this shop is zero (0). That is, “zero delivery time” expresses ideal delivery time. (Inside the factory, the delivery time will be 0 if it is a make-to-stock production and with no shortages.)

As shown in the figure below, there are four types of delivery time at least as follows below. In the view of industrial competitiveness, Delivery time 4 is the most important period (in case of production of individual order). However, in this Kaizen indicators, we shall treat the Delivery time 1 (lead time), which occurs inside factory and is common for all the types. If we want to consider the delivery time including “delivery”, we should consider it according to the ideal value for the delivery and the lead time in the factory. The ideal value of the lead time is determined from the perspective of business as well as interest rate, storage fee, etc.

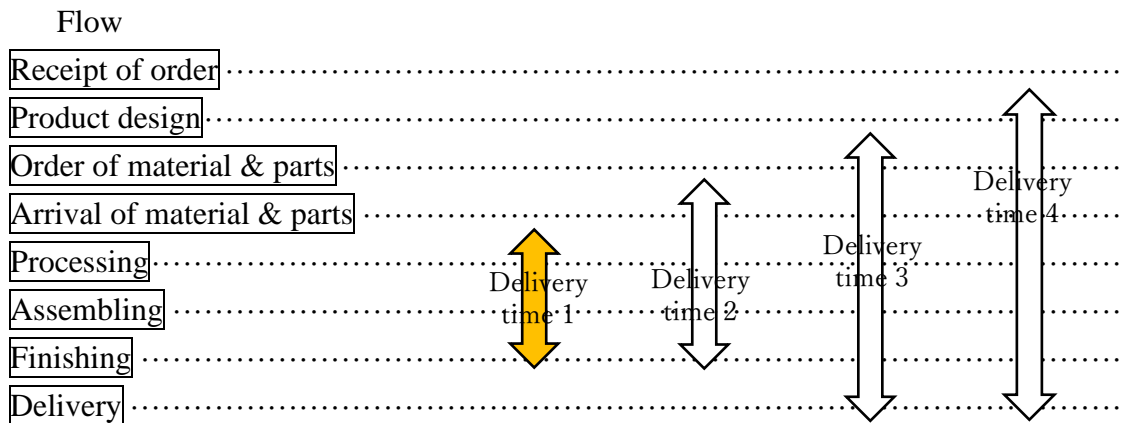


Figure 8: Flow from receipt of order to delivery and four types of delivery time

The formula to calculate DKI will be as follows:

$$\text{DKI} = \frac{\text{Change for the better in delivery time (reduced time)}}{\text{Room for Kaizen in delivery time}} \times 100 (\%)$$

Example:

One garment factory received the order of 1000 pcs of clothes within 10-day delivery time. Initially, the factory has the capacity of producing the same amount in 15 days. After Kaizen, it the lead time was shortened to 9 days.

$$\text{DKI} = \frac{9-15}{10-15} \times 100 = \frac{-6}{-5} \times 100 = 120 (\%)$$

4.5 Other cases that the formula of KI is not applicable

This section explains how to calculate the Kaizen indicators in case that institution building is selected as Kaizen theme, such as establishing standard-cost system or quality control system based on QC process chart.

The following is the steps of establishing such systems:

- (1) Problem analysis of current situation
- (2) Planning of Kaizen draft
- (3) Introducing new institution into worksite partially and revising problems
- (4) After compiling the manual, implementing training based on the manual
- (5) Introducing the institution into the worksite officially
- (6) Realization of Kaizen result by the new institution

The five steps from (2) to (6) are the target of the evaluation of Kaizen result. 10 points is given to each five steps, and the full point is 50. Accordingly, Kaizen indicator (Institutional Kaizen Indicator: IKI) can be calculated as total of score/50 x 100 (%).

$$IKI = \frac{\text{Total score of five steps}}{50} \times 100 (\%)$$

When selecting institution-building as Kaizen theme, the visible result is often just to prepare new institution (i.e. Step (2) above), which might be done by desk work. However, the entire process of institution-building should cover the introduction of the new system to a factory, on-site fine adjustment with the system, training on the system, the official introduction, and realization of Kaizen by the system as mentioned above. Thus, if ICT ends at the preparation of institution-building stage, the value of IKI would be 20% (=10/50 x 100).

<u>Kaizen indicator value of Institution-building as Kaizen theme (sample)</u>				
Trainee: <i>Samson</i>				
Kaizen theme: <i>Building standard-cost system</i>				
ICT company: <i>Oromia Metal Processing</i>				
Contact person: <i>Awol</i>		Title: <i>(Accounting Mgr.)</i>		
Step of Kaizen	Point	Evaluation	Progress of institution-building	
Institution-building	10	<i>8*</i>	Completion of institution-building draft	
	10	<i>9</i>	Finding problem by trial of institution-building draft and revising it	
Settlement of institution	10	<i>3</i>	Implementing countermeasure to settle institution such as compliment of manual and training, etc.	
	10	<i>0</i>	Introducing officially institution to target worksite	
Realization of institution's effect	10	<i>0</i>	Effect appears by a new situation directly or indirectly in aspect of QPCD	
Total	50	<i>20</i>	Kaizen indicator value = $20/50 \times 100 = 40$	40 %

**Italic type figure is evaluated score.*

5. Overall Kaizen Indicator (OKI)

Based on individual Kaizen indicators, it is possible to calculate Overall Kaizen Indicators (OKI). OKI will be calculated by dividing the sum of individual KAIZEN indicators by number of KAIZEN indicators to be used.

$$OKI = \frac{\Sigma \text{Individual KAIZEN Indicators}}{\text{Number of individual KAIZEN}} (\%)$$

Example:

In a factory, three Kaizen themes are picked up: one is for quality improvement, another one for delivery time improvement, and the last one for safety improvement. If the gross of Kaizen indicator is 45 points, then

$$OKI = \frac{45}{3} = 15 (\%)$$

6. Kaizen Indicator System

Kaizen indicator (KI) includes various indicators according to Kaizen target. But all the indicators can be calculated by using the same basic concept as described above. Ethiopian Kaizen Institute (EKI) sets eight Kaizen targets, namely, “Quality”, “Productivity”, “Cost”, “Delivery”, “Safety”, “Morale”, “Environment” and “Gender”. Corresponding to these targets, eight individual indicators are included as KIs as shown in the table below.

Table 3: Eight Kaizen Indicators

No.	EKI's Kaizen Target	Kaizen Indicators (KI)		Distinction
1	Quality	Quality Kaizen Indicator	QKI	Core Indicators
2	Productivity	Productivity Kaizen Indicator	PKI	
3	Cost	Cost Kaizen Indicator	CKI	
4	Delivery	Delivery Kaizen Indicator	DKI	
5	Safety	Safety Kaizen Indicator	SKI	Social indicators
6	Morale	Morale Kaizen Indicator	MKI	
7	Environment	Environment Kaizen Indicator	EKI	
8	Gender	Gender Kaizen Indicator	GKI	
	Overall	Overall Kaizen Indicator	OKI	CS

These eight indicators can be divided into two categories; core indicators and social indicators. The core indicators show the situation of company activity as economical existence. It includes six indicators, QKI, PKI, DKI, SKI and MKI. For the social aspect of company, four indicators SKI, MKI, EKI and GKI are used.

The sample calculations of these four social indicators are attached in ANNEX 2.

7. The scope and timing of measuring Kaizen Indicators

The scope of Kaizen indicators of Project Purpose and that of Overall Goal are different. The former one is limited to the targeted work stations of Kaizen implementation (e.g. process, production line, or product) of enterprises. In principle, the Kaizen indicators are to be measured in the final phase of ICT. The indicators can be also measured three months after the ICT (during follow-up by EKI consultants), if it takes time to appear the effects of the ICT.

On the other hand, the scope of Kaizen indicators of Overall Goal is company-wide (the entire enterprise where Kaizen is implemented). In general, the Kaizen activities to be done by ICT is only for specific work stations of the entire enterprises. Thus, it takes time to expand the Kaizen activities to the entire work stations of the enterprises. Therefore, basically, it is one or two years after the completion of ICT to collect the data of the indicators. Otherwise, it can be taken at the end of the consultation agreement between EKI and the company. If it is a long-term agreement, it is recommended to measure every six months to follow up the Kaizen implementation

(end)

Annex

Annex 1: The concept of value added productivity

The productivity is the ratio of output to input, i.e. $\text{Productivity} = \frac{\text{Output}}{\text{Input}}$.

The denominator of this formula can be worker, labor hour, investment cost, etc. On the other hand, the numerator can be production volume (e.g. in kg, liter, etc.), production amount (in piece), value added, etc. The productivity also includes the yield rate of raw materials and Overall Efficiency Equipment (OEE), which is the productivity of an equipment.

What is “value added”?

- Value-added productivity is used as productivity.
- Value-added labor productivity = amount of value-added / man · hour
- Amount of value-added is calculated by subtracting cost of outside purchase (e.g. material cost, packaging cost and outsourcing cost) from sales. That is,
Amount of value-added
= Sales – (Material cost + Packaging cost + Outsourcing cost)
= [sales price – (sum of unit cost of material, packaging cost and outsourcing cost)] x amount of products
- Amount of value-added of multiple products
Amount of value-added = $\Sigma \{[\text{sales price} - (\text{sum of unit cost of material, packaging cost and outsourcing cost})] \times \text{amount of products}\}$

Value added by subtraction method

Note that amount of value-added and value-added productivity varies according to the change of sales price, sales amount and costs of material, packaging, outsourcing and others. For example, if sales price increases, the value-added productivity also increases. On the other hand, if the material cost increases, the value-added (productivity) decreases. However, these cases happen due to external factors, not within the Kaizen implementation. Therefore, this kind of factor should be excluded in the calculation of value-added. To this end, value-added rate (amount of value-added / sales price) should be calculated for each product at the beginning of Kaizen. Then, find the value-added by multiplying production amount by the value-added rate.

In addition, the difference between “number of production” and “number of sales” should be considered. The relationship between “number of production” and “number of sales” as follows:

$$\text{Number of sales} = \text{Number of production} + \text{Initial stock} - \text{Final stock}$$

Annex 2: Social Kaizen Indicators – Safety, Morale, Environment and Gender (SMEG)

Safety Kaizen Indicator (SKI)

The indicators that are often used internationally for safety are frequency rate and the severity of work-related accident. The frequency rate is calculated as the number of work-related accident per certain cumulative working hours. ILO uses one million (1,000,000) hours as the cumulative working hours. This “one million hours” is equivalent to total working hours of one factory with 500 employees per year. In case of Ethiopia, where there are many relatively small companies, it is proposed to use 1,000 hours, which is one thousandth of ILO standard.

$$\text{Frequency rate}^*b \text{ (before)} = \frac{\text{No. of work-related accident}^*b}{\text{Cumulative no.of working hours}^*b} \times 1,000$$

$$\text{Frequency rate}^*a \text{ (after)} = \frac{\text{No. of work-related accident}^*a}{\text{Cumulative no.of working hours}^*a} \times 1,000$$

$$\text{SKI}_f = \frac{(\text{Frequency rate}^*b) - (\text{Frequency rate}^*a)}{\text{Frequency rate}^*b} \times 100 (\%)$$

As the frequency rate grasps only one-side of the situation, the severity of work-related accident is used together. In fact, it varies from light to heavy (serious) level, starting from cutting finger, broken bone to death accident, the worst case. Basically, number of leave days due to accident per one million working hours is used as indicator. For Ethiopian case, per 1,000 accumulated working hours is used, too.

$$\text{Severity of work-related accident}^*b = \frac{\text{Total leave days due to work-related accident}^*b}{\text{Cumulative no.of working days}^*b} \times 1,000$$

$$\text{Severity of work-related accident}^*a = \frac{\text{Total leave days due to work-related accident}^*a}{\text{Cumulative no.of working days}^*a} \times 1,000$$

$$\text{SKI}_s = \frac{(\text{Severity}^*b) - (\text{Severity}^*a)}{\text{Severity}^*b} \times 100 (\%)$$

$$\text{Therefore, SKI} = \frac{\text{SKI}_f + \text{SKI}_s}{2} (\%)$$

Morale Kaizen Indicator (MKI)

One of the factors to influencing absentee rate and turnover rate is the degree of morale individual has. High degree of morale would realize low absentee rate and turnover rate. Thus, we shall take these two rates to calculate morale Kaizen indicator (MKI).

Absentee rate can be calculated as follows:

$$\text{Absentee rate (\%)} = \frac{\text{Accumulated number of absent days}}{\text{Total number of work days}} \times 100 (\%)$$

$$\text{MKI}_{a*b} = \text{Absentee rate} * b \text{ (before) (\%)} = \frac{\text{Accumulated number of absent days} * b}{\text{Total number of work days}} \times 100 (\%)$$

$$\text{MKI}_{a*a} = \text{Absentee rate} * a \text{ (after) (\%)} = \frac{\text{Accumulated number of absent days} * a}{\text{Total number of work days}} \times 100 (\%)$$

$$\text{MKI}_a = \text{MKI (absent rate)} = \frac{(\text{MKI}_{a*b}) - (\text{MKI}_{a*a})}{\text{MKI}_{a*b}} \times 100 (\%)$$

Similarly,

$$\text{Turnover rate (\%)} = \frac{\text{No. of resigned permanent employees}}{(\text{No. of initial permanent employ at the begining} + \text{at the end})/2} \times 100 (\%)$$

$$\text{MKI}_t = \text{MKI (turnover rate)} = \frac{(\text{MKI}_{t*b}) - (\text{MKI}_{t*a})}{\text{MKI}_{t*b}} \times 100 (\%)$$

Therefore, MKI would be:

$$\text{MKI} = \frac{\text{MKI}_a + \text{MKI}_t}{2} (\%)$$

Environment Kaizen Indicator (EKI)

These two indicators, Environment and Gender, are typically classified into social Kaizen indicator. Regarding environmental problem, it starts from the problem of surrounding area of a factory, such as soot and smoke, drainage, noise, vibration, etc, and expands to global-level problem, such as emotion of CO₂, ozone, PM2.5, which is across national borders. However, in case of Ethiopia, it is realistic to focus on the problem of surrounding area of a factory at the beginning.

For the evaluation of working environment, it is common to use 5S Checklist. There are 20 items in the list. It employs 5-scale ratings, and then full mark will be 100. If the total mark before Kaizen is 65 points and that of after Kaizen is 78 points, then, EKI would be $(78 - 65)/(100 - 65) \times 100 = 39.1\%$. However, 5S is the method to improve the working

environment. It is not external environment that is usually discussed for environmental issue.

To evaluate the external environment, it is necessary to use the following check sheet (10-item evaluation method). Similar to 5S Checklist, each evaluation item is rated by 5 scales, and full mark will be 50.

No	Type	Evaluation item	Evaluation criteria
1	Surroundings of a factory	Is the surrounding of a factory kept clean?	<ol style="list-style-type: none"> ① The garbage from the factory are kept scattered here and there. ② The garbage is still left, but it is cleaned sometimes. ③ Almost no garbage, but materials and mechanical equipment are kept outside. ④ No garbage, materials and mechanical equipment are kept, but grass is kept growing. ⑤ No garbage, materials, mechanical equipment and grass are seen.
2	Noise/Vibration	Is there any complaints regarding noise and vibration by a factory?	<ol style="list-style-type: none"> ① There are complaints from the neighborhood. ② The occurrence of noise/vibration is controlled only to the time that does not disturb the neighborhood much. ③ The absorber of noise/vibration is fixed, but not sufficient yet. ④ The absorber of noise/vibration is fixed and functioned well. ⑤ No complaint after action taken.
3	Smoke/Exhaust	Does a factory emit exhaustion that gives displeasure?	<ol style="list-style-type: none"> ① There are complaints from the neighborhood. ② The factory emits exhaustion without any treatment. ③ The factory takes action, such as making an exhaust port at higher position. ④ The factory set up the equipment for desulfurization of exhaust gas. ⑤ The factory implements 3R (Reduce, Reuse and Recycle) of exhaustion.
4	Water quality	Does a factory purify the drainage?	<ol style="list-style-type: none"> ① The factory disposes the drainage without any treatment. ② The factory put trap/strainer at the overflow to prevent large garbage or oily substances from flowing.

Gender Kaizen Indicator (GKI)

Gender issues are strongly linked to equal opportunities and fair treatment in company. Here, two gender issues, “equality of opportunities” and “fairness of treatment” are discussed. “Equality” is about giving everyone an equal chance to fulfil their potential. In terms of the problem of fairness of treatment, female workers are paid less although they do the same job. Or the female employees tend to be placed at lower position than her capacity. These are against the fairness of treatment. The purpose of GKI is to quantify these issues and to show how much action is being taken to correct them.

There are two types of GKI, depending on whether it focuses on equality or fairness in treatment.

Table: Meaning of symbol

A: After Kaizen, B: Before Kaizen, F: Female ratio = $\frac{\text{No.of female}}{\text{No.of employee}}$ D: Designated (appointed at managerial position, such as supervisor or higher) I: Ideal ratio	Example: AFD: Designated female ratio after Kaizen
--	---

Case 1: Equal opportunity (equality)

$$\text{GKI (equality)} = \frac{\text{Change for better}}{\text{Room for Kaizen}} \times 100 = \frac{\text{AF}-\text{BF}}{\text{IF}-\text{BF}} \times 100 (\%)$$

The denominator shows room for improvement in terms of opportunity given. In other words,

Ideal female ratio – Female ratio before Kaizen

The numerator shows the degree of improvement in terms of opportunity given.

Female ratio after Kaizen – Female ratio before Kaizen

The right figure illustrates the relationship of the terms of the GKI formula.

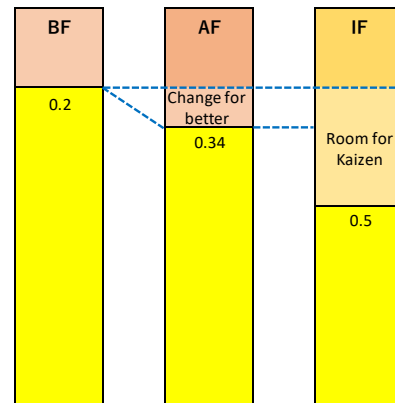
The female ratio before Kaizen (BF) = 0.2

The female ratio after Kaizen (AF) = 0.34

Thus, the change for better = AF – BF
= 0.34 – 0.2
= 0.14

The ideal female ratio (IF) = 0.5

Thus, room for Kaizen = IF – BF
= 0.5 – 0.2
= 0.3



Therefore,

$$\text{GKI (equality)} = \frac{\text{Change for better}}{\text{Room for Kaizen}} \times 100 = \frac{0.14}{0.3} \times 100 = 47 (\%)$$

Case 2: Fairness in treatment

$$\text{GKI (fairness)} = \frac{\text{AFD}-\text{BFD}}{\text{IFD}-\text{BFD}} \times 100 (\%)$$

This indicator is intended to check how much the promotion rates are biased by gender and how it is improved.

The table below shows the summary of the concept and formula of Kaizen indicators of Safety, Morale, Environment and Gender (SMEG).

Table: Concept and formula of Kaizen indicators of Safety, Morale, Environment and Gender (SMEG)

<i>Evaluation item</i>	<i>Concept of Indicator</i>	<i>Formula</i>
Safety	<ul style="list-style-type: none"> Frequency rate of work-related accident = Number of work-related accident per cumulative working hours x 1,000 work hour. $SKI_f = \frac{(\text{Frequency rate} \cdot b) - (\text{Frequency rate} \cdot a)}{\text{Frequency rate} \cdot b} \times 100 (\%)$ <ul style="list-style-type: none"> Severity of work-related accident = Total leave days due to work-related accident per cumulative working days x 1,000 work days. $SKI_s = \frac{(\text{Severity} \cdot b) - (\text{Severity} \cdot a)}{\text{Severity} \cdot b} \times 100 (\%)$	$SKI = \frac{SKI_f + SKI_s}{2} (\%)$
Morale	<ul style="list-style-type: none"> Absentee rate = $\frac{\text{Accumulated number of absent days}}{\text{Total number of work days}} \times 100 (\%)$ $MKI_a = \frac{(MKI_a \cdot b) - (MKI_a \cdot a)}{MKI_a \cdot b} \times 100 (\%)$ <ul style="list-style-type: none"> Turnover rate = $\frac{\text{No. of resigned permanent employees}}{(\text{No. of initial permanent employ at the beginning} + \text{at the end})/2}$ $MKI_t = \frac{(MKI_t \cdot b) - (MKI_t \cdot a)}{MKI_t \cdot b} \times 100 (\%)$	$MKI = \frac{MKI_a + MKI_t}{2} (\%)$
Environment	<ul style="list-style-type: none"> Change rate of difference between full score and actual score of 5S checklist. If EKI or company has prepared the check list on environment, it is better to use it. 	$EKI = \frac{\text{Change in envi.}}{\text{Status before Kaizen}} \times 100 (\%)$ $= \frac{\text{Full score} - \text{actual score after Kaizen}}{\text{Full score} - \text{actual score before Kaizen}} \times 100 (\%)$
Gender	<ul style="list-style-type: none"> Ratio of women in supervisor and management position 	$GKI (\text{equality}) = \frac{AF-BF}{IF-BF} \times 100 (\%)$ $GKI (\text{fairness}) = \frac{AFD-BFD}{IFD-BFD} \times 100 (\%)$

(end)

4. IMPLEMENTATION MANUAL OF INTERMEDIATE-LEVEL (LEVEL 2) KAIZEN TRAINING

Implementation Manual of Intermediate-level (Level 2) Kaizen Training

This implementation manual is for the EKI management and its responsible directorates to implement Intermediate-level (2nd level) Kaizen Training.

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1. Overall flow of training procedure

The training procedure is divided into three stages, which are preparation phase, implementation phase and evaluation phase.

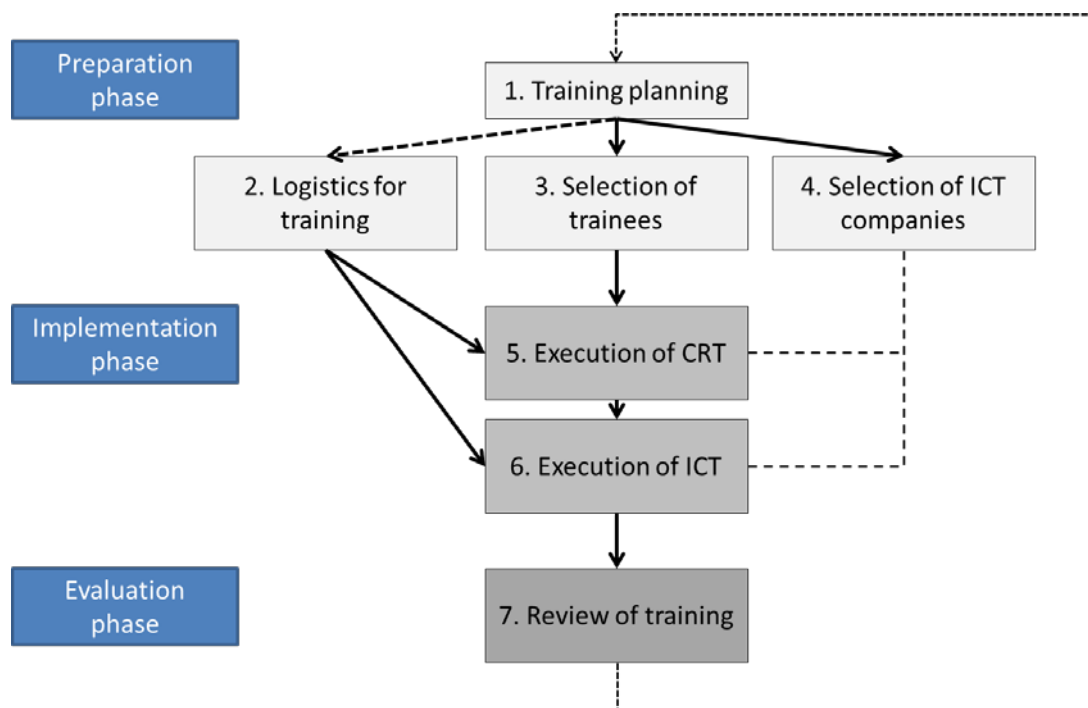


Figure 1: The training procedure

The preparation phase consists of four parts, which are (1) training planning, (2) logistics for training, (3) selection of trainees and (4) selection of ICT companies. Amongst them, the selection of ICT companies needs longer time, as it requires the assessment of companies. It takes a few months to finish all preparation.

After the preparation, Classroom Training (CRT) shall be started. The period of CRT is four weeks (20 days), covering different Kaizen curriculums of intermediate level. CRT test is given to assess the acquisition of the curriculums at the beginning and at the end of the CRT. After the completion of CRT, ICT can be started. It is on-the-job training where each trainee is going to provide consulting of intermediate-level Kaizen to assigned company. It is a seven-month (28-week) process.

After the implementation phase, the evaluation of the entire process of the training is conducted for next round of the training.

2. Outline of the training

2.1. Classroom Training (CRT)

As mentioned the above, the training consists of one-month classroom training (CRT) and seven-month in-company training (ICT). The major topics of the CRT are **3Ts**, “**TQM**”, “**TPS**” and “**TPM**”. TQM stands for Total Quality Management. It takes up the important matters when the entire company, from management to labors, works on the same agenda, in order to improve the quality of products and work performance. TPS stands for Toyota Production System, which draws attention from manufacturing sector all over the world. TPM stands for Total Productive Maintenance. It is a method of conducting preventive maintenance and maintenance checkup of equipment and machineries effectively so as to optimize the operation of equipment and machineries. The other contents of intermediate-level Kaizen are “Intermediate Kaizen Story and Tool”, “Cost and Accounting”, “Production Scheduling”, “Economic Engineering”, “Industrial technologies” and “Ethical code” of consultant.

The training methods to be employed in CRT are lecture, exercise, case method, etc. as listed in the Table 1. The notable one is **case method**, which is the teaching of a subject or issue through analysis and discussion of actual cases. This is usually used in business education.

Table 1: Content and method of CRT and ICT

Date	Content	Training method
CRT (1 month)	1) Total Quality Management (TQM) 2) Toyota Production System (TPS) 3) Total Productive Maintenance (TPM) 4) Intermediate Kaizen Story and Tool 5) Cost & Accounting 6) Production Scheduling 7) Economic Engineering 8) Industrial technologies 9) Ethical code	- Lectures - Exercise - Discussion - Case Method - Case Study
ICT (7 months)	1) Policy deployment, theme and target setting 2) Cause analysis, countermeasure design 3) Implementation of countermeasure 4) Confirming effects and standardization	- OJT - Progress sharing - Discussion, etc.

Table 2 shows the sample CRT schedule. At the beginning of the CRT, the orientation of the entire training is organized by EKI management, Directorate of Education and Training and trainers. This is for the trainees to understand the objective, policy, method, evaluation and schedule of the training. At the end of CRT, another orientation focusing on ICT is organized to confirm the ICT schedule, the process and method of trainees’ evaluation, the assignment of ICT companies, etc.

In addition, one day shall be allocated for trainees to prepare materials for ICT training. In the same table, Day 13 is allocated for it (Trainee’s customization of the materials for ICT).

Table 2: Sample CRT Schedule

Date	AM (9:00-12:00) / PM (14:00-17:00)
Day 1 (Mon)	<ul style="list-style-type: none"> ✓ Orientation ✓ Evaluation of Kaizen knowledge (Pre-CRT Exam)
Day 2 (Tue)	<ul style="list-style-type: none"> ✓ TQM
Day 3 (Wed)	<ul style="list-style-type: none"> • QC to TQM (Systematic approach) • Cross functional management • Policy management • Case method
Day 4 (Thu)	<ul style="list-style-type: none"> ✓ Intermediate Kaizen Story and Tool
Day 5 (Fri)	<ul style="list-style-type: none"> • Intermediate-level Kaizen story • Task achievement type QC story
Day 6 (Mon)	<ul style="list-style-type: none"> • Review of Kaizen tool • Problem solving type QC story • QC 7 tools, IE tools
Day 7 (Tue)	<ul style="list-style-type: none"> ✓ TPM
Day 8 (Ed)	<ul style="list-style-type: none"> • Steps of TPM • 8 pillars of TPM • 16 major losses • Autonomous maintenance
Day 9 (Thu)	<ul style="list-style-type: none"> ✓ TPS
Day 10 (Fri)	<ul style="list-style-type: none"> • Automation with a human element • Just in time • Value stream mapping • KANBAN system
Day 11 (Mon)	<ul style="list-style-type: none"> ✓ Industrial Technology in Ethiopia (tentative)
Day 12 (Tue)	Main industrial technologies in Ethiopia (textile, leather, agro/food/beverage, metal, chemical, wood and other industries)
Day 13 (Wed)	Trainee's customization of the materials for ICT
Day 14 (Thu)	<ul style="list-style-type: none"> ✓ Production Scheduling
Day 15 (Fri)	<ul style="list-style-type: none"> • Made to order and made to stock • Make to engineering/lot production/continuous production • Limited production of diverse products and mass production of a small variety of products • Yearly / Monthly / daily production plan
Day 16 (Mon)	<ul style="list-style-type: none"> ✓ Cost and accounting • Standard costing • Direct costing • Actual cost accounting • Activity based costing
Day 17 (Tue)	<ul style="list-style-type: none"> ✓ Economic Engineering
Day 18 (Wed)	<ul style="list-style-type: none"> • Principle of comparison • Comparison between some investment (countermeasure) plans • Effect estimation and actual
Day 19 (Thu)	<ul style="list-style-type: none"> ✓ Ethical Code of Kaizen Consultant ✓ Evaluation of KAIZEN knowledge (Post-CRT Exam)
Day 20 (Fri)	<ul style="list-style-type: none"> ✓ ICT orientation

2.2. In-company Training (ICT)

The ICT is the on-the-job training (OJT) in a company. Each trainee shall conduct Kaizen activities of intermediate-level by following the steps of the Kaizen Quality Control (QC) story, either problem solving approach or task achieving approach, as shown in Figure 2.

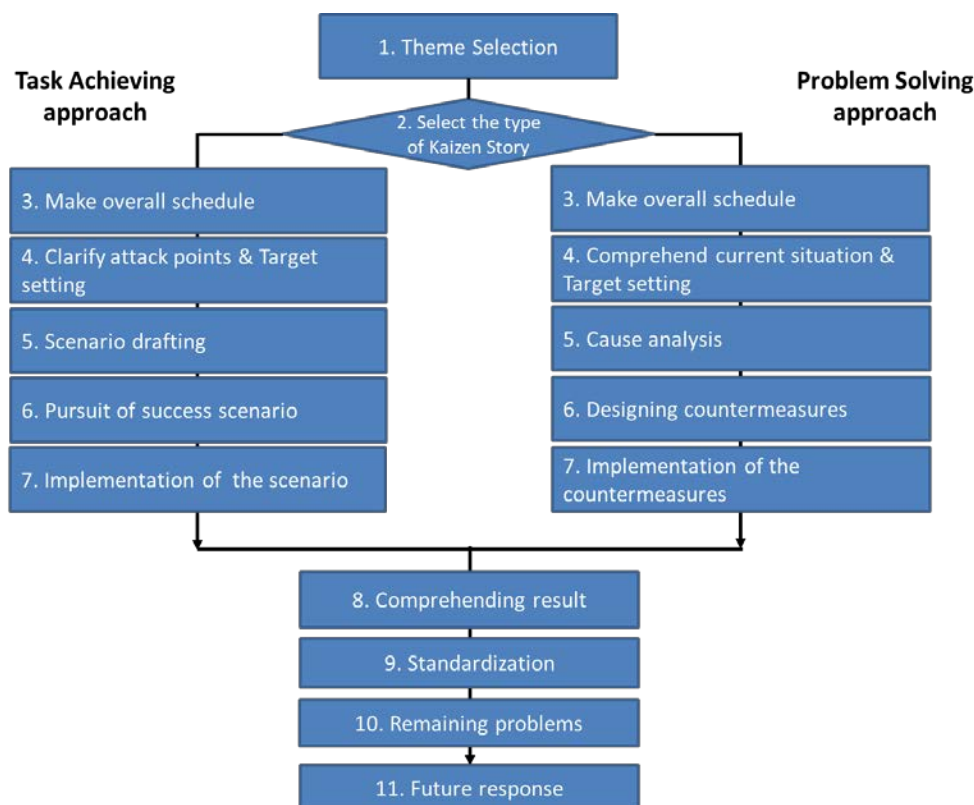


Figure 2: The steps of Kaizen QC story

The progress sharing meetings (PSMs) shall be conducted, basically four times in seven months, after 1.5 months, 3 months, 5 months and at the end of the training. Table 3 shows the sample CRT schedule.

Table 3: Sample ICT Schedule

Date	Place	Contents
Week 1 – Week 2	ICT enterprises	Kick-off and introduction of Intermediate Kaizen Policy management; identification of tasks/ problems; selection of tentative themes
Week 3 – Week 5	As above	Formation and education of CFT; examination of tentative themes and final decision; selection of either the task achieving type or problem solving type approach; preparation of an action plan
Week 6	As above	Setting of the target
Week 7	EKI	1 st Progress-sharing meeting (PSM)
Week 8 – Week 10	ICT enterprises	Analysis of factors; examination of scenarios
Week 11 – Week 12	ICT enterprises	Planning of countermeasures; formulation of scenarios for success
Week 13	EKI	2 nd PSM
Week 14 – Week 20	ICT enterprises	Implementation of countermeasures and scenarios for success
Week 21	EKI	3 rd PSM
Week 22 – Week 26	ICT enterprises	Checking of effects and Standardization
Week 27 – Week 28	As above	Compilation of activity results Reporting to ICT enterprises
Week 28	EKI	4 th (Final) PSM

3. Preparation for the entire training

3.1. Training planning

The important factors of the training planning are as follows:

- a) Date of commencement and closing of CRT and ICT
- b) Number of trainee and ICT company
- c) Number of trainers
- d) Allocation of car

a) Date of commencement and closing of CRT and ICT

EKI shall determine the starting and ending dates of CRT and ICT by considering the length of both trainings, which are four weeks and 28 weeks respectively. The interval of the CRT and ICT should not be more than one week.

b) Number of trainee and ICT company

The appropriate number of the trainee shall be 18; and that of ICT companies shall be 9 for each batch of the training. Two trainees are to be assigned to be one company. If the number of trainee exceeds more than 18, one company should be added by two trainees.

c) Number of trainers

The number of trainers can be determined by trainer-trainee ratio of 1 is to 6 (Trainer: Trainee = 1:6). Thus, if there are 18 trainees, the number of trainer is 3. Basically, trainees who are assigned for CRT continue to be trainers for ICT. However, he/she can be replaced by others considering the type of industries of ICT companies.

d) Allocation of car

The number of necessary car (minibus) can be determined by the EKI management based on the number of ICT and its location. If some companies are located in the same area or on the same direction, one car can cover the companies.

The following is an example of car allocation. If eight companies are located as shown below, three cars will be assigned during ICT period.

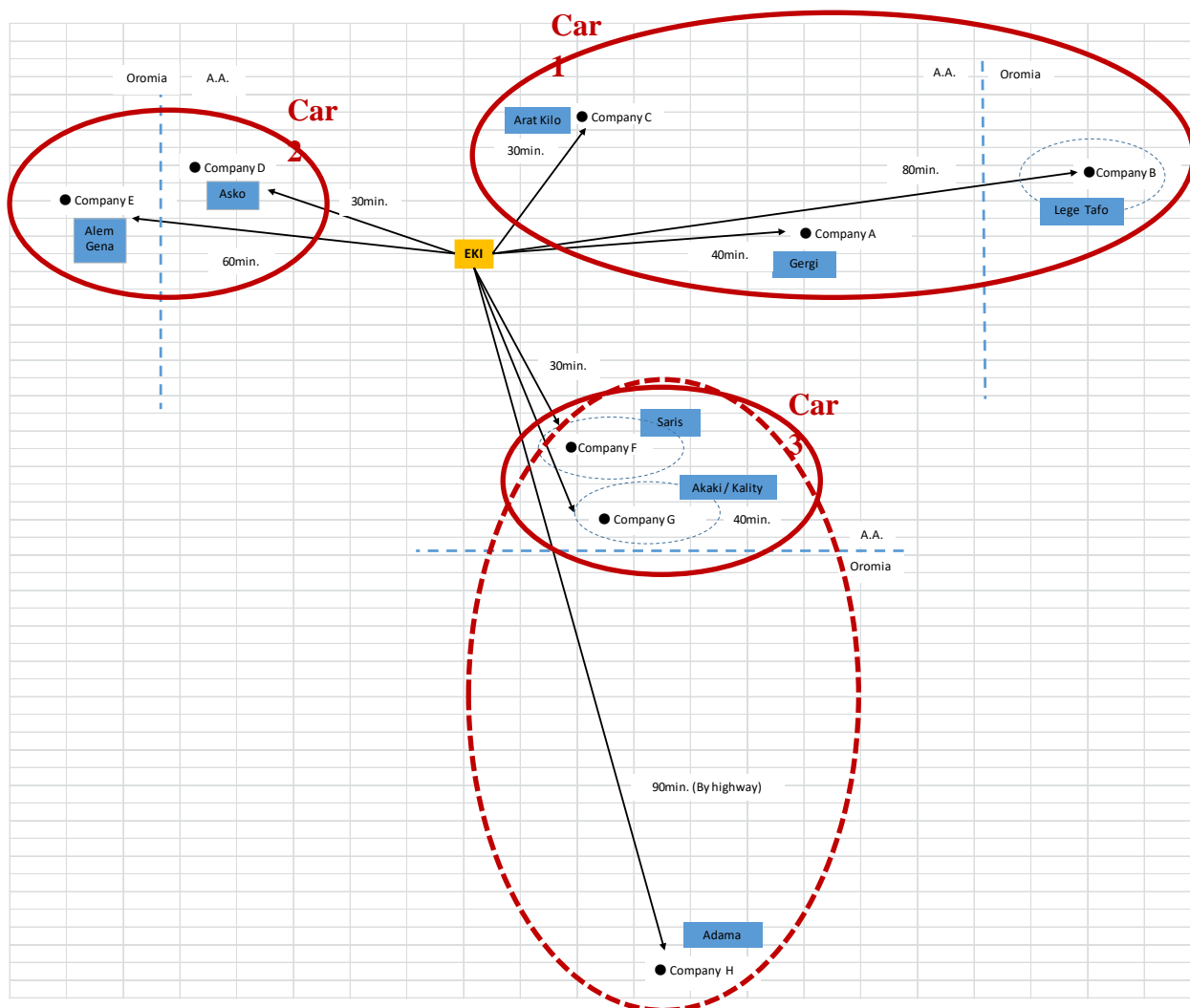


Figure 3: The sample of car allocation

For some cases, ICT companies can provide transportation. In that case, the company can be removed from list of ICT companies that require the transportation. Thus, it is also important to include such arrangement in Memorandum of Understanding (MoU) or Service Agreement between EKI and each ICT company. See the sample Service Agreement (Annex 1).

3.2. Logistics for the training

It is an activity to identify and prepare necessary materials and equipment in order to ensure the smooth operation of the trainings. The materials and equipment that are required for CRT and ICT are listed in the tables below.

Table 4: Materials and equipment required for CRT

No.	Item	Quantity	No.	Item	Quantity
1	Laptop PC	1	6	Flip chart	1 set
2	Projector	1	7	Copy paper	200 x N
3	Extension cord	1	8	Toner	1
4	Pointer with battery	1	9		
5	White board and a set of pen	1	10		

(Note: N stands for number of trainees.)

Table 5: Materials and equipment required for ICT

No.	Item	Quantity	No.	Item	Quantity
1	Laptop PC	M	6	A set of marker	M
2	Projector	M	7		
3	Extension cord	M	8		
4	Video camera	4	9		
5	Flip chart	M	10		

(Note: M stands for number of ICT companies.)

The following device and equipment might be needed depending on the type of industry and Kaizen activities. It is available in EKI.

Table 6: Special equipment required for ICT

No.	Item	Sample product name	Purpose	Field of industry	Reference price
1	Laser rangefinder	BOSCH GLM 7000 Professional	To measure distance (e.g. length/ width of a room) accurately.	Any	USD 98.42
2	Digital Hydrometer		To measure temperature and humidity	Chemical	ETB 490
3	Static electricity measurement	HOZAN Static electricity checker Z-201	To measure static electricity, which greatly affects the print quality	Chemical (Printing)	JPY 29,117
4	Digital water content measurement	Meterk digital wood moisture meter	To grasp moisture during jute production	Agro (Jute)	JPY 2,217
5	Surface temperature measurement	Infrared radiation thermometer	To grasp temperature during jute production	Agro (Jute)	JPY 1,599

3.3. Selection of the trainees

First of all, based on the plan of human resource development or capacity development program of EKI, it is necessary to grasp the total number of personnel that needs intermediate-level Kaizen training; and prepare the list of the personnel. Depending on the number of the personnel, determine the number of batch. Then, review the knowledge, experience and position of the candidates to decide the batch of each trainee.

- (1) Grasp the total number of personnel that needs intermediate-level Kaizen training;
- (2) Prepare the list of the personnel;
- (3) Determine the number batch depending on the total number of the personnel;
- (4) Determine the batch of each trainee, depending on the profiles of the trainees. Ideally, one batch should not exceed more than 18 people.

3.4. Selection of the trainers

The necessary requirements to be a trainer are:

- Those who successfully completed intermediate-level Kaizen training; and
- Those who have Intermediate Consultant (IC) certification of Certification, Accreditation and Registration System (CARS).

As mentioned above, the trainers of CRT can continue to be trainers of ICT, but new trainers can be assigned for ICT considering the type of sector/industry of the ICT companies.

3.5. Selection of the ICT companies

The following is the steps to select the companies for ICT implementation.

- (1) To obtain a long list of candidate ICT companies. The requirement of the companies at the stage is whether or not basic-level Kaizen training had been already implemented. Ideally, necessary number of candidate company is twice of necessary ICT company (e.g. if necessary ICT company is six, the necessary number of candidate company is 12).
- (2) To conduct assessment of the ICT companies. For the assessment, it is necessary to have an appointment with top management, such as owner/general manager of the company together with plant/factory manager or production manager, in order to get proper information of the companies.
- (3) Based on the information to be obtained in the meeting with the top management of the companies, prepare a pre-diagnosis sheet of each company (Annex 2).
- (4) Based on the pre-diagnosis sheet, evaluate the companies using the following criteria. All criterial will be evaluated by 1-5 scales (Minimum 1 and Maximum 5) as shown in the evaluation matrix.

Criteria	Weight	Range in score
a) Willingness of owner/general manager	10	10 – 50
b) Willingness of plant/factory manager or production manager	10	10 – 50
c) Status of the implementation of basic KAIZEN	5	5 – 25
Total	-	25 – 125

- (5) Re-arrange the listed companies according to the order of the score to be obtained (higher to lower). Take the companies from the top according the necessary number of the companies. Note that it might be necessary to modify the selection of the company not to have an unbalanced distribution of each industry. In addition, if a company enters busy or idle season during the ICT period, exclude such company from the list.
- (6) After the determination of the ICT companies, the service agreement is to be discussed and signed by both EKI and the companies.
- (7) Organize pre-CRT visit to the selected ICT companies. (see below 4.3.)

4. Implementation of Classroom Training (CRT)

4.1. Preparation of curriculum and training materials

The necessary materials for the CRT include Power point presentation, case method materials (11 types in total), Pre-CRT and Post-CRT test and questionnaire sheet for each curriculum (Annex 3). The responsible trainers and Directorate of Education and Training should prepare the necessary number of each material.

Table 7: Checklist of material for copying

Date	Session	Type of material	Check (✓)
Day 1 (Mon)	Orientation	Briefing material	
	Pre-CRT Exam	Exam	
Day 2 – Day 3 (Tue – Wed)	(1) TQM	PPT	
		Case method (2 types)	
		Session questionnaire	
Day 4 – Day 6 (Thu – Mon)	(2) Intermediate KPTs	PPT	
		Case method (2 types)	
		Session questionnaire	
Day 7 – Day 8 (Tue – Wed)	(3) TPM	PPT	
		Case method (2 types)	
		Session questionnaire	
Day 9 – Day 10 (Thu – Fri)	(4) TPS	PPT	
		Case method	
		Session questionnaire	
Day 11 – Day 12 (Mon – Tue)	(5) Industrial Technology in Ethiopia	PPT	
		Session questionnaire	
Day 14 – Day 15 (Thu – Fri)	(6) Production Scheduling	PPT	
		Case method	
		Session questionnaire	
Day 16 (Mon)	(7) Cost and accounting	PPT	
		Case method	
		Session questionnaire	
Day 17 – Day 18 (Tue – Wed)	(8) Economic Engineering	PPT	
		Case method	
		Session questionnaire	
Day 19 (Thu)	(9) Ethical Code of KAIZEN	PPT	
		Case method	
		Session questionnaire	
	Post-CRT Exam	Exam	
Day 20 (Fri)	Overall evaluation of CRT by trainees	CRT evaluation questionnaires	
	ICT instruction	Briefing material	

4.2. Preparation of equipment

The necessary equipment for the CRT is already listed under 3.2. The equipment should be ready for the implementation of CRT.

4.3. Allocation of trainees to ICT companies

During the CRT period, the allocation of the trainees to ICT companies was determined by the trainer's team. As mentioned above, the ideal number of the trainees per company is two. When allocating the trainees to the companies, the trainer's team should consider the current and past

affiliated directorates, the working experience and the expertise of the trainees. It is recommended to allocate the trainees to the same sector or similar if not. (e.g. If a trainee belongs to the chemical directorate, assign her/him to the company in chemical industry.)

4.4. Additional activities of the trainees during CRT

a) Information collection from EKI colleagues/directorates who provided basic-level Kaizen training

In principal, ICT companies to be selected have already received basic-level Kaizen training and consultation by EKI or the Project. Thus, the trainees are expected to collect the information from respective directorates and experts who have been in charge of the company, e.g. status of basic Kaizen implementation, Kaizen officer and KPT, etc.

b) Visit to ICT companies (optional)

The purpose of ICT companies visit during the CRT period is for trainees to be aware of the situation of provisional ICT companies. On the occasion, the trainees will be able to have initial contact with Kaizen officer and management members; and to collect basic information and data (see Annex 2: Pre-diagnosis sheet format).

The followings are points to check and carry out in the company visit.

- (1) Product and process
- (2) The status of keeping raw materials, intermediate stocks and finished products
- (3) The status of the maintenance of machines
- (4) The status of the implementation of Basic-level Kaizen
- (5) Hearing about what problem(s) the company has / what problems the company wants to solve.

In addition, it is recommended to obtain the information such as break down record of machines and defect record of product, which will be needed in the ICT implementation (if not available on the day of visit, request the preparation to the company).

This pre-ICT company visit would help the trainees:

- To understand the contents of CRT sessions better, as the CRT lectures are practical;
- To prepare/customize some materials during CRT, which will be used at the beginning of ICT (“Trainee’s customization of the materials for ICT”);
- To start the implementation of ICT activities smoothly; and
- To consider feasible ICT themes.

4.5. Evaluation of CRT

There are two types of evaluation in CRT depending on the purpose and targets. They are:

- a) Evaluation of trainees
- b) Evaluation of CRT

a) Evaluation of trainees

The purpose of the evaluation of trainees in CRT is to assess whether or not the trainees obtain necessary knowledge of intermediate-level KAIZEN system, tools and techniques.

To this end, pre-CRT and post-CRT tests are to be given at the beginning and end of the CRT. The tests consist of multiple-choice questions and essay questions. The pass rate of post-CRT test to proceed to ICT is 70%. If the trainees don't meet the pass rate, re-assessment test will be given only once a few weeks after the post-CRT test. The trainees don't meet the standard of the re-assessment, the Directorate of Education and Training shall discuss how to deal with the trainee(s) with the management of EKI.

b) Evaluation of CRT

The purpose of the evaluation of CRT is to improve overall management and operation of CRT as well as to improve the content and teaching method of CRT curriculum. There are three types of questionnaires to this end. They are:

- | | |
|---|-----------|
| (1) Questionnaire for CRT – by session (9 pages for 9 sessions) | – Annex 3 |
| (2) Questionnaire for CRT – Overall (2 pages) | – Annex 4 |
| (3) Questionnaire on Case Method in CRT (2 pages) | – Annex 5 |

The trainer team as well as Directorate of Education and Training will compile and analyze the result of each questionnaire. Based on the result, the EKI management, the Directorate and trainer team discuss to improve the training of next batch. The trainers should also make the modification of the training materials.

5. Implementation of In-company Training (ICT)

5.1. Preparation of service agreement

Before the inception of ICT, the service agreement between ICT companies and EKI should be discussed and agreed. The degree of the provision of logistics, such as per diem and accommodation (in case of companies out of Addis Ababa), transportation, working space, internet, etc. depends on the companies. Thus, it should be discussed, agreed and put down on the agreement beforehand. The sample of the service agreement is attached as Annex1.

5.2. Terms of Reference of trainees

The duties and responsibilities of the trainees during ICT should be clearly informed to the trainees. To this end, EKI management together with the trainer's team should organize one-hour briefing meeting (i.e. Orientation of ICT) to inform the following contents of terms of reference (ToR).

Box 1: Term of Reference (ToR) of trainees

The Terms of Reference (ToR) of Trainees in In-Company Training (ICT) Intermediate-level Kaizen Training

The ICT starts from _____ and ends in _____. In the above period, trainees are obliged to perform Kaizen work in assigned companies. The Kaizen work includes the followings, but not be limited to them.

1. Kaizen work in ICT company

The trainees should visit the company and implement necessary work for Kaizen along the Kaizen story. The number of the visiting day will be decided by considering the necessity of the work and the convenience of the company. However, it should be at least three days per week for the first three months. It is recommended to stay at the companies from 9:30am to 4:30pm (from 3:30ET to 10:30ET) to make most of the visit. EKI shall make sure the allocation of the cars for the visit; and the trainees shall make confirmation on the car arrangement.

The trainees should share the progress of the ICT with the company management regularly. At the end of the ICT, the trainees should share and discuss the final result of the ICT (or tentative result if you don't complete the ICT), present and submit the final report to the company. The final report should be also submitted to the respective directorates of EKI (e.g. Brana Printing report to Chemical Directorate).

2. Kaizen work in EKI office

(1) Pre-diagnosis sheet

At the initial stage of the ICT, each trainee should collect the information of the company on the designated Pre-diagnosis sheet. You should also collect information from responsible directorate of the company. The pre-diagnosis sheet should be submitted to your trainers at the completion of the theme setting.

(2) Meeting with trainers

The trainees should have a half-day meeting with trainers at least once in a week. The purpose of the meeting is to report the progress of the work, to discuss the next step, and to get necessary advices and guidance.

(3) Weekly report

The trainees should submit the weekly reports to the respective trainers and his/her directorate supervisor at the end of each week by email.

(4) Research and preparation work

The trainees should carry out necessary research and preparation work for ICT Kaizen work. For this purpose, the trainees are allowed to do it in EKI office. The research and preparation work includes:

- Analysis of data obtained in company
- Collecting necessary data, information and materials by internet and in library and its analysis
- Preparation of presentation and other materials
- Making weekly reports and other reports

(5) Progress sharing meeting

Four progress sharing meetings (PSMs) are planned to hold at EKI during the ICT period. The trainees must attend all the meetings. Besides, the presentation materials should be prepared for the meeting. EKI shall call for participation of the EKI members widely, such as related directorates and sector.

(end)

5.3. Terms of Reference of trainers

In the seven-month ICT period, trainers are obliged to train and provide necessary technical assistance to the trainees in assigned companies. The trainers are supposed to visit the assigned companies on the date that the trainees make arrangement, together with the trainees.

Specifically, the trainers are expected to do the followings:

- (1) To be a main force for the activities in first month (from management training to theme setting);
- (2) To provide necessary technical advice in the phase of cause analysis for data collection, complication and analysis (e.g. making graphs like a pitch diagram, OEE calculation, etc.);
- (3) To discuss and select the appropriate Kaizen theme, considering each trainee's capacity;
- (4) To attend any necessary meetings in the companies with the trainees;
- (5) To check weekly report submitted by the trainees at the end of each week (Note: The same report is also submitted to the trainees' supervisors);
- (6) To provide necessary comments on the trainees' presentation materials of the Progress Sharing Meetings (PSMs);
- (7) To attend four PSMs to give any inputs;
- (8) To experience how to conduct technical and attitude competency evaluations on the trainees;
- (9) To communicate and consult with the EKI management and the trainees' supervisors if any issues arise;
- (10) To do any other necessary activities.

5.4. Determination the days of the week to visit companies

The ICT is the on-the-job training in companies. The trainees are required to visit the companies to conduct study/survey, collect data and information, make discussion with stakeholders, carry out the countermeasures, etc. The required number of visiting days depends on the stage of the implementation and the status of the companies. Thus, here, the minimum requirement is set for reference. As shown in the figure below, for the initial three months, the trainees are recommended to visit the company at least three days per week, as it is the critical period whereby the trainees need to do orientation and kick-off, short-term training if necessary, discussion with managerial persons and CFT members, make data collection and analysis with the CFT members and obtain the agreement on the countermeasures / success scenario. For fourth and fifth month, visiting companies at least two days per week would be reasonable, and for the last two months, it would be at least one day per week.

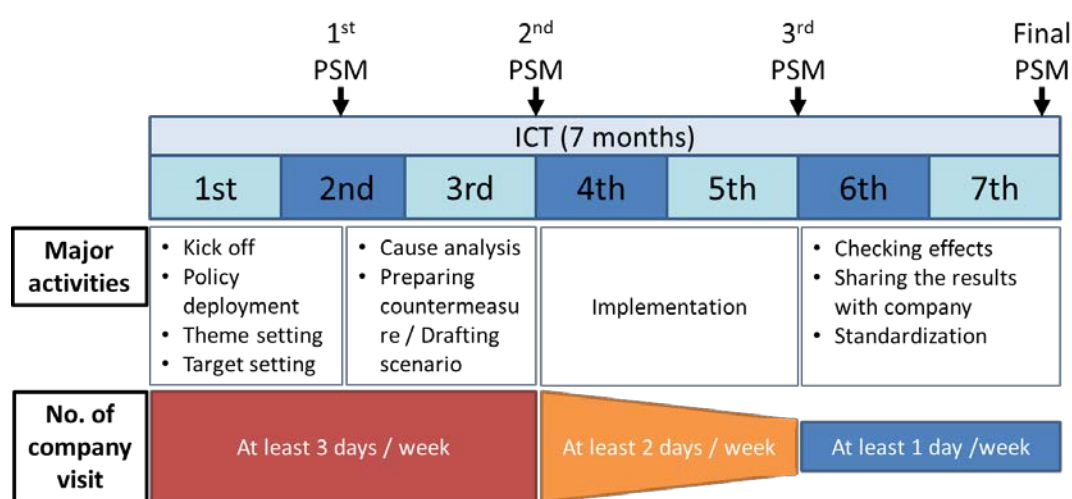


Figure 3: The number of company visit according to the procedure of ICT

5.5. Allocation and arrangement of cars

According to the required number of company visit, the EKI management and Directorate of General Service shall arrange the car considering the locations of the companies. Each trainee should book the car at the Directorate, according to his/her company visiting plan.

5.6. Equipment and tools

Some specific equipment and tools are available for ICT as mentioned above. The Directorate of Education and Training should manage the equipment and tools as follows, as they are taken out to ICT companies, in order to avoid any incidents such as loss.

- (1) Prepare a logbook for equipment and tools;
- (2) Record the name, date, and place to use; and get signature from borrower on the logbook, when any equipment/tool is taken out;
- (3) Record the date of return, when the any equipment/tool is returned.

No.	Date	Equipment / tools	Name of borrower	Signature	Date of return
1	May 3, 2018	Moisture Meter MK07	Meserat Temesgen		May 3, 2018
2	May 8, 2018	Handy Cam Video Camera with charger, battery, USD cable, 16GB mini SD card and tripod	Alem Yirga		May 9, 2018
3					
4					
5					
⋮					

Figure 4: Sample logbook

When any valuable equipment such as video camera is lent, it is recommended to obtain the signature on commitment paper (Box 2: Sample commitment paper) from borrower to ensure that the borrower is:

- responsible for taking care of it;
- obliged to return it when necessary; and
- obliged to compensate for any loss or damage at his/her own cost.

Commitment								
<p>The equipment in a table below is lent to the respective personnel by the EKI during the ICT training activities. The personnel concerned (hereinafter referred as the “Users”) are responsible in retaining of the equipment, and are obliged to present it whenever the project demands.</p>								
Date in	Equipment				User		Date out	Signature
	Name	Maker	Model/ Serial No.	Other	Name	Directorate and Position in the EKI		
	<i>Projector</i>	<i>EPSON</i>	<i>H720D</i>	<i>HDMI-3LCD</i>				

Box 2: Sample commitment paper

5.7. Monitoring and evaluation of ICT

a) Weekly report

As mentioned above in 5.2 and 5.3, the trainees have to prepare and submit a weekly report to respective trainers and supervisors (directors) at the end of each week. By using the report, the trainers can confirm the progress of the ICT, while the respective supervisors can monitor the progress of this capacity building program. The format of the week report is attached as Annex 6.

b) Progress Sharing Meetings (PSMs)

As mentioned earlier, the Progress Sharing meeting shall be organized by the EKI management and the Directorate of Education and Training, in one or two days, depending on the number of trainees. The objectives and the presentations by the trainees of each PSM are described in Table 8.

Table 8: The objectives and trainees' presentation of each PSM

PSM	Objectives	Presentation by trainees
1 st PSM	<ul style="list-style-type: none"> - To confirm the course of action of KAIZEN in ICT of each trainee; - To confirm the progress of ICT implementation of each trainee (from Management training to Cause analysis/Target setting/Action plan); and - To improve/enrich the ICT implementation of each trainee based on comments and feedback from the participants. 	One team is given 45min in total. One of the team members is expected to present company profile and policy deployment in 15 min; each individual will present his/her ICT theme in 10min (10min x number of the team); and the rest of the time is used for Q&A.
2 nd PSM	<ul style="list-style-type: none"> - To confirm the progress of ICT implementation of each trainee <ul style="list-style-type: none"> o Problem Solving approach: Root cause analysis, Planning & selection of countermeasures and Implementation of countermeasures; o Task achieving approach; Drafting of scenario, Pursuit of success scenario and Implementation of success scenario). - To improve/enrich the ICT implementation of each trainee based on comments and feedback from the participants. 	One team is given 45min in total: <ul style="list-style-type: none"> - Presentation of each trainee in 15min (15min x 2); and - Q&A in 15min.
3 rd PSM	<ul style="list-style-type: none"> - To confirm the progress of ICT implementation of each trainee after the 2nd PSM; and - To improve/enrich the ICT implementation of each trainee based on comments and feedback from the participants. 	One team is given 55min in total; each individual will present his/her ICT activities in 10 min and Q&A in 15min (25min x 2 persons = 50min)
4 th (final) PSM	<ul style="list-style-type: none"> - To confirm the result of the implementation of Kaizen activity in the last six months; and - To discuss the way forward. 	Each trainee is given 30min [Presentation (20min) + Q&A (10min)] . The presentation should cover all the contents of ICT process, which are shown in the presentation formats of both Problem Solving type and Task Achievement type Kaizen. However, the company profile and policy development part should be presented in 5 min <u>by one of the team members</u> .

The expected participants include respective directors (supervisors) of each trainee as well as the deputy director-generals related sectors and the directors of related directorates. For the final PSM, the representatives of each ICT company as well as the cooperating organization (e.g. MIDI) shall be invited.

Regarding the trainees' presentation materials, it should be submitted to the trainers one week prior to each PSM. The trainers will give comments on the materials for improvement.

Each PSM is the part of evaluation of ICT implementation. The trainers will conduct the evaluation on “Technical competency” of each trainee (see also the section below, c) Evaluation of trainees).

c) Evaluation of trainees

There are two types of evaluation on trainees in ICT to be done by the trainers. The first one is the evaluation on “Technical competency” and the other one is the evaluation on “Attitude competency”. The evaluation items of technical competency correspond to the procedure of the ICT. So, in each PSM, only the items that each ICT period covers will be evaluated (the score is tentative one). In the final PSM, all the items shall be evaluated again, and it is taken as final score. Regarding the “Attitude competency”, it will be evaluated only once, at the end of ICT.

The final overall evaluation on the trainees of intermediate-level Kaizen training shall be done based on the results of three methods already mentioned above: (a) CRT test, (b) Attitude competency evaluation and (c) the final Technical competency evaluation. The simplified guideline for the evaluation as well as the formats of (b) and (c) are attached as Annex 7, 8, 9 and 10.

5.8. Use of books in EKI library

The JICA projects donated Kaizen-related reference books to the EKI as Annex 11. These books are available at EKI library. The trainees are expected to utilize those materials for the training.

6. Evaluation of the entire training program

After the ICT implementation, the following two questionnaire surveys shall be conducted, (a) Questionnaire to trainees (Annex 12) and (b) Questionnaire to ICT companies (Annex 13). The content of (a) Questionnaire to trainees includes overall evaluation on the training program, ICT companies, trainers and self-evaluation. On the other hand, that of (b) Questionnaire to ICT companies includes the evaluation on the Kaizen implementation as well as the assigned trainees. The EKI management can crosscheck the performance of the trainees (the evaluation done by the trainers) with this questionnaire.

The trainer’s team and the Directorate of Education and Training shall compile and analyze these two questionnaires.

Based on the result of the evaluations of both CRT (see Section 4.4) and ICT, the EKI management, the Directorate of Education and Training and the trainer’s team shall hold the evaluation meeting and discuss the achievement and the areas of improvement on the training for next batch.

(end)

Annex

1. Service Agreement
2. Preliminary Diagnosis Sheet
3. Questionnaire format for CRT (by session)
4. Questionnaire for CRT – Overall
5. Questionnaire on Case Method in CRT
6. Weekly report format
7. Simplified Guideline or Instruction for Evaluation of Classroom Training (CRT) and In-Company Training (ICT) - Intermediate Kaizen Training
8. Attitude Competency Evaluation Sheet
9. Technical Evaluation Sheet (PS)
10. Technical Evaluation Sheet (TA)
11. List of donated book by JICA Kaizen project
12. Questionnaire to trainees
13. Questionnaire to ICT companies

ANNEX

1. Service Agreement

የከይዘን የስልጠና እና ትግበራ ስምምነት

ይህ ስምምነት በ_____ እና በኢትዮጵያ ከይዘን ኢንስቲትዩት (ኢክኢ) ከ_ጥር 29_ዓ.ም. እስከ ሐምሌ 19/2011 "ዓ.ም ለሚተገበረው የመካከለኛ ደረጃ የከይዘን የአመራር ፍልስፍና ሰልጥኖ በቀጣይነት በመተግበር በተከታታይ ውጤት ማስመዝገብን በተመለከተ የተደረገ የጋራ ስምምነት ነው፡፡

ዓላማ፡- የከይዘንን ትግበራና ስልጠና በተሳካ ሁኔታ ተቋሙና ኢክኢ የጋራ ዓላማ እና አቅጣጫ በማስቀመጥ አላስፈላጊ ወጪን፣ የሰውኃይል እና የጊዜ ብክነትን በመከላከል ቀጣይነት ባለው የለውጥ ሂደት ውስጥ በማስገባት ተቋሙን ውጤታማ ማድረግ ላይ ያተኮረ ነው፡፡

በዚህ መሰረት ከይዘንን ለመተግበር ከላይ ስሙ የተጠቀሰው ተግባሪ ተቋም (ድርጅት) እና የኢትዮጵያ ከይዘን ኢንስቲትዩት (ኢክኢ) የከይዘን ስልጠናና ትግበራ ለማከናወን እንዲቻል የሚከተሉትን አስፈላጊ አገልግሎቶች ለመስጠት ተስማምተዋል፡፡

ሀ. ከኢትዮጵያ ከይዘን ኢንስቲትዩት (ኢክኢ) የሚጠበቁ አገልግሎቶች

1. ኢክኢ ከተቋሙ ጋር በጋራ በሚያወጡት ዕቅድ መሰረት የከይዘን ስልጠናና ትግበራ እንዲከናወን ያደርጋል፤
2. ኢክኢ ለሚሰጠው የከይዘን የአመራር ፍልስፍና፣ ስርዓቶችና መሳሪያዎች ብቁ የሆኑ ባለሙያዎችን በመመደብ ስልጠናና ትግበራው በተፈለገው ጥራት እንዲከናወን ያደርጋል፤
3. በዕቅዱ መሰረት በየደረጃው የማማከር፣ ክትትልና ድጋፍ በማድረግ ወቅታዊ የሆነ ግብረ መልስ ይሰጣል፤
4. በየትግበራ ደረጃው አፈጻጸሙንም ይከታተላል፤ ይገመግማል፤ ይደግፋል፤
5. የተቋሙን ምርጥ ተሞክሮዎችን ለልምድ ልውውጥ መድረኮች በማቀረብ እንደ አስፈላጊነቱ ለህትመት ያበቃል፤
6. የተመደቡ የኢክኢ አማካሪዎች የፕሮጀክቱን ማጠቃለያ ውጤት/ ሪፖርት ለኩባንያው እና ለኩባንያው እንዲቀርብ ያደርጋል፡፡

ለ. ከተግባሪ ተቋማት የሚጠበቁ

1. የተቋሙን ነባራዊ ሁኔታ በማጥናት ግልፅ የሆነ የማሻሻያ ኢሳማ በማስቀመጥና የከይዘን ትግበራ መመሪያዎችን በማዘጋጀት ለሰራተኞች ግልፅ በማሳወቅ ተግባራዊ ያደርጋል፤
2. ተቋሙ ለከይዘን ስልጠናና ትግበራ የሚያስፈልጉ መረጃዎች (በስምንቱ ቁልፍ መለኪያዎች ሪፖርት፣በፎቶ፣ በቪዲዮ፣ በሰፍት ኮፒ፣ በሀርድ ኮፒ እና በሌሎች) ለኢንስቲትዩቱ ይሰጣል፤ ይተባበራል፤
3. ለሰልጠኞች የሚያስፈልጉ በስልጠና ግብዓቶችን እና የማሰልጠኛ ክፍሎች በሚሟላት አስፈላጊውን ጊዜ በመመደብ ስልጠናውን በወጣለት መርሃ ግብር እንዲከናወን ያደርጋል፤
4. ለስልጠናና ትግበራ አስፈላጊ የሆኑ ወጪዎችን እንደ አስፈላጊነቱ ይጋራል፤
5. በክልሉ መመሪያ መሰረት የጥምር ከይዘን ልማት ቡድን ያደራጃል፤ የውይይት ጊዜ ይመድባል፤
6. የትግበራውን ደረጃ መመዝገብና መገምገም የሚችል የውስጥ ኦድት ቢያንስ በወር አንድ ጊዜ ያደርጋል፤ የምዘና ግኝቶችንም ለኢንስቲትዩቱ በየወሩ በፅሁፍ ያቀርባል፤

7. በትግበራ ወቅት የተገኙ ውጤቶችንና ምርጥ ተሞክሮዎችን ይቀምራል፤ ለኢንስቲትዩቱና ለሚመለከተው አካል በሪፖርት ያሳውቃል
8. ኢንስቲትዩቱ በከይዘን ሥልጠናና ትግበራ ሂደት የሚገኝ ምርጥ የትግበራ ተሞክሮዎችን ለሌሎች ለማስፋፈያነት እንዲጠቀምበት ይፈቅዳል፤ ይተባበራል፤
9. የመጀመሪያ ደረጃ ከይዘንን ይመዝናል፤ የማጠናቀቂያ ዕቅድ በማውጣት ያስቀጥላል፡፡

ሐ. ጠቅላላ ድንጋጌ፡-

- I. በዚህ ስምምነት መሰረት የከይዘን ስልጠና እና ትግበራ ከተጀመረና ወጪ ከወጣ በኋላ በአንደኛው ወገን ቸልተኝነት ወይም አለመተባበር ዳር ሳይደርስ ትግበራው ቢቋረጥ* ለትግበራው መቋረጥ ምክንያት የሆነው ወገን ለወጣው የገንዘብና የጊዜ ብክነት ኃላፊነቱን በመውሰድ ተጠያቂ ይሆናል፡፡
- II. ማንኛውንም ሰነዶችና ሌሎች ሚስጥሮች በትግበራው ወቅት ሆነ ከትግበራ በኋላ ለማንኛውም ሦስተኛ ወገን ከተዋዋይ ወገኖች ፈቃድ ውጪ አሳልፎ መስጠት የተከለከለ ነው፤
- III. ተዋዋይ ወገኖች በጋራ የሚያወጡት የትግበራ ዕቅድ የውሉ አካል እንዲሆንና የውሉ አፈጻጸምም ዕቅዱን መሰረት እዲያደርግ ተስማምተዋል፡፡

ከዚህ ስምምነት ጋር በተያያዘ ወይም ከስምምነቱ ውጪ ሊነሱ የሚችሉ ግልጽ ያልሆኑ ጉዳዮችና አለመግባባቶች በተቋሙና በኢንስቲትዩቱ መካከል በሚደረግ ውይይትና የጋራ መፍትሔ ለመፍታት ወደውና ተቀብለው ተስማምተዋል፡፡

ፈርማ፡-

ይህ ስምምነት በተቋሙ እና በኢንስቲትዩቱ ሃላፊዎች፤ እነርሱ የስልጣን ውክልና በጽሁፍ በሰጧቸው ሃላፊዎች በሁለት ኮፒዎች ላይ ተፈርሞና የሁለቱም ወገኖች ማህተም አርፎበት በእያንዳንዱ ወገን በሰነድነት ይያዛል፡፡

በተቋሙ በኩል

ሥም _____
 የሥራ ኃላፊነት _____
 ፊርማ _____
 ቀን _____
 የተቋሙ ማህተም _____

በኢንስቲትዩቱ በኩል

ሥም _____
 የሥራ ኃላፊነት _____
 ፊርማ _____
 ቀን _____
 የኢንስቲትዩቱ ማህተም _____

ማስታወሻ፡- *ትግበራ ማቋረጥ ማለት፡-

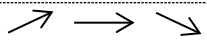
- የተመደቡ አማካሪዎች ለተከታታይ ሶስት ድጋፍ እና ከትትሎች ድርጅቱን በሚጎበኙበት ጊዜ የትግበራ ሂደቱ አጥጋቢ ሳይሆን ሲቀር እና በሚሰጡ የማስተካከያ ሪፖርቶች መሰረት ማስተካከያዎች ሳይደረጉ ሲቀር፤
- ድርጅቱ ወርሃዊ የትግበራ ሂደት ሪፖርቱን ለኢክኢ ገቢ ካላደረገ፤
- ተቋሙ ዝግጁ ሆኖ ኢክኢ የማማከር፤ ድጋፍና እና ከትትል ለሶስት ተከታታይ ሳምንታት ሳይደረግ ሲቀር፡፡

2. Preliminary Diagnosis Sheet

Preliminary Diagnosis Sheet

Interview date : _____

Writer : _____

Name of enterprise					
Address					
Name of representative		(Gender: Male Female)			
Tel					
e-mail address					
Business category					
Main products					
Annual sales	Birr	Sales trend in the past 3 years 			
Number of employees	Permanent : , (women) (administration) Temporary , (women)				
Wage system	Permanent worker: fixed wage (%), percentage wage(%), Temporary worker: fixed wage (%), percentage wage(%)				
Manufacturing personnel					
Production shift		1 shift 2 shifts 3 shifts			
Capital		Birr (Government stock holding ratio: %) (Foreign company stock holding ratio: %)			
Investment plan		New factory expanding capacity equipment machine stock yard ()			
Establishment year					
Main raw materials					
Source of raw materials		Domestic (%), Imported (%)			
Outsourcing		Ratio of outsourcing costs in raw materials costs (%), contents of outsourcing ()			
Sales channels		Direct sale to users (%), Retail outlets (%), Wholesalers and trading companies (%), Direct exporting (%), Others (%)			
Market		Local (%), Main cities (%), Nationwide (%), Overseas (%)			
Sales fluctuation		Peak month (, assuming the average month to be 100: %), Bottom month (, assuming the average month to be 100: %)			
Comptitor					
Type of production		Production on order (%) Production based on forecast (%)			
		High-mix low-volume production Medium-mix medium-volume production			
		Low-mix high-volume production			
		Individual production (%) Lot production (%) Continuous production (%)			
		Processing production (%) Assembly production (%)			
View of company		Strengths			
		Weaknesses			
		Opportunities			
		Threats			
Kaizen theme seen by EKI and JICA experts		Expected Kaizen theme	Possible Kaizen technology	Kaizen approach	Degree of advanced Kaizen
				Problem-solving	
				Task achieving	
				Problem-solving	
				Task achieving	

3. Questionnaire format for CRT (by session)

Questionnaire for Classroom Training (CRT) Session 1: Total Quality Management (TQM)

The purpose of this questionnaire is to evaluate and improve the Classroom Training (CRT) for next batch. Please select one from four options that is corresponding to your idea the most. In addition, please feel free to give your honest comments and opinions.

No.	Question	Evaluation Score			
1	Regarding the contents of “TQM”, do you think it is appropriate?	Very appropriate	Appropriate	Fair	Not appropriate
2	How about your level of understanding of “TQM”?	Very good	Good	Fair	Not good
3	How about the necessity of “TQM” for the training?	Very necessary	Necessary	Fair	Not necessary
4	How about the facilitation of the lecture?	Very good	Good	Fair	Not good

Comments

Thank you for your cooperation!

Questionnaire for Classroom Training (CRT)
Session 2: Intermediate-Kaizen Promotion Team (I-KPT)

The purpose of this questionnaire is to evaluate and improve the Classroom Training (CRT) for next batch. Please select one from four options that is corresponding to your idea the most. In addition, please feel free to give your honest comments and opinions.

No.	Question	Evaluation Score			
1	Regarding the contents of “I-KPT”, do you think it is appropriate?	Very appropriate	Appropriate	Fair	Not appropriate
2	How about your level of understanding of “I-KPT”?	Very good	Good	Fair	Not good
3	How about the necessity of “I-KPT” for the training?	Very necessary	Necessary	Fair	Not necessary
4	How about the facilitation of the lecture?	Very good	Good	Fair	Not good

Comments

Thank you for your cooperation!

Questionnaire for Classroom Training (CRT)
Session 3: Total Production Maintenance (TPM)

The purpose of this questionnaire is to evaluate and improve the Classroom Training (CRT) for next batch. Please select one from four options that is corresponding to your idea the most. In addition, please feel free to give your honest comments and opinions.

No.	Question	Evaluation Score			
1	Regarding the contents of “TPM”, do you think it is appropriate?	Very appropriate	Appropriate	Fair	Not appropriate
2	How about your level of understanding of “TPM”?	Very good	Good	Fair	Not good
3	How about the necessity of “TPM” for the training?	Very necessary	Necessary	Fair	Not necessary
4	How about the facilitation of the lecture?	Very good	Good	Fair	Not good

Comments

Thank you for your cooperation!

Questionnaire for Classroom Training (CRT)
Session 4: Toyota Production System (TPS)

The purpose of this questionnaire is to evaluate and improve the Classroom Training (CRT) for next batch. Please select one from four options that is corresponding to your idea the most. In addition, please feel free to give your honest comments and opinions.

No.	Question	Evaluation Score			
1	Regarding the contents of “TPS”, do you think it is appropriate?	Very appropriate	Appropriate	Fair	Not appropriate
2	How about your level of understanding of “TPS”?	Very good	Good	Fair	Not good
3	How about the necessity of “TPS” for the training?	Very necessary	Necessary	Fair	Not necessary
4	How about the facilitation of the lecture?	Very good	Good	Fair	Not good

Comments

Thank you for your cooperation!

Questionnaire for Classroom Training (CRT)
Session 5: Industrial Technology

The purpose of this questionnaire is to evaluate and improve the Classroom Training (CRT) for next batch. Please select one from four options that is corresponding to your idea the most. In addition, please feel free to give your honest comments and opinions.

No.	Question	Evaluation Score			
1	Regarding the contents of “Industrial Technology”, do you think it is appropriate?	Very appropriate	Appropriate	Fair	Not appropriate
2	How about your level of understanding of “Industrial Technology”?	Very good	Good	Fair	Not good
3	How about the necessity of “Industrial Technology” for the training?	Very necessary	Necessary	Fair	Not necessary
4	How about the facilitation of the lecture?	Very good	Good	Fair	Not good

Comments

Thank you for your cooperation!

Questionnaire for Classroom Training (CRT)
Session 6: Production Scheduling

The purpose of this questionnaire is to evaluate and improve the Classroom Training (CRT) for next batch. Please select one from four options that is corresponding to your idea the most. In addition, please feel free to give your honest comments and opinions.

No.	Question	Evaluation Score			
1	Regarding the contents of “Production Scheduling”, do you think it is appropriate?	Very appropriate	Appropriate	Fair	Not appropriate
2	How about your level of understanding of “Production Scheduling”?	Very good	Good	Fair	Not good
3	How about the necessity of “Production Scheduling” for the training?	Very necessary	Necessary	Fair	Not necessary
4	How about the facilitation of the lecture?	Very good	Good	Fair	Not good

Comments

Thank you for your cooperation!

Questionnaire for Classroom Training (CRT)
Session 7: Cost and Accounting

The purpose of this questionnaire is to evaluate and improve the Classroom Training (CRT) for next batch. Please select one from four options that is corresponding to your idea the most. In addition, please feel free to give your honest comments and opinions.

No.	Question	Evaluation Score			
1	Regarding the contents of “Cost and Accounting”, do you think it is appropriate?	Very appropriate	Appropriate	Fair	Not appropriate
2	How about your level of understanding of “Cost and Accounting”?	Very good	Good	Fair	Not good
3	How about the necessity of “Cost and Accounting” for the training?	Very necessary	Necessary	Fair	Not necessary
4	How about the facilitation of the lecture?	Very good	Good	Fair	Not good

Comments

Thank you for your cooperation!

Questionnaire for Classroom Training (CRT)
Session 8: Economic Engineering

The purpose of this questionnaire is to evaluate and improve the Classroom Training (CRT) for next batch. Please select one from four options that is corresponding to your idea the most. In addition, please feel free to give your honest comments and opinions.

No.	Question	Evaluation Score			
1	Regarding the contents of “Economic Engineering”, do you think it is appropriate?	Very appropriate	Appropriate	Fair	Not appropriate
2	How about your level of understanding of “Economic Engineering”?	Very good	Good	Fair	Not good
3	How about the necessity of “Economic Engineering” for the training?	Very necessary	Necessary	Fair	Not necessary
4	How about the facilitation of the lecture?	Very good	Good	Fair	Not good

Comments

Thank you for your cooperation!

Questionnaire for Classroom Training (CRT)
Session 9: Ethical Code of Consultant

The purpose of this questionnaire is to evaluate and improve the Classroom Training (CRT) for next batch. Please select one from four options that is corresponding to your idea the most. In addition, please feel free to give your honest comments and opinions.

No.	Question	Evaluation Score			
1	Regarding the contents of “Ethical Code of Consultant”, do you think it is appropriate?	Very appropriate	Appropriate	Fair	Not appropriate
2	How about your level of understanding of “T Ethical Code of Consultant”?	Very good	Good	Fair	Not good
3	How about the necessity of “Ethical Code of Consultant” for the training?	Very necessary	Necessary	Fair	Not necessary
4	How about the facilitation of the lecture?	Very good	Good	Fair	Not good

Comments

Thank you for your cooperation!

4. Questionnaire for CRT – Overall

Questionnaire for Classroom Training (CRT) Overall

The purpose of this questionnaire is to evaluate and improve the Classroom Training (CRT) for next batch. Please select one from four options that is corresponding to your idea the most. In addition, please feel free to give your honest comments and opinions.

Note that the CRT intended to provide necessary techniques of intermediate-level Kaizen techniques logically and practically. In addition, it treated the Kaizen techniques that are expected to be utilized for consulting activities in companies in future, because Kaizen is not one-shot but continuous activity.

The following questions are categorized into four: I. Operation and environment, II. Composition, III. Instructors and IV. Material.

No	Question	Evaluation score				Comment
		4	3	2	1	
I. Operation and Environment of CRT						
1	What do you think of the total CRT duration (20 days in one month)?	Very good	Good	Fair	Not Good - too long? - too short?	
2	In this batch, the CRT was held everyday (Including 1day for preparation of introduction material for ICT). Was this appropriate for you?	Very good	Good	Fair	Not Good	
3	What do you think about the duration for one class (6 hours)?	Very good	Good	Fair	Not Good - too long? - too short?	
4	What do you think about environment of CRT?	Very good	Good	Fair	Not Good	
5	How was the progress management such as distribution of material and coffee break by supporters?	Very good	Good	Fair	Not Good	
II. Composition of CRT Program						
6	The CRT consist of the TQM, intermediate-level KAIZEN, TPS, TPM, production schedule, etc. What do you think of the composition of CRT program?	Very good	Good	Fair	Not Good	
7	Industrial technologies were added from this batch. How do you think about the contents?	Very good	Good	Fair	Not Good	

No	Question	Evaluation score				Comment
		4	3	2	1	
8	How do you think about the number of classes for each component such as I-KPT(3days), TQM (2days), and other classes (2days or 1day)?	Very good	Good	Fair	Not Good	
9	How about the volume of exercise?	Very appropriate	Appropriate	Fair	Not appropriate	
10	How about the level of difficulty of exercise?	Very appropriate	Appropriate	Fair	Not appropriate	
11	How about the volume of evaluation test?	Very appropriate	Appropriate	Fair	Not appropriate	
12	How about the level of difficulty of evaluation test?	Very appropriate	Appropriate	Fair	Not appropriate	
III.-1 Instructors (Mr. Nishida: in charge of teaching TQM, TPM)						
13	About the lecture taught by Mr. Nishida, how about the level of understandability?	Very good	Good	Fair	Not Good	
14	About the contents of lectures taught by Mr. Nishida, how about the degree of concreteness?	Very good	Good	Fair	Not Good	
15	About the lectures taught by Mr. Nishida, do you think his lecture was interesting?	Very good	Good	Fair	Not Good	
16	Did Mr. Nishida respond to your questions properly?	Very good	Good	Fair	Not Good	
III.-2. Instructor (Mr. Sakai: in charge of teaching Intermediate Kaizen, Cost and Accounting)						
17	About the lectures taught by Mr. Sakai, how about the level of understandability?	Very good	Good	Fair	Not Good	
18	About the contents of lectures taught by Mr. Sakai, how about the degree of concreteness?	Very good	Good	Fair	Not Good	
19	About the lectures taught by Mr. Sakai, do you think his lecture was interesting?	Very good	Good	Fair	Not Good	
20	Did Mr. Sakai respond to your questions properly?	Very good	Good	Fair	Not Good	
III.-3. Instructor (Mr. Mizuno: in charge of teaching TPS, Production scheduling and Economic Engineering)						
21	About the lectures taught by Mr. Mizuno, how about the level of understandability?	Very good	Good	Fair	Not Good	
22	About the contents of lectures taught by Mr. Mizuno, how about the degree of concreteness?	Very good	Good	Fair	Not Good	

No	Question	Evaluation score				Comment
		4	3	2	1	
23	About the lectures taught by Mr. Mizuno, do you think his lecture was interesting?	Very good	Good	Fair	Not Good	
24	Did Mr. Mizuno respond to your questions properly?	Very good	Good	Fair	Not Good	
IV. Material						
25	How do you think about the level of overall material?	Very appropriate	Appropriate	Fair	Need to improve	
26	Were the exercises (Small questions given during classes) useful for you?	Very useful	Useful	Fair	Not useful	
27	Were the case methods understandable for you?	Very appropriate	Appropriate	Fair	Need to improve	
28	How do you think about the number of group discussion?	Very appropriate	Appropriate	Fair	Need to improve - too many? - too little?	
29	Do you think the training materials are useful, when you give intermediate-level Kaizen consulting?	Very useful	Useful	Fair	Need to improve	
30	How much are you satisfied with the overall CRT program?	Very much	Well	Fair	Not much	

Additional Comments

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Thank you for your cooperation!!

5. Questionnaire on Case Method in CRT

Questionnaire on Case Method in CRT

The questionnaire aims to know the opinion on the training method in order to make Intermediate Kaizen Training better. In the CRT, the Case Methods were used on the following sessions.

1. TQM, Sugar Company	6. EE, Chemical company
2. TQM, Shoe Maker	7. EE, Distribution Center
3. TPM, Steel Making	8. TPS, Bicycle Company
4. TPM, Electric appliance	9. CA, Using A Company financial statement
5. TPM, Plastic appliance	

Remember the above-mentioned sessions, and please answer next questions by ticking one answer like ☒.

Q1. Do you like “case method” in CRT?

- ☐ Yes
☐ Yes, but depending on topics
☐ No
☐ Others (Specify: _____)

(Only for those who chose “Yes” or “Yes, depending on topics”)

Q2. Why did you choose “Yes”? (Multiple answers allowed)

- ☐ Because I learned various way of thinking and viewpoints.
☐ Because I learned topics deeply.
☐ Because it can be applicable for real situation.
☐ Others (Specify: _____)

(Only for those who chose “No”)

Q3. Why did you choose “No”? (Multiple answers allowed)

- ☐ Because it took long time.
☐ Because the answer was unclear.
☐ I am not good at participating in discussions.
☐ It was too difficult.
☐ Others (Specify: _____)

Q4. Do you think that the above nine topics are suitable for the method?

- ☐ Suitable for almost all topics.
- ☐ Not suitable for some topics. (Specify the topic number: _____)
- ☐ Not suitable for almost all topics.
- ☐ Others (Specify: _____)

Q5. Please choose three best session topics out of the nine topics above, and write the reasons why you choose them.

Case No	Reasons

Q6. How do you think allocated time for the case method in the CRT?

- ☐ It is better to increase. ☐ It is adequate.
- ☐ It is better to decrease. ☐ It is better not to have the case method.
- ☐ Others (Specify: _____)

Q7. What do you expect the trainers in using “case method”? (Multiple answers allowed)

- ☐ I want them to lead the discussion
- ☐ I want them to give a clue about new point of view and way of thinking.
- ☐ I want them to give the right answers.
- ☐ I want them to facilitate for as many participants as possible to participate the discussion.
- ☐ I want them to wrap up the discussion in case method.
- ☐ Others (Specify: _____)

Q8. The process of case method is reading of the case, discussion and presentation. What is your opinion in allocating time for each step?

- | | | | |
|----------------------|------------------------------------|-----------------------------------|------------------------------------|
| Step 1: Reading | <input type="checkbox"/> More time | <input type="checkbox"/> Adequate | <input type="checkbox"/> Less time |
| Step 2: Discussion | <input type="checkbox"/> More time | <input type="checkbox"/> Adequate | <input type="checkbox"/> Less time |
| Step 3: Presentation | <input type="checkbox"/> More time | <input type="checkbox"/> Adequate | <input type="checkbox"/> Less time |
| Step 4: Total | <input type="checkbox"/> More time | <input type="checkbox"/> Adequate | <input type="checkbox"/> Less time |

Thank you very much!

6. Weekly report format

Weekly Report on ICT

Trainee:	(October 9 – February 11)	Trainer:
Company:	Kaizen theme	
This week's task:		

Daily record:

Date	Work site ¹	Actual action
Mon.	AM: C O PM: C O	✓
Tue.	AM: C O PM: C O	✓
Wed.	AM: C O PM: C O	✓
Thu.	AM: C O PM: C O	✓
Fri.	AM: C O PM: C O	✓
Result of this week	✓	
Action for next week by trainee	✓	
Advice by Director	✓	
Advice by trainer	✓	

¹ Choose “C” or “O” as you should distinguish work place in the morning from that of afternoon. Note that “C” stands for client company and “O” for offices of EKI/Addis Ababa Kaizen Institute/Dire Dawa Kaizen and Management Institute.

7. Simplified Guideline or Instruction for Evaluation of Classroom Training (CRT) and In-Company Training (ICT) - Intermediate Kaizen Training

Simplified Guideline or Instruction for Evaluation of Classroom Training (CRT) and In-Company Training (ICT) Intermediate Kaizen Training

The evaluation consists of three components, namely (a) CRT test, (b) Attitude competency evaluation and (c) Technical competency evaluation. The first one is to evaluate the knowledge of intermediate Kaizen; the second one is to evaluate the aspect of attitude as a consultant; and the third one is to evaluate practical skills of Kaizen implementation.

Regarding (a) CRT test, the test shall be conducted twice, before and after the CRT implementation (i.e. Pre- and Post-CRT test). Those who do not pass the standard passing rate of 70% at the Post-CRT test shall take a makeup test. Only the scores of the Post-CRT test shall be informed to each trainee. In addition, the scores of the first Post-CRT shall be used for the overall evaluation of the training.

Regarding (b) Attitude competency evaluation, six aspects of trainee will be observed and recorded during the implementation of ICT. Any necessary advices shall be provided to the trainees during ICT. If there is any special note on any individuals, the consultation will be held between EKI and JICA. The score of the competency will be given only once after the entire course of ICT, as it requires a certain period of time to observe and evaluate the competencies properly.

Regarding (c) Technical competency evaluation, the nine contents correspond to the progress of the ICT, and the contents to be evaluated at each progress sharing meeting (PSM) depend on the timing of the PSM. For instance, the second PSM may cover the first four or five contents (No. 1 to 4 or 5), while the third PSM may cover the contents of No.5-7. By the final PSM, all the contents shall be evaluated as final score. The scores at each PSM will be informed to the trainees with feedback, but the scores of the final PSM is the final one to be used for the overall evaluation.

Overall evaluation is a comprehensive one that is based on the scores of the above three components. The calculation of the overall evaluation is shown in the table below. Note that the standard passing rate of the overall evaluation is 70%. Those who do not meet the passing rate will be mentored and guided by his/her respective directorate.

The two tools of (b) and (c) shall be used not only Japanese experts but also EKI consultants, who shall be assigned as assistant trainers. The EKI consultants shall share their feedback and make strong communication with JICA experts on this matter.

The table below shows the details of each evaluation, including the contents of evaluation, evaluation timing, etc.

Component	Contents of Evaluation	Evaluation Timing	Number of Items and Score	Actual Score (full mark)	Scoring Share
(a) CRT test (Pre- & Post-CRT test)	Intermediate Kaizen technologies, such as TQM, Intermediate KPTs, TPS, TPM, Production plan, Economic engineering, etc.	Before & after CRT	50 multiple-choice questions * A few essay questions shall be included.	X (100) * Only the score of post-test (first one) to be used for overall evaluation. * Passing rate: 70%	20%
(b) Attitude competency evaluation	1. Intellectual capacity 2. Ability to cooperate 3. Communication ability 4. Maturity 5. Mental toughness and initiative 6. Ethical character and sincerity	At the end of ICT	Six principal items Maximum: 5 points/item	Y (30)	30%
(c) Technical competency Evaluation	<u><Problem-Solving Type></u> 1. Policy management and selection of theme 2. Comprehension of current situation 3. Target setting 4. Cause analysis 5. Planning and selection of countermeasures 6. Implementation of countermeasures 7. Confirmation of the result 8. Standardization 9. Future response <u><Task Achievement Type></u> 1. Policy management and selection of theme 2. Definition of challenge 3. Target setting 4. Drafting of scenario 5. Pursuit of success scenario 6. Implementation of success scenario 7. Confirmation of the result 8. Standardization 9. Future response	Second PSM Final PSM	20 items Maximum: 5 points/item	Z (100) * Only the score of final PSM to be used for overall evaluation.	50%
Overall evaluation	Comprehensive evaluation based on the scores of three types of evaluation	After the final PSM	$X \times 0.2 (20\%) + (Y/30 \times 100) \times 0.3 (30\%) + Z \times 0.5 (50\%)$ *Passing rate: 70%		

(end)

8. Attitude Competency Evaluation Sheet

Attitude Competency Evaluation Sheet (Trainee: _____)

Date: / /

A-21

No.	Principal Category	Viewpoint of Evaluation	Check Result					Special Remarks (Behaviour, statements and presentations, etc. at concrete occasions) *State the reason if the score is 5 or 1 without fail.
			Excellent (5)	Very Good (4)	Good (3)	Fair (2)	Not Good (1)	
1	Intellectual Capacity	<ul style="list-style-type: none"> Active research on what is not known and required knowledge (inherent technologies, etc.) Thinking logically Thinking based on facts Proposal of new ideas 						
2	Ability to Work Together	<ul style="list-style-type: none"> Discussion and cooperation with counterparts of an enterprise with a good relationship Discussion and cooperation with team members with a good relationship 						
3	Communication Ability	<ul style="list-style-type: none"> Power of persuasion Able to make logical and easy-to-understand statements and presentations Speak in response to the depth of comprehension and level of another person 						
4	Intellectual and Emotional Maturity	<ul style="list-style-type: none"> Speak calmly without getting emotional Tries to produce results at a conference or meeting with clear awareness of the purposes Tries to lead or to cooperate to make smooth progress at a conference or discussions Listens to the opinions of other people 						
5	Mental Toughness and Initiative	<ul style="list-style-type: none"> Always interested in new things and eager to challenge Able to deal with difficult issues patiently Develops a plan and objectives and acts quickly 						
6	Ethical Character and Sincerity	<ul style="list-style-type: none"> Serious and enthusiastic Sincere and honest Honestly admits and correct mistakes or errors Punctual 						
Number of relevant items								
Score (Number of items x points allocated)								
Total Score								/Maximum Point: 30

9. Technical Evaluation Sheet (PS)

Technical Evaluation Sheet: Problem Solving (PS) (Trainee: _____)

Date: / /

A-22

No.	Process	Check points	Criteria				
			5: Excellent	4: Very good	3: Good	2: Fair	1: Not good
1	Policy management / Selection of theme	Confirmation of business challenge	Fully confirmed to the extent of acting as a model for others	Fully confirmed	Confirmed	Confirmed but not sufficiently examined	Not confirmed
2		Are policies and the theme matched?	Policies and the theme are completely matched to the extent of acting as a model for others.	Policies and the theme are completely matched.	Policies and the theme are almost matched.	Policies and the theme are not sufficiently matched.	Policies and the theme are not matched.
3		Is the process to select the theme from possible themes appropriate? (Can the selected theme be completed in 7 months?)	The selection method of the theme is appropriate to the extent of acting as a model for others and the schedule is fully considered	The selection method of the theme is appropriate and the schedule is considered	The selection method of the theme is appropriate but the schedule is questionable (too easy or too complicated)	The selection method of the theme is slightly inappropriate	The selection method of the theme is inappropriate
4	Comprehending current situation	Is data used for the analysis of the current situation?	Appropriate data is used for the analysis of the current situation to the extent of acting a model for others.	Appropriate data is used for the analysis of the current situation.	Data is used for the analysis of the current situation.	The data used is not appropriate.	There is no relevant stipulation or data is not used for the analysis of the current situation.
5		Is the problem correctly presented with the relevant data?	The problem is correctly presented with the relevant data to the extent of acting a model for others.	The problem is correctly presented with the relevant data.	The problem is almost correctly presented with the relevant data.	The problem is presented with partially incorrect data.	The problem is not presented with the relevant data
6		Are the data gathering period and method appropriate?	The data gathering period and method are appropriate to the extent of acting a model for others.	The data gathering period and method are appropriate.	The data gathering period and method are largely appropriate.	The data gathering period and method are partially inappropriate.	The data gathering period and method are inappropriate.

No.	Process	Check points	Criteria				
			5: Excellent	4: Very good	3: Good	2: Fair	1: Not good
7	Target Setting	Are the KPIs of the theme set appropriately?	The KPIs of the theme are appropriately decided to the extent of acting a model for others	The KPIs of the theme are appropriately decided	The KPIs of the theme are almost appropriately decided	The decision on the KPIs of the theme is slightly inappropriate	The decision on the KPIs of the theme is inappropriate
8		Will the higher policies be achieved if the targets of the theme are achieved?	If the targets of the theme are achieved, the higher policies will be achieved to the extent of acting a model for others.	If the targets of the theme are achieved, the higher policies will be achieved.	If the targets of the theme are achieved, the higher policies will be mostly achieved	If the targets of the theme are achieved, some of the higher policies will be achieved	Even if the targets of the theme are achieved, the higher policies will not be achieved
9		Is the deadline for target achievement set?	The deadline for target achievement is properly set to the extent of acting a model for others.	The deadline for target achievement is properly set.	The deadline for target achievement is almost properly set.	The deadline for target achievement is set but inappropriate.	The deadline for target achievement is not set.
10	Cause analysis	Are the causes described in a concrete manner?	Description of the causes is sufficiently concrete to the extent of acting a model for others.	Description of the causes is sufficiently concrete.	Description of the causes is concrete.	Description of the causes is not concrete.	Description of the causes is not at all concrete.
11		Is the cause investigated to the root cause?	The cause is investigated to the root cause to the extent of acting a model for others.	The cause is investigated to the root cause.	The cause is investigated nearly to root cause.	The causes is not investigated to root cause.	The root cause is not at all investigated.
12		Does the root cause identify the factor to truly solve the problem?	The root cause is directly linked to the solution of the problem to the extent of acting a model for others.	The root cause is directly linked to the solution of the problem.	The root cause helps to solve the problem.	The root cause helps to partially solve the problem.	The root cause does not help to solve the problem.

No.	Process	Check points	Criteria				
			5: Excellent	4: Very good	3: Good	2: Fair	1: Not good
13	Planning and selection of countermeasures	Is the relationship between the draft countermeasures and the root cause clear?	The relationship between the draft countermeasures and the root cause is very clear to the extent of acting a model for others.	The relationship between the draft countermeasures and the root cause is very clear.	The relationship between the draft countermeasures and the root cause is reasonably clear.	The relationship between the draft countermeasures and the root cause is not clear.	No countermeasures are proposed.
14		Are countermeasures ranked on the basis of the predicted effect?	Countermeasures are ranked on the basis of the predicted effect to the extent of acting a model for others.	Countermeasures are ranked on the basis of the predicted effect.	Countermeasures are ranked.	Only one countermeasure is proposed for the root cause.	No countermeasures are proposed.
15		Are countermeasures realistic and feasible?	Countermeasures are realistic and feasible to the extent of acting a model for others.	Countermeasures are realistic and feasible.	Countermeasures are mostly realistic and feasible.	Countermeasures are slightly unrealistic.	Countermeasures are unrealistic.
16	Implementation of countermeasures	Are countermeasures implemented as planned?	Countermeasures are implemented as planned to the extent of acting a model for others.	Countermeasures are implemented as planned.	Countermeasures are implemented roughly as planned.	Some deviations from the plan occurred.	The scenario was not implemented as planned.
17	Confirmation of the result	Degree of target achievement	≥ 150%	≥ 90%	≥ 70%	≥ 30%	30% > No numerical value
18	Standardization	Is Yokoten being carried out ? Yokoten is “best practice sharing” in Japanese and the practice of applying the Kaizen results for other areas.	A Yokoten plan is being carried out and some improvements are achieved.	A Yokoten plan has been made and is being carried out.	A Yokoten plan is made in 5W1H format. The plan includes the products, processes, or lines for Yokoten.	The information and knowledge of the Kaizen that can be applied for other products, processes, or lines have been determined.	The information and knowledge of the Kaizen that can be applied for other products, processes, or lines are not determined yet.
19		Is the activity for recurrence prevention and maintaining the Kaizen results initiated ?	A plan for recurrence prevention and maintaining the Kaizen results is initiated and some results are made.	A plan for recurrence prevention and maintaining the Kaizen results is made and initiated.	A plan for recurrence prevention and maintaining the Kaizen results is made in 5W1H format.	The methods to prevent the recurrence of the problem and maintain the Kaizen results have been determined.	The methods to prevent the recurrence of the problem and maintain the Kaizen results are not determined.

No.	Process	Check points	Criteria				
			5: Excellent	4: Very good	3: Good	2: Fair	1: Not good
20	Future responses	Are the next activities proposed to realize the company vision and policies?	The next activities which can constitute a model for others are proposed.	The next activities to realize the company vision and policies are proposed.	The next activities are proposed but their relationship with the policies is not clear.	The next activities are proposed but they are not consistent with the policies.	The next activities are not proposed.
Number of relevant items							
Score (Number of items x points allocated)							
Total score			/Maximum point: 100				

10. Technical Evaluation Sheet (TA)

Technical Evaluation Sheet: Task Achievement (TA) (Trainee: _____)

Date: / /

No.	Process	Check points	Criteria				
			5: Excellent	4: Very good	3: Good	2: Fair	1: Not good
1	Policy management / Selection of theme	Confirmation of business challenge	Fully confirmed to the extent of acting as a model for others	Fully confirmed	Confirmed	Confirmed but not sufficiently examined	Not confirmed
2		Are policies and the theme matched?	Policies and the theme are completely matched to the extent of acting as a model for others.	Policies and the theme are completely matched.	Policies and the theme are almost matched.	Policies and the theme are not sufficiently matched.	Policies and the theme are not matched.
3		Is the process to select the theme from possible themes appropriate? (Can the selected theme be completed in 7 months?)	The selection method of the theme is appropriate to the extent of acting as a model for others and the schedule is fully considered	The selection method of the theme is appropriate and the schedule is considered	The selection method of the theme is appropriate but the schedule is questionable (too easy or too complicated)	The selection method of the theme is slightly inappropriate	The selection method of the theme is inappropriate
4	Definition of challenge	Is the gap between the target level and the current level properly understood using indicators?	The gap between the target level and the current level is properly understood using indicators to the extent of acting a model for others.	The gap between the target level and the current level is properly understood using indicators.	The gap between the target level and the current level is almost properly understood using indicators.	The gap between the target level and the current level is insufficient.	The gap between the target level and the current level is not understood.
5		Are the (candidate) areas to be attacked to close the gap fully clarified?	(Candidate) areas to be attacked to close the gap are fully clarified to the extent of acting as a model for others.	(Candidate) areas to be attacked to close the gap are fully clarified.	(Candidate) areas to be attacked to close the gap are largely clarified.	(Candidate) areas to be attacked to close the gap are not sufficiently clarified.	(Candidate) areas to be attacked to close the gap are not clarified.
6		Are the procedures for clarification of the (candidate) areas to be attacked and decision-making appropriate?	The procedures for clarification of the (candidate) areas to be attacked and decision-making are appropriate to the extent of acting a model for others.	The procedures for clarification of the (candidate) areas to be attacked and decision-making are appropriate.	The procedures for clarification of the (candidate) areas to be attacked and decision-making are largely appropriate.	The procedures for clarification of the (candidate) areas to be attacked and decision-making are insufficient.	The procedures for clarification of the (candidate) areas to be attacked and decision-making are inappropriate.

No.	Process	Check points	Criteria				
			5: Excellent	4: Very good	3: Good	2: Fair	1: Not good
7	Target setting	Are the KPIs of the theme set appropriately?	The KPIs of the theme are appropriately decided to the extent of acting a model for others	The KPIs of the theme are appropriately decided	The KPIs of the theme are almost appropriately decided	The decision on the KPIs of the theme is slightly inappropriate	The decision on the KPIs of the theme is inappropriate
8		Will the higher policies be achieved if the targets of the theme are achieved?	If the targets of the theme are achieved, the higher policies will be achieved to the extent of acting a model for others.	If the targets of the theme are achieved, the higher policies will be achieved.	If the targets of the theme are achieved, the higher policies will be mostly achieved	If the targets of the theme are achieved, some of the higher policies will be achieved	Even if the targets of the theme are achieved, the higher policies will not be achieved
9		Is the deadline for target achievement set?	The deadline for target achievement is properly set to the extent of acting a model for others.	The deadline for target achievement is properly set.	The deadline for target achievement is almost properly set.	The deadline for target achievement is set but inappropriate.	The deadline for target achievement is not set.
10	Drafting of scenario	Are effective draft scenarios listed by area to be attacked?	All effective scenarios are listed by area to be attacked to the extent of acting a model for others.	All effective scenarios are listed by area to be attacked.	All effective scenarios are largely listed by area to be attacked.	Some effective scenarios are listed by area to be attacked.	Effective scenarios are not listed by area to be attacked.
11		Are scenarios drafted with full creativity?	Draft scenarios reflect full creativity to the extent of acting a model for others.	Draft scenarios reflect full creativity.	Draft scenarios reflect creativity.	Draft scenarios reflect some creativity.	Draft scenarios do not reflect creativity.
12	Pursuit of success scenario	Are appropriate criteria (impact, relevance, efficiency, effectiveness, urgency and sustainability, etc.) set?	The definition of each criterion is clear to the extent of acting a model for others and there is no duplication or missing part between individual criteria.	The definition of each criterion is clear and there is no duplication or missing part between individual criteria.	The definition of each criterion is clear but there are duplications and missing parts between individual criteria.	Each criterion is defined but vague.	There are no criteria.
13		Is evaluation done in accordance with the criteria to select the scenario?	Evaluation is done by a person with appropriate knowledge and experience in accordance with the criteria to the extent of acting a model for others.	Evaluation is done by a person with appropriate knowledge and experience in accordance with the criteria.	Evaluation is done on the majority decision basis in accordance with the criteria.	Evaluation is done in accordance with the criteria but a final decision is made by a person with a loud voice.	A final decision is made dogmatically, not following the criteria.
14		Are problems of implementing the scenario predicted and are countermeasures prepared?	Problems of implementing the scenario are fully predicted and countermeasures are prepared to the extent of acting a model for others.	Problems of implementing the scenario are fully predicted and countermeasures are prepared.	Problems of implementing the scenario are predicted and countermeasures are prepared.	Problems of implementing the scenario are predicted and countermeasures are prepared but insufficient.	Problems of implementing the scenario are not predicted.

No.	Process	Check points	Criteria				
			5: Excellent	4: Very good	3: Good	2: Fair	1: Not good
15		Are the persons responsible and deadline for scenario implementation clearly decided?	The scenario is implemented as planned to the extent of acting a model for others.	The persons responsible and deadline for the scenario implementation are decided in detail.	The persons responsible and deadline for the scenario implementation are roughly decided.	Either the persons responsible or deadline for the scenario implementation is decided.	Neither the persons responsible nor deadline for the scenario implementation is decided.
16	Implementation of success scenario	Is the scenario implemented as planned?	The scenario is implemented as planned to the extent of acting a model for others.	The scenario is implemented as planned.	The scenario is implemented roughly as planned.	Some deviations from the plan occurred.	The scenario was not implemented as planned.
17	Confirmation of the result	Degree of target achievement	$\geq 150\%$	$\geq 90\%$	$\geq 70\%$	$\geq 30\%$	30% > No numerical value
18	Standardization	Is Yokoten being carried out? Yokoten is “best practice sharing” in Japanese and the practice of applying the Kaizen results for other areas.	A Yokoten plan is being carried out and some improvements are achieved.	A Yokoten plan has been made and is being carried out.	A Yokoten plan is made in 5W1H format. The plan includes the products, processes, or lines for Yokoten.	The information and knowledge of the Kaizen that can be applied for other products, processes, or lines have been determined.	The information and knowledge of the Kaizen that can be applied for other products, processes, or lines are not determined yet.
19		Is the activity for recurrence prevention and maintaining the Kaizen results initiated?	A plan for recurrence prevention and maintaining the Kaizen results is initiated and some results are made.	A plan for recurrence prevention and maintaining the Kaizen results is made and initiated.	A plan for recurrence prevention and maintaining the Kaizen results is made in 5W1H format.	The methods to prevent the recurrence of the problem and maintain the Kaizen results have been determined.	The methods to prevent the recurrence of the problem and maintain the Kaizen results are not determined.
20	Future responses	Are the next activities proposed to realize the company vision and policies?	The next activities which can constitute a model for others are proposed.	The next activities to realize the company vision and policies are proposed.	The next activities are proposed but their relationship with the policies is not clear.	The next activities are proposed but they are not consistent with the policies.	The next activities are not proposed.
Number of relevant items							
Score (Number of items x points allocated)							
Total score			/Maximum point: 100				

11. List of donated book by JICA Kaizen project

List of donation books

<i>No</i>	<i>Title</i>	<i>Author</i>	<i>Publisher</i>	<i>Year of Publication</i>
1	TQC wisdom of Japan: managing for total quality control.	Karatsu, Hajime.	Productivity Press	1988
2	What Is Total Quality Control?: The Japanese Way (Business Management).	Ishikawa, DJLT Kaoru.	Prentice Hall Trade	1985
3	Company wide total quality control	Mizuno, Shigeru	Quality Resources	1988
4	Total Quality Management	Oakland, John	Heinemann Professional	1989
5	Management for Quality Improvement: The 7 New QC Tools (Productivity's shop floor)	Mizuno, Shigeru	Productivity Press	1988
6	TPM for Workshop Leaders (The Shop floor Series)	Kunio, Shirose.	Routledge	2017
7	QC Circle Leader's Guidebook for Level Identification: How to get out of Zone D or C	TOYOTA Group, TQM Committee, QC Cercle Subcommittee	JUSE Press Ltd.	2008
8	Management lessons from Taiichi Ohno: What every leader can learn from the man who invented the Toyota production system.	Harada, Takehiko.	New York: McGraw-Hill Education	2015
9	The TWI workbook: Essential Skills for Supervisors	Graupp, Patrick, and Robert J. Wrona.	CRC Press	2015
10	OEE for operators: Overall Equipment Effectiveness (The Shop floor Series)	Productivity Press Development Team.	Steiner Books	1999
11	TPM Team Guide (The Shop floor Series)	Kunio, Shirose.	Productivity Press	1995
12	TPM in process industries: Step-by-step approach to TPM implementation	Suzuki, Tokutaro.	Productivity Press	1994
13	Statistical methods for quality improvement.	Kume, Hitoshi.	Productivity Press	2006
14	True Kaizen: Management's Role in Improving Work Climate and Culture.	McLoughlin, Collin, and Toshihiko Miura.	Productivity Press	2017
15	Applying the Kaizen in Africa: A New Avenue for Industrial Development	Keijiro Otsuka, Kimikaki Jin, Tetsushi Sonobe	Palgrave Macmillan	2018
16	The Lean Start Up	Eric Ries	Crown Busiess	2011
17	Tools Useful for Task Achieving	Katsutoshi Ayano, others	JUSE Press Ltd.	2011
18	Applying the Kaizen in Africa: A New Avenue for Industrial Development	Keijiro Otsuka	Palgrave Macmillan	2018
19	The Toyota Way: 14 Management Principles from the World's Greatest Manufacturer	Jeffrey K. Liker	McGraw-Hill	2004
20	Learning to See: Value-stream mapping to create value and eliminate muda	Mike Rother John Shook	Lean Enterprise Institute	2009
21	The Design of Cost Management Systems: Text and Cases	Robin Cooper Robert S. Kaplan	Prentice Hall	1998
22	Equipment Planning for TPM: Maintenance Prevention Design	Fumio Gotoh	Productivity Press	1988
23	Toyota Kaizen Methods: Six Steps to Improvement	Isao Kato Ar Smalley	CRC Press, Productivity Press	2011
24	Maynard's Industrial Engineering Handbook, 6/e (McGraw-Hill Standard Handbooks)	Zandin, Kjell B. Harold B. Maynard	McGraw-Hill Education	2001
25	A Revolution in Manufacturing: The SMED System	Andrew P. Dillon Shigeo Shingo	Productivity Press	1985

12. Questionnaire to trainees

Questionnaire to trainees ~ Reviewing ICT ~

The purpose of this questionnaire is to review and evaluate Intermediate-level Kaizen training for its improvement. The questionnaire is expected to be done by the end of final Progress Sharing Meeting; and submitted to Directorate of Education and Training. Your honest and straight opinion is highly appreciated.

1. Overall evaluation of Intermediate KAIZEN training course

1) CRT curriculum

To what degree CRT was useful for your ICT implementation?

☐ Yes, very much. ☐ Yes, to some degree. ☐ No, to some degree. ☐ Not at all.

2) ICT duration (6 months)

How was the duration of ICT?

☐ Too long. ☐ Just as well. ☐ Too short.

2. Your ICT company

Did you get enough cooperation from the management and CFT?

Option	From management	From CFT
Yes, very much.	<input type="checkbox"/>	<input type="checkbox"/>
Yes, to some degree.	<input type="checkbox"/>	<input type="checkbox"/>
No, to some degree.	<input type="checkbox"/>	<input type="checkbox"/>
Not at all.	<input type="checkbox"/>	<input type="checkbox"/>

3. Your trainer

Mark your main trainer: (write the name of your trainer: _____)

1) Did he give you sufficient advices in terms of Kaizen technology (method)?	<input type="checkbox"/> Yes, very much. <input type="checkbox"/> No, to some degree.	<input type="checkbox"/> Yes, to some degree. <input type="checkbox"/> Not at all.
2) Did he give you sufficient advices in terms of Industrial technology?	<input type="checkbox"/> Yes, very much. <input type="checkbox"/> No, to some degree.	<input type="checkbox"/> Yes, to some degree. <input type="checkbox"/> Not at all.
3) Did he give you sufficient support in terms of building good relationship with the company?	<input type="checkbox"/> Yes, very much. <input type="checkbox"/> No, to some degree.	<input type="checkbox"/> Yes, to some degree. <input type="checkbox"/> Not at all.
4) Does he give you sufficient support in terms of keeping your motivation for ICT training?	<input type="checkbox"/> Yes, very much. <input type="checkbox"/> No, to some degree.	<input type="checkbox"/> Yes, to some degree. <input type="checkbox"/> Not at all.

4. Your achievement

Evaluation on yourself

Did you acquire how to implement intermediate KAIZEN?	<input type="checkbox"/> Yes, very much. <input type="checkbox"/> No, to some degree.	<input type="checkbox"/> Yes, to some degree. <input type="checkbox"/> Not at all.
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Evaluation on your ICT Company

Have they successfully established the personnel and team that can continuously implement specific KAIZEN	<input type="checkbox"/> Yes, very much. <input type="checkbox"/> No, to some degree.	<input type="checkbox"/> Yes, to some degree. <input type="checkbox"/> Not at all.
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5. Your reflection

6. Your requirements for the Experts and EKI management

(end)

13. Questionnaire to ICT companies

Questionnaire Survey to In-Company Training (ICT) Companies

The purpose of this questionnaire is to collect your feedback on the last 6-month Kaizen implementation (ICT) conducted under EKI and JICA Project in your company. The questionnaire is expected to be answered by Kaizen officer(s) or the one who knows the intermediate-level Kaizen activities of the ICT. Your honest and straightforward opinion is highly appreciated.

Name of company:	
Kaizen theme:	1.
	2.
	3.

1. Evaluation regarding Kaizen (Intermediate-level by the EKI)

(1) Did you recognize actual effect of Kaizen within this project?	<input type="checkbox"/> Yes, we did. <input type="checkbox"/> No, we didn't, but we will see it after several months. <input type="checkbox"/> No, we don't expect.
(2) Was the way of implementing Kaizen helpful?	<input type="checkbox"/> Yes, very much. <input type="checkbox"/> Yes, to some degree. <input type="checkbox"/> No, to some degree. <input type="checkbox"/> Not at all.
(3) What was the result of Kaizen? (Multiple answers allowed.)	<input type="checkbox"/> Quality improvement / reduction of defect <input type="checkbox"/> Productivity improvement <input type="checkbox"/> Cost down <input type="checkbox"/> Reduction of machine breakdown <input type="checkbox"/> Reduction of lead time <input type="checkbox"/> Reduction of inventory <input type="checkbox"/> Other (Specify: _____ _____ _____)
(4) How much is the result of Kaizen if you can estimate (amount birr / month)?	_____ birr / month
(5) What is the change that you observe on Cross Functional Team members? (Multiple answers allowed.)	<input type="checkbox"/> They acquired how to implement Kaizen. <input type="checkbox"/> Their understanding Kaizen system and technologies was enhanced. <input type="checkbox"/> The resistance to Kaizen decreased. <input type="checkbox"/> The sense of team spirit increased. <input type="checkbox"/> Other (Specify: _____ _____ _____)
(6) Is your company sharing the Kaizen experience to other division/ department and expanding it company-wide?	<input type="checkbox"/> Yes, we started from _____ (month/year). <input type="checkbox"/> Not yet, but we have plan to do it from _____ (month/year). <input type="checkbox"/> No yet and no plan.
(7) Do you want to continue to receive the Kaizen support from EKI?	<input type="checkbox"/> Yes, we do, even we pay for the fee of consulting. <input type="checkbox"/> Yes, we do, if it is free of charge. <input type="checkbox"/> No, we don't.

2. Evaluation regarding EKI trainees

Trainee 1: (Write the name of trainee) _____

(1) Was she/he punctual?	<input type="checkbox"/> Always <input type="checkbox"/> Rarely	<input type="checkbox"/> Sometimes <input type="checkbox"/> Not at all
(2) Did she/he listen to the opinion of your company and understand it?	<input type="checkbox"/> Always <input type="checkbox"/> Rarely	<input type="checkbox"/> Sometimes <input type="checkbox"/> Not at all
(3) Did she/he force her/his own idea?	<input type="checkbox"/> Always <input type="checkbox"/> Rarely	<input type="checkbox"/> Sometimes <input type="checkbox"/> Not at all
(4) Was her/his explanation easy to understand?	<input type="checkbox"/> Always <input type="checkbox"/> Rarely	<input type="checkbox"/> Sometimes <input type="checkbox"/> Not at all

Trainee 2: (Write the name of trainee) _____

(1) Was she/he punctual?	<input type="checkbox"/> Always <input type="checkbox"/> Rarely	<input type="checkbox"/> Sometimes <input type="checkbox"/> Not at all
(2) Did she/he listen to the opinion of your company and understand it?	<input type="checkbox"/> Always <input type="checkbox"/> Rarely	<input type="checkbox"/> Sometimes <input type="checkbox"/> Not at all
(3) Did she/he force her/his own idea?	<input type="checkbox"/> Always <input type="checkbox"/> Rarely	<input type="checkbox"/> Sometimes <input type="checkbox"/> Not at all
(4) Was her/his explanation easy to understand?	<input type="checkbox"/> Always <input type="checkbox"/> Rarely	<input type="checkbox"/> Sometimes <input type="checkbox"/> Not at all

Thank you for your cooperation!

(end)

5. EVALUATION GUIDELINE FOR TRAINEES OF INTERMEDIATE-LEVEL KAIZEN

Evaluation guideline for trainees of Intermediate-level Kaizen

The evaluation consists of three components, namely (a) CRT test, (b) Attitude and Competency evaluation and (c) Technical evaluation. The first one is to evaluate the knowledge of intermediate Kaizen; the second one is to evaluate the aspect of attitude and competency as a consultant; and the third one is to evaluate practical skills of Kaizen implementation.

Regarding (a) CRT test, the test shall be conducted twice, before and after the CRT implementation (i.e. Pre- and Post-CRT test). Those who do not pass the standard passing rate of 70% at the Post-CRT test shall take a makeup test. Only the scores of the Post-CRT test shall be informed to each trainee. In addition, the scores of the first Post-CRT shall be used for the overall evaluation of the training.

Regarding (b) Attitude and Competency evaluation, six aspects of trainee will be observed and recorded during the implementation of ICT. Any necessary advices shall be provided to the trainees during ICT. If there is any special note on any individuals, the consultation will be held between EKI and JICA. The score of the evaluation items will be given only once after the entire course of ICT, as it requires a certain period of time to observe and evaluate them properly.

Regarding (c) Technical evaluation, the nine contents correspond to the progress of the ICT, and the contents to be evaluated at each progress sharing meeting (PSM) depend on the timing of the PSM. For instance, the second PSM may cover the first four or five contents (No. 1 to 4 or 5), while the third PSM may cover the contents of No.5-7. By the final PSM, all the contents shall be evaluated as final score. The scores at each PSM will be informed to the trainees with feedback, but the scores of the final PSM is the final one to be used for the overall evaluation.

Overall evaluation is a comprehensive one that is based on the scores of the above three components. The calculation of the overall evaluation is shown in the table below. Note that the standard passing rate of the overall evaluation is 70%. Those who do not meet the passing rate will be mentored and guided by his/her respective directorate.

The two tools of (b) and (c) shall be used by not only Japanese experts but also EKI consultants, who shall be assigned as assistant trainers. The EKI consultants shall share their feedback and make strong communication with JICA experts on this matter.

The table below shows the details of each evaluation, including the contents of evaluation, evaluation timing, etc.

Component	Contents of Evaluation	Evaluation Timing	Number of Items and Score	Actual Score (full mark)	Scoring Share
(a) CRT test (Pre- & Post-CRT test)	Intermediate Kaizen technologies, such as TQM, Intermediate KPTs, TPS, TPM, Production plan, Economic engineering, etc.	Before & after CRT	50 multiple-choice questions * A few essay questions shall be included.	X (100) * Only the score of post-test (first one) to be used for overall evaluation. * Passing rate: 70%	20%
(b) Attitude and Competency evaluation	1. Intellectual capacity 2. Ability to cooperate 3. Communication ability 4. Maturity 5. Mental toughness and initiative 6. Ethical character and sincerity	At the end of ICT	Six principal items Maximum: 5 points/item	Y (30)	30%
(c) Technical Evaluation	<u><Problem-Solving Type></u> 1. Policy management and selection of theme 2. Comprehension of current situation 3. Target setting 4. Cause analysis 5. Planning and selection of countermeasures 6. Implementation of countermeasures 7. Confirmation of the result 8. Standardization 9. Future response <u><Task Achievement Type></u> 1. Policy management and selection of theme 2. Definition of challenge 3. Target setting 4. Drafting of scenario 5. Pursuit of success scenario 6. Implementation of success scenario 7. Confirmation of the result 8. Standardization 9. Future response	Second PSM Final PSM	20 items Maximum: 5 points/item	Z (100) * Only the score of final PSM to be used for overall evaluation.	50%
Overall evaluation	Comprehensive evaluation based on the scores of three types of evaluation	After the final PSM	$X \times 0.2 (20\%) + (Y/30 \times 100) \times 0.3 (30\%) + Z \times 0.5 (50\%)$ *Passing rate: 70%		

(end)

Attitude and Competency Evaluation Sheet (Trainee: _____)

Date: / /

No.	Principal Category	Viewpoint of Evaluation	Check Result					Special Remarks (Behaviour, statements and presentations, etc. at concrete occasions) *State the reason if the score is 5 or 1 without fail.
			Excellent (5)	Very Good (4)	Good (3)	Fair (2)	Not Good (1)	
1	Intellectual Capacity	<ul style="list-style-type: none"> • Active research on what is not known and required knowledge (inherent technologies, etc.) • Thinking logically • Thinking based on facts • Proposal of new ideas 						
2	Ability to Work Together	<ul style="list-style-type: none"> • Discussion and cooperation with counterparts of an enterprise with a good relationship • Discussion and cooperation with team members with a good relationship 						
3	Communication Ability	<ul style="list-style-type: none"> • Power of persuasion • Able to make logical and easy-to-understand statements and presentations • Speak in response to the depth of comprehension and level of another person 						
4	Intellectual and Emotional Maturity	<ul style="list-style-type: none"> • Speak calmly without getting emotional • Tries to produce results at a conference or meeting with clear awareness of the purposes • Tries to lead or to cooperate to make smooth progress at a conference or discussions • Listens to the opinions of other people 						
5	Mental Toughness and Initiative	<ul style="list-style-type: none"> • Always interested in new things and eager to challenge • Able to deal with difficult issues patiently • Develops a plan and objectives and acts quickly 						
6	Ethical Character and Sincerity	<ul style="list-style-type: none"> • Serious and enthusiastic • Sincere and honest • Honestly admits and correct mistakes or errors • Punctual 						
Number of relevant items								
Score (Number of items x points allocated)								
Total Score								/Maximum Point: 30

Technical Evaluation Sheet: Problem Solving (PS) (Trainee: _____)

Date: / /

No.	Process	Check points	Criteria				
			5: Excellent	4: Very good	3: Good	2: Fair	1: Not good
1	Policy management / Selection of theme	Confirmation of business challenge	Fully confirmed to the extent of acting as a model for others	Fully confirmed	Confirmed	Confirmed but not sufficiently examined	Not confirmed
2		Are policies and the theme matched?	Policies and the theme are completely matched to the extent of acting as a model for others.	Policies and the theme are completely matched.	Policies and the theme are almost matched.	Policies and the theme are not sufficiently matched.	Policies and the theme are not matched.
3		Is the process to select the theme from possible themes appropriate? (Can the selected theme be completed in 7 months?)	The selection method of the theme is appropriate to the extent of acting as a model for others and the schedule is fully considered	The selection method of the theme is appropriate and the schedule is considered	The selection method of the theme is appropriate but the schedule is questionable (too easy or too complicated)	The selection method of the theme is slightly inappropriate	The selection method of the theme is inappropriate
4	Comprehending current situation	Is data used for the analysis of the current situation?	Appropriate data is used for the analysis of the current situation to the extent of acting a model for others.	Appropriate data is used for the analysis of the current situation.	Data is used for the analysis of the current situation.	The data used is not appropriate.	There is no relevant stipulation or data is not used for the analysis of the current situation.
5		Is the problem correctly presented with the relevant data?	The problem is correctly presented with the relevant data to the extent of acting a model for others.	The problem is correctly presented with the relevant data.	The problem is almost correctly presented with the relevant data.	The problem is presented with partially incorrect data.	The problem is not presented with the relevant data
6		Are the data gathering period and method appropriate?	The data gathering period and method are appropriate to the extent of acting a model for others.	The data gathering period and method are appropriate.	The data gathering period and method are largely appropriate.	The data gathering period and method are partially inappropriate.	The data gathering period and method are inappropriate.

No.	Process	Check points	Criteria				
			5: Excellent	4: Very good	3: Good	2: Fair	1: Not good
7	Target Setting	Are the KPIs of the theme set appropriately?	The KPIs of the theme are appropriately decided to the extent of acting a model for others	The KPIs of the theme are appropriately decided	The KPIs of the theme are almost appropriately decided	The decision on the KPIs of the theme is slightly inappropriate	The decision on the KPIs of the theme is inappropriate
8		Will the higher policies be achieved if the targets of the theme are achieved?	If the targets of the theme are achieved, the higher policies will be achieved to the extent of acting a model for others.	If the targets of the theme are achieved, the higher policies will be achieved.	If the targets of the theme are achieved, the higher policies will be mostly achieved	If the targets of the theme are achieved, some of the higher policies will be achieved	Even if the targets of the theme are achieved, the higher policies will not be achieved
9		Is the deadline for target achievement set?	The deadline for target achievement is properly set to the extent of acting a model for others.	The deadline for target achievement is properly set.	The deadline for target achievement is almost properly set.	The deadline for target achievement is set but inappropriate.	The deadline for target achievement is not set.
10	Cause analysis	Are the causes described in a concrete manner?	Description of the causes is sufficiently concrete to the extent of acting a model for others.	Description of the causes is sufficiently concrete.	Description of the causes is concrete.	Description of the causes is not concrete.	Description of the causes is not at all concrete.
11		Is the cause investigated to the root cause?	The cause is investigated to the root cause to the extent of acting a model for others.	The cause is investigated to the root cause.	The cause is investigated nearly to root cause.	The cause is not investigated to root cause.	The root cause is not at all investigated.
12		Does the root cause identify the factor to truly solve the problem?	The root cause is directly linked to the solution of the problem to the extent of acting a model for others.	The root cause is directly linked to the solution of the problem.	The root cause helps to solve the problem.	The root cause helps to partially solve the problem.	The root cause does not help to solve the problem.

No.	Process	Check points	Criteria				
			5: Excellent	4: Very good	3: Good	2: Fair	1: Not good
13	Planning and selection of countermeasures	Is the relationship between the draft countermeasures and the root cause clear?	The relationship between the draft countermeasures and the root cause is very clear to the extent of acting a model for others.	The relationship between the draft countermeasures and the root cause is very clear.	The relationship between the draft countermeasures and the root cause is reasonably clear.	The relationship between the draft countermeasures and the root cause is not clear.	No countermeasures are proposed.
14		Are countermeasures ranked on the basis of the predicted effect?	Countermeasures are ranked on the basis of the predicted effect to the extent of acting a model for others.	Countermeasures are ranked on the basis of the predicted effect.	Countermeasures are ranked.	Only one countermeasure is proposed for the root cause.	No countermeasures are proposed.
15		Are countermeasures realistic and feasible?	Countermeasures are realistic and feasible to the extent of acting a model for others.	Countermeasures are realistic and feasible.	Countermeasures are mostly realistic and feasible.	Countermeasures are slightly unrealistic.	Countermeasures are unrealistic.
16	Implementation of countermeasures	Are countermeasures implemented as planned?	Countermeasures are implemented as planned to the extent of acting a model for others.	Countermeasures are implemented as planned.	Countermeasures are implemented roughly as planned.	Some deviations from the plan occurred.	The scenario was not implemented as planned.
17	Confirmation of the result	Degree of target achievement	≥ 150%	≥ 90%	≥ 70%	≥ 30%	30% > No numerical value
18	Standardization	Is Yokoten* being carried out ? * Yokoten is “best practice sharing” in Japanese and the practice of applying the Kaizen results for other areas.	A Yokoten plan is being carried out and some improvements are achieved.	A Yokoten plan has been made and is being carried out.	A Yokoten plan is made in 5W1H format. The plan includes the products, processes, or lines for Yokoten.	The information and knowledge of the Kaizen that can be applied for other products, processes, or lines have been determined.	The information and knowledge of the Kaizen that can be applied for other products, processes, or lines are not determined yet.
19		Is the activity for recurrence prevention and maintaining the Kaizen results initiated ?	A plan for recurrence prevention and maintaining the Kaizen results is initiated and some results are made.	A plan for recurrence prevention and maintaining the Kaizen results is made and initiated.	A plan for recurrence prevention and maintaining the Kaizen results is made in 5W1H format.	The methods to prevent the recurrence of the problem and maintain the Kaizen results have been determined.	The methods to prevent the recurrence of the problem and maintain the Kaizen results are not determined.

No.	Process	Check points	Criteria				
			5: Excellent	4: Very good	3: Good	2: Fair	1: Not good
20	Future responses	Are the next activities proposed to realize the company vision and policies?	The next activities which can constitute a model for others are proposed.	The next activities to realize the company vision and policies are proposed.	The next activities are proposed but their relationship with the policies is not clear.	The next activities are proposed but they are not consistent with the policies.	The next activities are not proposed.
Number of relevant items							
Score (Number of items x points allocated)							
Total score			/Maximum point: 100				

Technical Evaluation Sheet: Task Achievement (TA) (Trainee: _____)

Date: / /

No.	Process	Check points	Criteria				
			5: Excellent	4: Very good	3: Good	2: Fair	1: Not good
1	Policy management / Selection of theme	Confirmation of business challenge	Fully confirmed to the extent of acting as a model for others	Fully confirmed	Confirmed	Confirmed but not sufficiently examined	Not confirmed
2		Are policies and the theme matched?	Policies and the theme are completely matched to the extent of acting as a model for others.	Policies and the theme are completely matched.	Policies and the theme are almost matched.	Policies and the theme are not sufficiently matched.	Policies and the theme are not matched.
3		Is the process to select the theme from possible themes appropriate? (Can the selected theme be completed in 7 months?)	The selection method of the theme is appropriate to the extent of acting as a model for others and the schedule is fully considered	The selection method of the theme is appropriate and the schedule is considered	The selection method of the theme is appropriate but the schedule is questionable (too easy or too complicated)	The selection method of the theme is slightly inappropriate	The selection method of the theme is inappropriate
4	Definition of challenge	Is the gap between the target level and the current level properly understood using indicators?	The gap between the target level and the current level is properly understood using indicators to the extent of acting a model for others.	The gap between the target level and the current level is properly understood using indicators.	The gap between the target level and the current level is almost properly understood using indicators.	The gap between the target level and the current level is insufficient.	The gap between the target level and the current level is not understood.
5		Are the (candidate) areas to be attacked to close the gap fully clarified?	(Candidate) areas to be attacked to close the gap are fully clarified to the extent of acting as a model for others.	(Candidate) areas to be attacked to close the gap are fully clarified.	(Candidate) areas to be attacked to close the gap are largely clarified.	(Candidate) areas to be attacked to close the gap are not sufficiently clarified.	(Candidate) areas to be attacked to close the gap are not clarified.
6		Are the procedures for clarification of the (candidate) areas to be attacked and decision-making appropriate?	The procedures for clarification of the (candidate) areas to be attacked and decision-making are appropriate to the extent of acting a model for others.	The procedures for clarification of the (candidate) areas to be attacked and decision-making are appropriate.	The procedures for clarification of the (candidate) areas to be attacked and decision-making are largely appropriate.	The procedures for clarification of the (candidate) areas to be attacked and decision-making are insufficient.	The procedures for clarification of the (candidate) areas to be attacked and decision-making are inappropriate.

No.	Process	Check points	Criteria				
			5: Excellent	4: Very good	3: Good	2: Fair	1: Not good
7	Target setting	Are the KPIs of the theme set appropriately?	The KPIs of the theme are appropriately decided to the extent of acting a model for others	The KPIs of the theme are appropriately decided	The KPIs of the theme are almost appropriately decided	The decision on the KPIs of the theme is slightly inappropriate	The decision on the KPIs of the theme is inappropriate
8		Will the higher policies be achieved if the targets of the theme are achieved?	If the targets of the theme are achieved, the higher policies will be achieved to the extent of acting a model for others.	If the targets of the theme are achieved, the higher policies will be achieved.	If the targets of the theme are achieved, the higher policies will be mostly achieved	If the targets of the theme are achieved, some of the higher policies will be achieved	Even if the targets of the theme are achieved, the higher policies will not be achieved
9		Is the deadline for target achievement set?	The deadline for target achievement is properly set to the extent of acting a model for others.	The deadline for target achievement is properly set.	The deadline for target achievement is almost properly set.	The deadline for target achievement is set but inappropriate.	The deadline for target achievement is not set.
10	Drafting of scenario	Are effective draft scenarios listed by area to be attacked?	All effective scenarios are listed by area to be attacked to the extent of acting a model for others.	All effective scenarios are listed by area to be attacked.	All effective scenarios are largely listed by area to be attacked.	Some effective scenarios are listed by area to be attacked.	Effective scenarios are not listed by area to be attacked.
11		Are scenarios drafted with full creativity?	Draft scenarios reflect full creativity to the extent of acting a model for others.	Draft scenarios reflect full creativity.	Draft scenarios reflect creativity.	Draft scenarios reflect some creativity.	Draft scenarios do not reflect creativity.
12	Pursuit of success scenario	Are appropriate criteria (impact, relevance, efficiency, effectiveness, urgency and sustainability, etc.) set?	The definition of each criterion is clear to the extent of acting a model for others and there is no duplication or missing part between individual criteria.	The definition of each criterion is clear and there is no duplication or missing part between individual criteria.	The definition of each criterion is clear but there are duplications and missing parts between individual criteria.	Each criterion is defined but vague.	There are no criteria.
13		Is evaluation done in accordance with the criteria to select the scenario?	Evaluation is done by a person with appropriate knowledge and experience in accordance with the criteria to the extent of acting a model for others.	Evaluation is done by a person with appropriate knowledge and experience in accordance with the criteria.	Evaluation is done on the majority decision basis in accordance with the criteria.	Evaluation is done in accordance with the criteria but a final decision is made by a person with a loud voice.	A final decision is made dogmatically, not following the criteria.
14		Are problems of implementing the scenario predicted and are countermeasures prepared?	Problems of implementing the scenario are fully predicted and countermeasures are prepared to the extent of acting a model for others.	Problems of implementing the scenario are fully predicted and countermeasures are prepared.	Problems of implementing the scenario are predicted and countermeasures are prepared.	Problems of implementing the scenario are predicted and countermeasures are prepared but insufficient.	Problems of implementing the scenario are not predicted.

No.	Process	Check points	Criteria				
			5: Excellent	4: Very good	3: Good	2: Fair	1: Not good
15		Are the persons responsible and deadline for scenario implementation clearly decided?	The scenario is implemented as planned to the extent of acting a model for others.	The persons responsible and deadline for the scenario implementation are decided in detail.	The persons responsible and deadline for the scenario implementation are roughly decided.	Either the persons responsible or deadline for the scenario implementation is decided.	Neither the persons responsible nor deadline for the scenario implementation is decided.
16	Implementation of success scenario	Is the scenario implemented as planned?	The scenario is implemented as planned to the extent of acting a model for others.	The scenario is implemented as planned.	The scenario is implemented roughly as planned.	Some deviations from the plan occurred.	The scenario was not implemented as planned.
17	Confirmation of the result	Degree of target achievement	≥ 150%	≥ 90%	≥ 70%	≥ 30%	30% > No numerical value
18	Standardization	Is Yokoten* being carried out? * Yokoten is “best practice sharing” in Japanese and the practice of applying the Kaizen results for other areas.	A Yokoten plan is being carried out and some improvements are achieved.	A Yokoten plan has been made and is being carried out.	A Yokoten plan is made in 5W1H format. The plan includes the products, processes, or lines for Yokoten.	The information and knowledge of the Kaizen that can be applied for other products, processes, or lines have been determined.	The information and knowledge of the Kaizen that can be applied for other products, processes, or lines are not determined yet.
19		Is the activity for recurrence prevention and maintaining the Kaizen results initiated?	A plan for recurrence prevention and maintaining the Kaizen results is initiated and some results are made.	A plan for recurrence prevention and maintaining the Kaizen results is made and initiated.	A plan for recurrence prevention and maintaining the Kaizen results is made in 5W1H format.	The methods to prevent the recurrence of the problem and maintain the Kaizen results have been determined.	The methods to prevent the recurrence of the problem and maintain the Kaizen results are not determined.
20	Future responses	Are the next activities proposed to realize the company vision and policies?	The next activities which can constitute a model for others are proposed.	The next activities to realize the company vision and policies are proposed.	The next activities are proposed but their relationship with the policies is not clear.	The next activities are proposed but they are not consistent with the policies.	The next activities are not proposed.
Number of relevant items							
Score (Number of items x points allocated)							
Total score			/Maximum point: 100				

**6. KAIZEN CONSULTANT CERTIFICATION,
ACCREDITATION AND REGISTRATION SYSTEM
(CARS) GUIDELINE, RELEASE 1.2**



KAIZEN CONSULTANT

**CERTIFICATION, ACCREDITATION
AND REGISTRATION SYSTEM (CARS)**

GUIDELINE

RELEASE 1.2

May 2017 (Release 1.0)
Revised in April 2018 (Release 1.1)
Revised in November 2019 (Release 1.2)

JICA Kaizen Project Team
Research and Certificate Sector of EKI

Revision History

Release Level	Date of Modification	Description
R1.0	May 2017	Initial release
R1.1	April 2018	The revision was made on the followings: ✓ 1. Objectives of Kaizen consultant CARS (page 1) ✓ 4.4. Qualifications of candidacy for examinations (Table 4: Definition of exam qualification) (page14)
R1.2	November 2019	The revision was made as follows: ✓ Adding new levels, 5S Leader & Master, and deleting Kaizen Starter (KS) level. ✓ Revision on Table 15: Evaluation table of other items. ✓ Revision on Managing organizations

PREFACE

The Federal Democratic Republic of Ethiopia (hereinafter simply referred to as “Ethiopia”), recognized and ranked Kaizen as one of strategic pillars to realize the current five-year Growth and Transformation Plan 2 (GTP2). Ethiopian Kaizen Institute (EKI), which is the implementing organization of Kaizen, was established under the name of Kaizen Unit in Ministry of Industry (MoI). After six years passed, the term “Kaizen” became well-known by ordinary citizen in addition to enterprises. Not only just the term, but the Kaizen activities has been spreading over regions from Addis Ababa, which has brought about preferable results, such as the improvement of product and services, the improvement of productivity, cost down, and shortening of delivery time in enterprises, schools and medical institutions.

Now, the degree of Kaizen dissemination differs from region to region. Thus, from now on, EKI is expected to raise the level of the Kaizen dissemination to a certain standard level as fast as possible, in addition to extending the targets beyond manufacturing sector and public sector such as university, TVET and school, which would contribute to the realization of GTP2. The Kaizen Consultant Certification, Accreditation and Registration System (CARS) that is summarized in this paper is an essential system to achieve the above-mentioned mission that EKI is given.

The quality of Kaizen should be ensured despite the rapid dissemination of Kaizen. The quality of Kaizen activities should not be deteriorated due to the rapid dissemination. Although it is difficult, it is desirable to improve the quality while accelerating the dissemination. Based on this thought, this paper is prepared by JICA Kaizen Project Team together with EKI members led by Mr. Kokeb Demeke, Deputy Director-General of Research and Certificate Sector and Ms. Nigatwa Asrat, Director of Awarding, Recognition and Certificate Directorate, as well as the members of the CARS preparation committee through a series of discussion.

There are four objectives of the CARS. The first objective is likened to the quality assurance of a product. As consulting service is immaterial, which is different from a material product, clients are not able to see or touch to check the quality beforehand. If it is a product, you can judge the quality by observing the product itself. But, in case of immaterial things such as Kaizen consulting, there is a large information asymmetry between those who sell and those who buy. The clients are at a disadvantage. It is natural that the clients would hesitate to order Kaizen consulting in the situation that they are not able to know the quality of service in advance. The CARS provides the solution to this situation. By “visualizing” the quality of consulting service, the clients will be able to select a consultant with standard level, without relying on the word of mouth or introduction by a third party.

The second objective is to sustain and improve the quality of consulting. This will become more and more important than expected as the division of roles between EKI and city/regional Kaizen institutes is going to be made as implementing agencies. That is, basic-level Kaizen activities are being organized by regional Kaizen institutes (RKIs) that are managed by city or regional state governments. Thus, in near future, the roles of EKI would be the exclusive management of: (1) intermediate- and

advanced-level Kaizen consulting service provision; (2) fostering and brush-up of the consultants of RKIs, (3) localization and advance of Kaizen technologies and the development of new Kaizen technology, and (4) establishment and management of the system of nationwide Kaizen dissemination. Regarding the four roles, the CARS takes the role of presenting the consultant capacity in (2), of showing the starting point of localization and advance of Kaizen technologies in (3); and of being one of the system of the dissemination. In other words, the CARS bears the role of sustaining the quality of consulting as well as of providing the baseline when advancing Kaizen technologies, even after the implementing agencies changes through extending the target of CARS from EKI to RKI consultants.

The third objective is to provide the standard for Kaizen human resource development of federal and city/regional state governments such as EKI and RKIs, private enterprises, educational institutions such as TVET and universities as well as of public works such as electric power, communication, water service and construction. For instance, if an organization has staff of three basic Kaizen certificate holders, one intermediate Kaizen certificate holders and zero advanced Kaizen certificate holder; and it is planned to have five, three and one for each level after one year, the CARS clearly shows what kind of technologies should be acquired for those candidates.

The fourth objective of the CARS is the function as benchmarking in self-enlightenment and capacity development of individual consultant. Even though it is called Kaizen with one word, the range of Kaizen technologies is so wide that it would take very long time until one consultant obtains all the technologies. If you wait until you acquire all, you would never be in practice. In addition, the more advanced Kaizen technologies to be obtained, the fewer or no trainers who can teach in surroundings. Therefore, an advanced Kaizen consultant is expected not only to use Kaizen technology efficiently but also to have learning capacity of studying technologies that are new to her/him and that of applying them in consulting service for clients. In this regard, the CARS can be a roadmap for self-enlightenment of consultants.

To sum up, the CARS is an important system for the dissemination of Kaizen, and it has the following objectives:

- 1) Ensuring the quality of consulting services
- 2) Improving the consulting techniques
- 3) Provision of standard for Kaizen competencies of human resource development plan
- 4) Function as roadmap of self-enlightenment of consultants.

May, 2017

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ABBREVIATIONS

	English
AACKI	Addis Ababa City Kaizen Institute
AC	Advance Consultant
BA	Bachelor of Arts
BC	Basic consultant
BSc	Bachelor of Science
CARS	Kaizen consultant Certification, Accreditation and Registration System
CSC	Civil Service Commission
DD	Director General
DDG	Deputy Director General
EIEA	Ethiopian Industrial Engineering Association
EKI	Ethiopian Kaizen Institute
GTPs	2nd Growth Transformation Plan
IC	Intermediate Consultant
IE	Industrial Engineering
IT	Information and Technology
JICA	Japan International Cooperation Agency
KS	Kaizen Starter
LIDI	Leather Industry Development Institute
MA	Master of Arts
MoT	Ministry of Industry (It became MoTI in 2018.)
MoTI	Ministry of Industry and Trade
MoPSHRD	Ministry of Public Service and Human Resource Development (It became CSC in 2018.)
MSc	Master Course
OJT	On the Job Training
PC	Principal Consultant
Ph.D.	Doctor of Philosophy
QC	Quality Control
SF	Strategic Framework of Ethiopia KAIZEN
TPM	Total Productive Maintenance
TPS	Toyota Production System
TQM	Total Quality Management
TVET	Technical Vocational Education and Training

DEFINITION OF TERM

Term	Definition
Academic background	In addition to the academic background in a general sense, the academic background here also includes the qualifications of Kaizen consultants and the attendance of Kaizen training conducted by EKI.
Accreditation	The action or process of officially recognizing someone as having a particular status or being qualified to perform a particular activity.
Alterability	<p>When dividing the conditions of the examination for the consultant certification into two levels of academic background and business experience, it means whether the average level of comprehension of knowledge and skills acquired by MSc acquisition and university graduation is equivalent to the knowledge, wisdom and skill gained through years of business experience.</p> <p>For example, when a certain years of business experience can be regarded as equivalent to the average level of university graduates, this business experience is called to have alterability to university graduates. When the required number of years of business experience can be low, it is called as high alterability.</p>
Business experience	Working to earn income, experience of working at least 8 hours per day, more than 5 days per week work experience. There is no need for any industry or occupation.
Certification	The action or process of providing someone or something with an official document attesting to a status or level of achievement.
Client	Enterprises or organizations to be provided with kaizen service by consultants.
Consultant	Person who provides Kaizen consulting services to clients. S/he is expected not only to use Kaizen technology efficiently but also to have learning capacity of studying technologies that are new to her/him and that of applying them in consulting service for clients
Core certifications	Core certifications are treated in this CARS in depth. It is these core certifications which condition of obtaining is to pass examination. It is leveled as Grade 1, 2, 3 and 4, namely, basic consultant (BC), intermediate consultant (IC), advance consultant (AC) and principal consultant (PC) respectively.
Coverage of exam	It aligns with the contents of three levels of Kaizen that EKI Strategic Framework stipulates, namely First-level, Second-level and Third-level Kaizen. The coverage of exam of each level includes not only the content of the corresponding level, but also the contents of the lower levels.
Essay question	A type of question where a test-taker answers the analysis, cause exploration, countermeasure, etc., required by the question by using statements and chart/diagram/graph. This type of question is often used for exams of intermediate and advanced level.
Ethical code	A set of moral principles or rules of behavior that are generally accepted by society or a social group. This code is applicable for Kaizen consultants certified under the CARS.
Examination (exam)	A series of tests to obtain certification of consultants. It consists of paper test, oral test and job experience and those weightings depend on the levels. In the CARS, the four levels of exams are set up for KS and 3 grade core consultants except PC.

Term	Definition
Fill-in-the-blank question	In descriptions of questions, a word or statement is partially missing. A test-taker fills in such parts. This type of question is for basic and intermediate level.
Genba	Workplace
Kaizen	The origin is derived from Japanese, meaning to change it better. But when we do Kaizen in the factory or work, it means the button-up type improvement including mindset to continually improve. Improvement method started in Japan.
Kaizen Institute	Federal, regional/city institutions to provide Kaizen consulting services, promote and disseminate Kaizen activities.
Multiple-choice question	Among some descriptions about a topic, one correct (appropriate) or wrong (in appropriate) description is chosen. This type is often used for easy questions for beginner's level. In case of two-choice question, even if a test-taker chose one at random, s/he would get 50% marks. In case of four-choice question, it would be 25% of correct answers.
Optional question	A problem for the test-taker to select and answer according to the instruction of an exam setter. The knowledge and skills of KAIZEN is wide-ranging. It is allowed for the test-taker to select and answer the questions about topics that the test-taker is good at. This type of question is often used for exams of intermediate and advanced level.
Oral test	The second test which certification applicants should pass through. Those who obtain standard mark of 60% and the above in paper test can seat the oral test. The test-taker will prepare and submit a report of his/ her own Kaizen case in advance. Based on the report, examiners will give questions orally.
Paper test	The first test which certification applicants should pass through. It is a written test regarding theory and its application.
Qualification	A pass of an examination or an official completion of a course, especially one conferring status as a recognized practitioner of a profession or activity.
Renewal of certification	The act of the certification to be valid for a further period of time after it has expired. The renewal cycle is two years. Renewal of the certifications requires the engagement of consulting service, the experience of seminar lecturer and the attendance of renewal seminar.
Requirements (Pre-requisites)	It is an individual attribute that would have high possibility to make great influence in executing the concerned function. The required condition translates into the requirements (re-requisites) of taking exam.
Similarity	When exam candidates are determined to pass or fail, business experience is one of the criteria to evaluate. In business experience, consulting or similar experiences are evaluated higher than business experience different from consulting. The degree of similarity shall be evaluated based on four levels with 1 being the highest.
Weighting	A value that is given to each of a number of criteria to show how important it is compared with the others.

1. Objectives of Kaizen consultant Certification, Accreditation and Registration System (CARS)

There are one primary and three secondary objectives of Kaizen consultant CARS as follows:

Primary objective:

To ensure the quality of consulting services.

Secondary objectives:

- 1) Improving the consulting techniques.
- 2) Provision of standard for Kaizen competencies of human resource development plan.
- 3) Function as roadmap of self-enlightenment of consultants.

Table 1 shows the objectives of Kaizen consultant Certification, Accreditation and Registration System (CARS) by beneficiary.

Table 1: Objectives of CARS by beneficiary

Beneficiary	Objective
Client company and organization	1. To provide clients with a clue to select appropriate consultant(s) through the certification that clearly shows instruction capacity standard of consultant(s).
Other company and organization	2. To provide a benchmark for fostering human resources for Kaizen implementation autonomously in company/organization.
Consultant	3. To present to necessary competencies and attitude as well as the area of Kaizen technology, which shall be a goal of self-enlightenment to consultant(s). 4. To request consultants to acquire all-round (comprehensive) knowledge on quality, productivity, cost, delivery time, etc. of a certain standard and the above. 5. To provide consultant(s) with a milestone in career development.
Kaizen Institute*	6. To show the standard for human resource development plan of consultants to EKI, RKI and other Kaizen promotion institutions. 7. To provide the standard for the determination of amount of salary.

* Respective federal, regional/city Kaizen institutes.

Briefly, the objectives of the CARS are summarized as follows.

- Function as quality assurance of consulting service (No. 1 and No.4)
- Function as consulting capacity development (No. 2 and No. 3)
- Function as standard provision (No. 5, No.6 and No. 7)

All objectives show that the CARS is an essential basis for forwarding the Kaizen dissemination.

2. Type and target of certification

In order to view the whole picture of consultant certification system (including researcher), the typical example, academic background, working experience, present position, number of subordinate, current work, and the characteristics of different certificates are summarized in Table 2. It is NOT required conditions in order to take the examination of consultant certification, nor the description of a certain selected person. But, it is a reference for those who are in charge of planning and managing the certification system to easily imagine the system.

Table 2: Characteristics of certifications (example of target cohort)

Name of certification	Assumed typical model	Academic background	Working experience	Present position	No. of subordinate	Current work	Certificate characteristics
5S Leader	Asenafi (24 years old) works in a garment factory. The factory implemented basic Kaizen last year and he is one of the Kaizen Promotion Team members in the sewing section.	TVET graduate	Two	Operator	None	Operator in sewing section	It is a gateway to certified consultant levels and to raise interest in Kaizen. It is to certify the knowledge and experience of implementing 5S. It is a transcript (record) on 5S. It also aims to increase the people who want to work for Kaizen as a consultant or in the company in future.
5S Master	Beza (28 years old) works in a metal processing company. Basic Kaizen was conducted in an assembly section two years ago; and after that it was implemented in entire company in the last two years. She was the one who coordinated and controlled this company-wide Kaizen as a Kaizen officer.	Graduate of Industrial Engineering	Four	Kaizen Officer	3	As a Kaizen officer, organize and coordinate the quality and productivity control activity	It is also gateway to certified consultant levels. It is to certify the knowledge and experience of implementing and guiding 5S. It is a transcript (record) on 5S and Kaizen General.
<u>CORE 1</u> Basic consultant (First grade)	Bethlehem (25 years old) got a job in Addis Ababa City Kaizen Institute (AACKI) on the time of its inauguration. In her workplace, there are recently many new elder colleagues who have less practical experience in Kaizen, and they rely on her. However, she is painfully aware of her own lack of knowledge and experience. Thus, she has been requesting her needs to take Kaizen MSc course.	Graduate of Department of Mechanical Engineering, Addis Ababa University	Four-year consulting experience in AACKI	Junior consultant	None	Providing basic Kaizen consulting service (e.g. 5S) with two to three colleagues	It is the first-level certification in a narrow meaning (CORE certifications). It is strongly recommended for basic Kaizen instructors to hold this certification. It can be said that it is an essential certification to be a Kaizen consultant.

Name of certification	Assumed typical model	Academic background	Working experience	Present position	No. of subordinate	Current work	Certificate characteristics
<u>CORE 2</u> Intermediate consultant (Second grade)	Chaltu, who majored in economic engineering in university (28 years old), is “No.2” in textile directorate of EKI. While she has been busy both in her work and in private as a mother of one child, she obtained MSc in Kaizen. In her work, she has been putting efforts to obtain application ability and facilitation skills in addition to knowledge. If any opportunity, she has feeling to try PhD course.	MSc in Kaizen from Mekelle University	Six-year consulting experience in EKI	EKI lead consultant	5	Taking a role of a leader of consulting team formed for each enterprise.	Intermediate-level certification in Core certification. This is required for those who lead a consultant team that is formed according to client. In addition, this certification is also required to be a director of consulting sector or research sector in principle.
<u>CORE 3</u> Advanced consultant (Third grade)	Dawit, who just had 35-year birthday in this June, is the first exam passer of this grade. After graduated from university, he became employed by EKI. He has been studying by his own since then, and everyone acknowledge his superiority. He received an award from academia on his thesis about the introduction of TPS into Ethiopia, and now is an expert at TPM amongst all.	MSc in Kaizen from Mekelle University	12-year consulting experience in EKI	Director, Agro Industry Directorate	8	Coping with difficult problems to solve and complicated tasks to achieve of large enterprises across the nation	The second highest grade in four-level CORE certifications, as well as the highest certification that can be obtained by exam. The consultant of this level is expected to solely deal with difficult problems and tasks for large enterprises scattering over the country. So, s/he often makes business trips. Those who are not good at management usually aim to be advanced consultants.
<u>CORE 4</u> Principal consultant (Fourth grade)	50-year old Ermias worked in Leather Industry Development Institute (LIDI) for three years. After that he entered EKI and has been already worked for 25 years there. In 25 years, he had been serving for 18 years as a consultant and brought about remarkable Kaizen effects in light industries such as fiber, sewing and leather as well as in machine manufacturing industries. After that, he changed to be in managerial position, educated many young consultants, and contributed to enhancing consulting capacity of EKI. He is also the co-writer of “The KAIZEN”.	Graduate of Department of Animal Husbandry, Addis Ababa University	27-year practical experience. Out of it, 18-year consulting experience in EKI.	DDG, Human Development Sector	26	Engaging in the development of e-learning system by collecting cases of success and failure, where EKI staff can learn.	It is a head post for EKI consultants who make remarkable achievement by Kaizen instruction and create the useful Kaizen approach as well as for EKI management who made great achievement in managing Kaizen dissemination. As an outstanding achievement is taken as evaluation standard, this level is not the target of certification exams. It is appointed by the EKI management layer including directors and the above.

The image described in table above is simplified and shown with illustration in Figure 1.

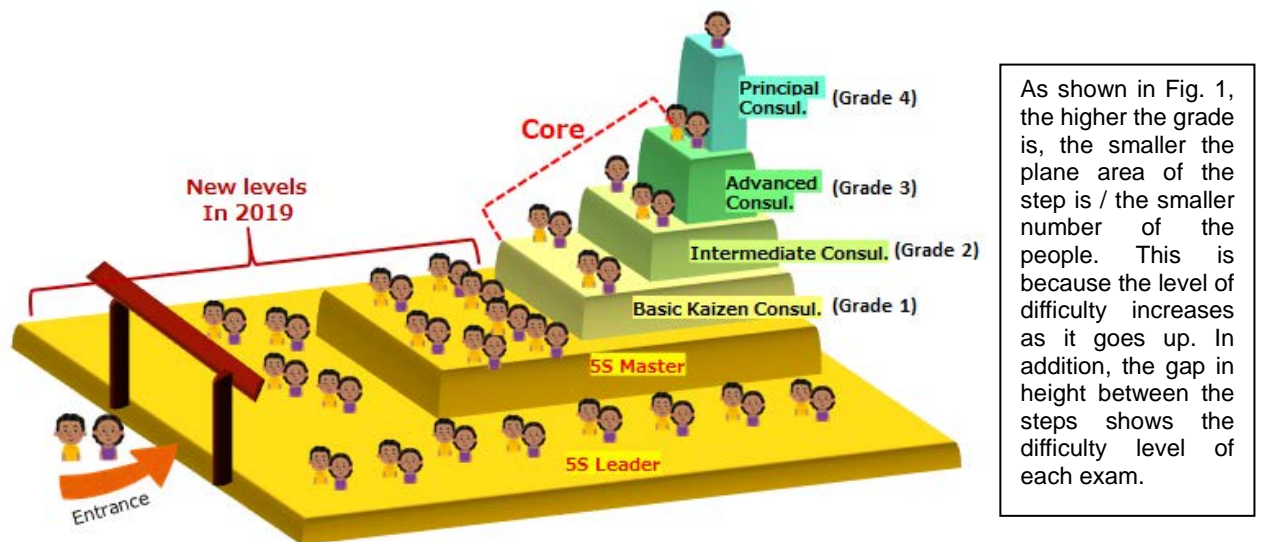


Figure 1: Structure of Kaizen consultant CARS

The figure 1 shows six scales of certification. It begins with “5S Leader” and “5S Master”, followed by three core consultant certifications, and then “Principal consultant (PC)” at the highest level. The first two levels (5S Leader and 5S Master) are for the verification; while three core levels and PC are for consultant certification. In fact, it is not always necessary to step up from the bottom one by one¹. Needless to say, the candidate can go up one by one, but s/he will be able to attempt intermediate certification if s/he meets a certain qualification of this level as explained later.

5S Leader and 5S Master, which are the first steps on the Kaizen consultant ladder, has the condition that the test takers should obtain a certain mark in the designated examination. However, it is not the certification of consultant, but the certification (transcript) to show that the test takers achieve a certain level by the exam result. The purpose of setting this grade is to encourage students and company workers to be interested in Kaizen and to increase the number of people who will be positively engaged in working places in future.

Next one is the core certifications that are treated in depth in this CARS. It is these core certifications, which condition of obtaining certifications is to pass the entire process of the examination. It is leveled as Grade 1, 2, 3 and 4, namely, basic consultant (hereafter referred to as “BC”), intermediate consultant (hereafter referred to as “IC”), advance consultant (hereafter referred to as “AC”) and principal consultant (hereafter referred to as “PC”) respectively.

¹ In addition to this, there is room to consider the introduction of specific certificates such as a 5S instructor and a MUDA elimination instructor, who can work for focused areas of Kaizen. Basically, these techniques are used at the first stage of Kaizen. These have the multiplicity of use regardless of the type of industry, can be implemented without paying much, and can be expected to yield high effects on quality and productivity improvement.

The Principal consultant (hereafter referred to as “PC”) is the highest grade amongst all six-grade, which shall be given to those who bring great outcomes for clients through a long-time consulting service, or those who contribute to the quality improvement of consulting service by the development and localization of Kaizen technologies, or those who made remarkable achievement in Kaizen dissemination management. There are two different points between this title and the core certifications.

The first point is that core certifications show the level of capacity of consulting, while the PC title is given primary to the achievements of a person. The former is about potential of a person, while the latter is about performance of a person. In other words, it is the difference between achievements in future and that in past.

The second point is that paper test is not suitable for the PC, while these methods are useful for other certifications to evaluate the capacity of consultants. Thus, for the PC, the examination on thesis of the achievement of the candidate is to be used.

The above-mentioned three certifications and three levels of Kaizen grades are summarized in Figure 2.

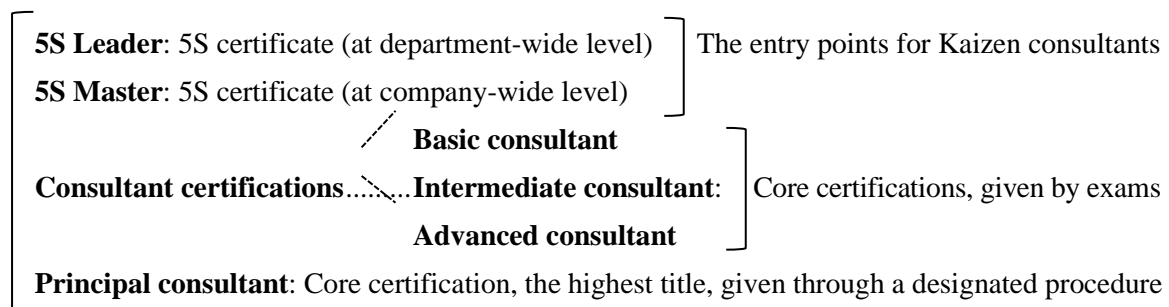


Figure 2: Consultant certificate and the related system

As mentioned above, there are clear differences between these three consultant certifications and the other three grades regarding their status. Therefore, we are not going to treat them in the same terms.

3. Flow to obtain certification

This chapter shows the road map on how to acquire certifications or transcripts for those who are willing to obtain them. There is only one gate, which is passing the paper test, in the two levels (5S Master and 5S leader), while the BC, IC and AC applicants should pass through the four gates. Regarding the latter, the first gate is to meet exam qualification; the second one is to pass paper test; the third one is to pass oral test²; and the last one is the overall evaluation. Regarding the PC, there are three gates to pass, meeting qualification for application, oral test and overall evaluation.

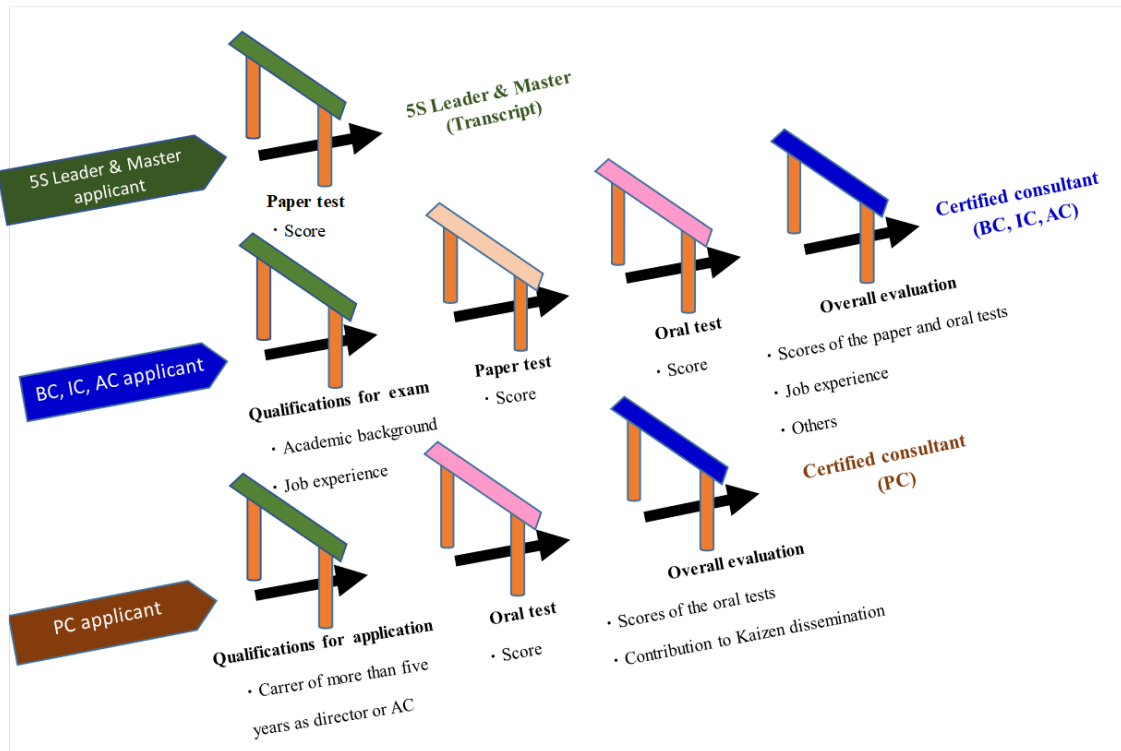


Figure 3: Flow to obtain certification

² In case that an applicant passes the paper test, but fails the oral test or the overall evaluation, the validity of the pass of the paper test is to be for one year.

4. Definition and required condition of certification

In this chapter, the detailed definition and required condition of obtaining consultant certifications are described. First, the definition of certification is explained again, and then the required condition to obtain each certification is discussed. The required condition means a necessary and sufficient condition to play a role as consultant of each grade. Secondly, the lower part of structure is examined for each required condition, and which level of required condition is to be actually used shall be determined. Thirdly, alternativeness amongst the required conditions is going to be examined and the combination of the required conditions will be proposed at the end (refers to Figure 4).

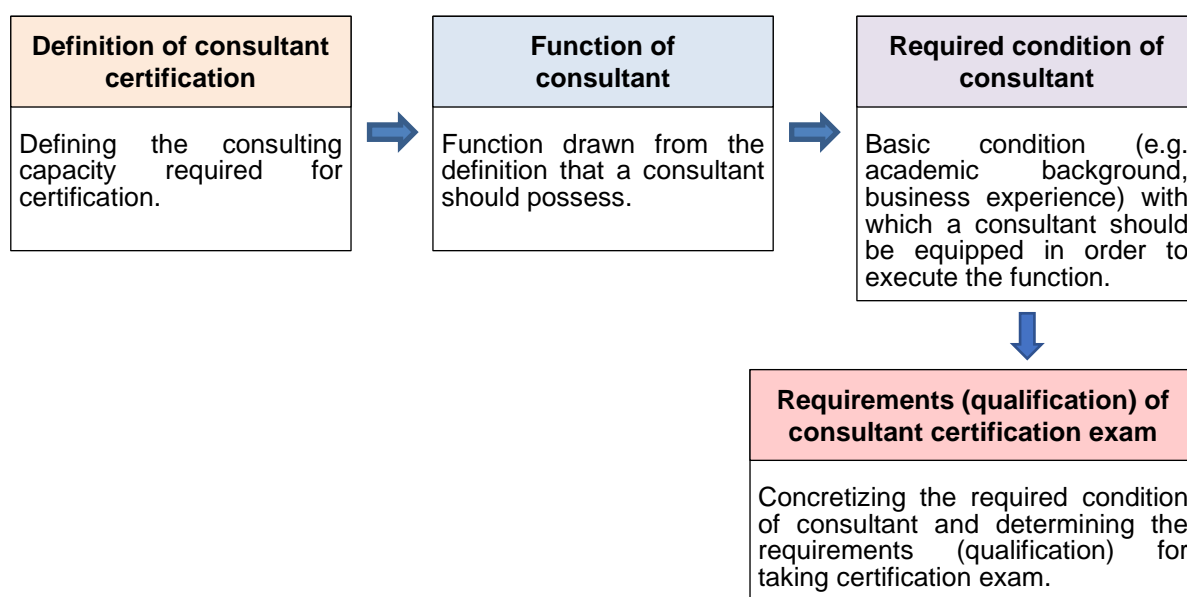


Figure 4: The relationship amongst definition, function, required conditions and exam requirements (qualification)

4.1. Necessary condition drawn from the definition of certification

Table 3 shows the definition, function and required condition of certifications of five levels explained in the previous chapter. Note that the function mentioned here is the required function for a concerned certification level, which is drawn from the definition. The required condition is an individual attribute that would have high possibility to make great influence in executing the concerned function. The required condition translates into the requirements (re-requisites) of taking exam.

In order to clearly understand the above relationship, “Certification of marathon runner” is going to be explained here. Supposing the definition of the certification is “the certification that shows that s/he is the runner who has the ability of being placed high in world class competition such as Olympic Games.” From this definition, “the proved high and enduring physical ability” can be drawn as the function of the certification holders. Next is the required condition. Two conditions, “high lung capacity” and “record of high achievement” would be set as the required conditions of “the proved high and enduring physical ability”. In order to make these two required conditions be requirements of

taking exam, “Lung capacity of 5,000cc and the above” and “Winning a prize of 3rd place and the above in domestic competitions during the last one year” can be proposed. It is the pre-requisites of applying exam to meet these two requirements. Figure 5 shows the explanation above.

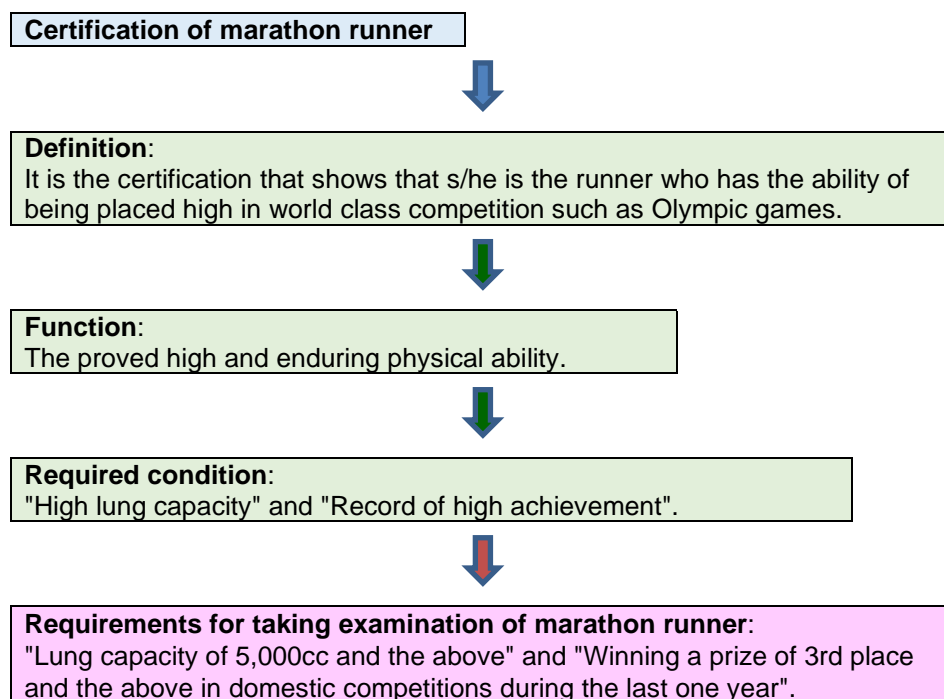


Figure 5: Certificate of marathon runner

Table 3 summarizes the definition, function and required conditions of three core consultants and the other two levels. Note that the three consultant grades follow that of “Strategic Framework of Ethiopia KAIZEN” (hereafter referred to as “SF”) formulated by EKI.

Table 3: Definition, function and required conditions of four core certifications and one title

Name of grade	Definition	Function	Required condition (factors to consider, e.g. age, working experience, seminar attendance record, lecturing record)
5S Leader	It is the certificate (transcript) to certify the knowledge and practical experience of implementing 5S department-wide.	<ul style="list-style-type: none"> - To raise the interest of young members in Kaizen and increase successors of Kaizen in future. - To promote the introduction of 5S to the companies/organizations. - To facilitate to move to next level (i.e. one of qualification requirements of BC exam). 	Neither age nor academic background nor experience is required. However, in order to obtain the certificate (transcript) of the 5S M/L, s/he should have 5S practical experience for one year or more for 5S Leader; and two years or more for 5S Master (or 5S leader + one-year or more experience) at the time of passing exam.
5S Master	It is the certificate (transcript) to certify the knowledge and experience of implementing and guiding 5S company-wide.		
Basic consultant (BC)	It is the certification to prove that s/he is able to provide basic Kaizen instructions to clients, including 5S and Muda elimination in order to create safe and worker-friendly work place, which is written in SF. It also proves that s/he can write a case, problem solving strategy, article, etc. of Kaizen. It is the first level of core certification.	<ul style="list-style-type: none"> - To design implementation methods and provide Kaizen instruction according to the current situation of clients by using basic Kaizen technologies (e.g. 5S). - To prepare a case, problem solving strategy, article, etc. 	<ul style="list-style-type: none"> - Acquisition of basic Kaizen methods (by academic background, business experience, the records of seminar/training attendance); - Able to judge the situation of clients (by business experience). - Able to prepare a case, problem solving strategy, article, etc.
Intermediate consultant (IC)	It is the certification to prove that s/he is able to improve quality and productivity, support Kaizen in cost and delivery time, and lead task achievement-type Kaizen in addition to problem solving-type Kaizen, mainly by using the Kaizen technologies of intermediate level, which is described in SF. It also proves that s/he can lead a small-scale consultant team up to five members. In addition, it shows that s/he can conduct solving research and cases on Kaizen management philosophy and related areas; to present them in seminar/workshop; to develop problem solving project proposals and implement them; and to draft training materials in various languages. This is the second core certification.	<ul style="list-style-type: none"> - To design implementation methods and provide Kaizen instruction according to the current situation of clients by using IE, QC, etc.; - To promote Kaizen activity as a leader of small-scale consultant team. - To conduct solving research and cases on Kaizen management philosophy and related areas; to present them in seminar/workshop; to develop problem solving project proposals and implement them; and to draft training materials in various languages. 	<ul style="list-style-type: none"> - Able to apply extensively IE and QC of middle-level Kaizen technologies (by academic background, business experience, seminar /training attendance record etc.); - Able to judge clients' situation (by business experience); - Able to manage projects (by experience) - Able to conduct solving research and cases on Kaizen management philosophy and related areas; to present them in seminar/workshop; to develop problem solving project proposals and implement them; and to draft training materials in various languages.

Name of grade	Definition	Function	Required condition (factors to consider, e.g. age, working experience, seminar attendance record, lecturing record)
Advanced consultant (AC)	It is the certification to prove that s/he is able to improve quality and productivity, support Kaizen in cost and delivery time, and lead task achievement-type Kaizen in addition to problem solving-type Kaizen, by using advanced-level Kaizen technologies described in SF and by engaging in company-wide Kaizen activities. It also proves that s/he can lead a large-scale consultant team with more than five members or multi-consultant teams. In addition, it shows that s/he can conduct solving research and cases on Kaizen management philosophy and related areas; to present the works in seminar/workshop/symposium or publish them on reputable journals; to develop problem solving project proposals and implement them; and to develop and standardize training materials in various languages. It is the second highest level core certification.	<ul style="list-style-type: none"> - To design implementation methods and provide Kaizen instruction according to the current situation of clients by using TQM, TPS, TPM, etc.; - To promote Kaizen activity as a leader of large-scale consultant team or multi-consultant teams. - To conduct solving research and cases on Kaizen management philosophy and related areas; to present the works in seminar/workshop/ symposium or publish them on reputable journals; to develop problem solving project proposals and implement them; and to develop and standardize training materials in various languages. 	<ul style="list-style-type: none"> - Able to apply extensively TQM, TPS and TPM of advanced-level Kaizen technologies (by academic background, business experience, seminar /training attendance record etc.); - Able to judge clients' situation (by business experience); - Able to manage projects (by experience) - Able to conduct solving research and cases on Kaizen management philosophy and related areas; to present the works in seminar/workshop/ symposium or publish them on reputable journals; to develop problem solving project proposals and implement them; and to develop and standardize training materials in various languages.
Principal consultant (PC)	It is the highest title given to EKI staff that brought great outcomes for clients through long-time activities; who improved the consulting quality by developing Kaizen technologies and/or localizing Kaizen technologies; and who made remarkable achievement in the management of Kaizen dissemination. The PC shall be given to those who pass an oral exam that is to be carried out based on the thesis of the candidate. The minimum condition to be selected as the candidate is to have served as AC or managerial position (director and the above) for five years and more.	<ul style="list-style-type: none"> - To bring about a great Kaizen effect for clients; - To develop new Kaizen technologies and/or localize Kaizen technologies; - To bring a great outcome in Kaizen dissemination management. 	<ul style="list-style-type: none"> - Contribution to clients; - Contribution to the improvement in Kaizen technologies; - Contribution to Kaizen dissemination. - Period of AC or Director.

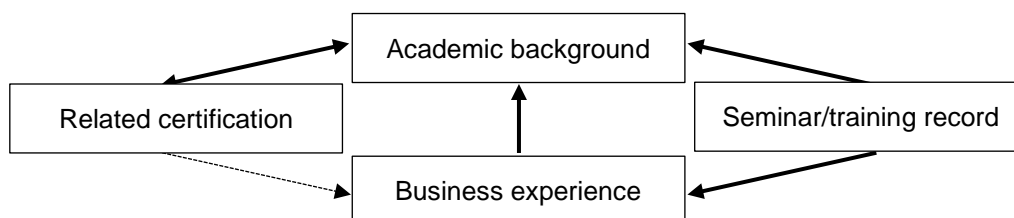
4.2. Requirements (Pre-requisites) for taking certification examination

Here, the requirements (pre-requisites) for taking certification examination mean the conditions that test-takers who plan to apply the exam should hold. The followings are exam requirements commonly used in Japanese consultant certification systems and the similar systems³.

- Academic background (department)
- Business experience
- Obtained certification
- Record of designated trainings

4.3. Alterability between required conditions

Alterability of required conditions here means that if a certain period of business experience is considered to be equivalent to university graduation (1st degree), it can be said that business experience has alterability to academic background of university graduation. For instance, “TVET graduate who has 5-year business experience is treated equivalent to university graduate”. At the same time, if university graduation cannot replace business experience, it is called that there is one-way alterability between university graduation and business experience. If condition A can replace condition B, it is expressed as “A→B”; if B can replace A, it is expressed as “A←B”; and if A can replace B, and B can replace A at the same time, it is expressed as “A↔B”. Figure 6 shows the relationship of alterability between four required conditions.



Note: Arrows show alternative relationship of two conditions. The thick line indicates relatively many cases while thin line relatively shows few cases.

Figure 6: Relationship of alterability between required conditions

Here, alterability relationship between related certification and academic background is explained more. The related certification is the certification related to a concerned certification. For example, it is BC certification and MSc in Kaizen when talking about IC certification. If one of the required conditions of the concerned certification is university graduation, and if test-taker holds BC certification, s/he can be qualified to take exam. In this way of setting the relationship of alterability between the required conditions, the burden of test-takers can be reduced; and the strata of test-taker can be widened.

³ This paper refers to Japanese certification system, such as “Medium and small business consultant”, “Management consultant”, “Professional engineers” and “The quality management and quality control examination (Certification)”. The purpose, established year, certification type, pre-requisites for exam, range of exam, number of applicant, number of passer, passing rate, etc. are summarized in Annex 1.

4.4. Qualifications of candidacy for examinations

In this section, we are going to describe the qualifications (requirements) of candidacy for examinations of core certifications.

Regarding Kaizen starter, there is a designated exam, but no requirements for taking the exam (no condition on academic background, business experience, age and others). Even a ten-year primary student can take the exam. The reason why anyone can take the exam is to widen the entrance of Kaizen and increase the number of people who are interested in Kaizen. Regarding principal consultant (PC), there is no paper test. Therefore, we focus here on exam qualifications of the three core certifications. The exam qualifications are determined through the following procedure, based on what was explained above.

The following four points can be pointed out as matters to keep in mind, when determining the exam qualifications.

- (i) It should be minimum condition (academic background, business experience, etc.) necessary to take exam.
- (ii) It should be clearly judged whether appropriate or not.
- (iii) It should be proved by third party, not by self-assessment of an applicant.
- (iv) It should not put a huge burden for an applicant when preparing for the exam.

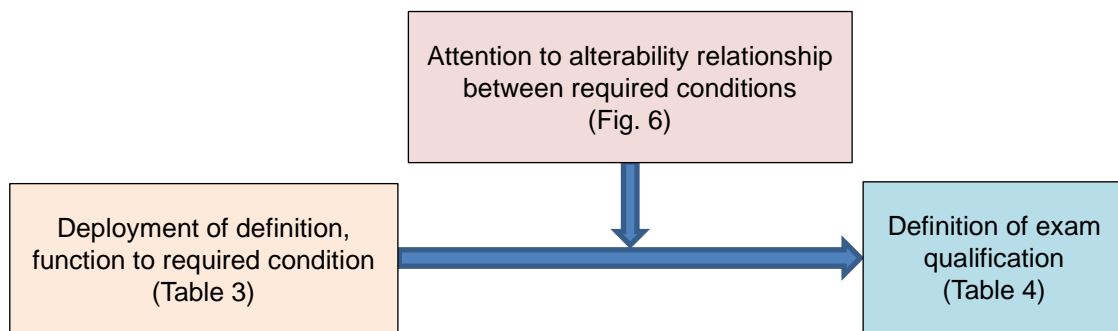


Figure 7: Procedure to determine exam qualifications

Table 4 is a summary of exam qualifications determined by the above procedure. When classifying the items of the exam qualifications broadly, there are two divisions: academic background including alternatives (except business experience) and business experience as the second qualification. The principle of the exam qualification is to possess the background of a certain level or the above as well as the business experience of a certain level or the above. The item of the former one (background) includes academic background as well as holding the related certificate(s) and attendance at the related training(s), which are alternative to the academic background.

Table 4: Definition of exam qualification

Level	Qualifications of candidacy for exam					
	Academic background incl. alternatives			Business experience (in year)		
	Academic background	Related qualification	Attending training	Medium	Experience-oriented	Academic background-oriented
Basic consultant (BC)	Ph.D.			1	2	0
	MA/MSc			1	2	0
	BA/BSc			2	3	1
	TVET			3	4	2
		Kaizen starter		5	7	3
			Basic Kaizen training	2	2	0
				10	12	8
Intermediate consultant (IC)	Ph.D.			2	3	1
	MA/MSc			4	5	3
	BA/BSc			6	7	5
	TVET			8	10	6
		BC		4	4	2
			Intermediate Kaizen training	3	3	1
Advanced consultant (AC)	Ph.D.			4	5	3
	MA/MSc			6	7	5
	BA/BSc			8	10	6
		IC		3	4	2

(Points to note)

1. There is a way of thinking that it is necessary to discriminate among the field of study, course and department of Ph.D., Master and Degree. For instance, when taking BC exam, if a test taker is a graduate of the department of science and engineering, 2-year business experience is required; while s/he is a graduate of other department, 4-year experience is required. There is some truth in that, if the BC is only for manufacturing sector. However, the types of business to deal with here is not only manufacturing sector, but also service industries such as school, health clinic, transportation and tourism as well as public enterprise such as electricity, gas, water, communication and construction. From this point of view, it is decided not to differentiate the business experience by the department or field of study of academic background, rather to treat it uniformly.
2. Here, business experience refers to any working experience of full time (eight (8) hours per day and five (5) days per week).
3. Regarding the required period of business experience, it is expressed as three patterns of qualifications, namely, academic background-oriented, business experience-oriented, and the middle one. When you say “business experience-oriented”, the period of required business experience is stressed and set at a longer time. On the other hand, “academic experience-oriented” is shown as a shorter business experience. The middle range of both cases is shown in the gray field of the table. The explanation here below is based on this middle range. No matter which pattern to be chosen, it should be avoided to use academic background-oriented pattern for one case, and to use business experience-oriented one for other. Once one pattern is decided to use, it should be used consistently.
4. The period of business experience here means the accumulated period of business experience in which an applicant gains income in compensation for the work, regardless of the type of enterprise/organization, the type of business, or the type of work engaged. Note that the work which working hour is less than 8 hours per day, or less than 5 days per week cannot be included.
5. Basic Kaizen training is the training on how to implement basic Kaizen, which consists of one-month theoretical training and two-month in-company (on-the job: OJT) training organized by EKI. The time of the training to be implemented remain undecided. Any other training of basic Kaizen organized by legally established institute (e.g. in Japan, Malaysia, Singapore) can be also included.
6. Intermediate Kaizen training is the training on how to implement intermediate Kaizen, which consists of one-month theoretical training and seven-month in-company (OJT) training organized by EKI. The time of the training to be implemented remain undecided. Any other training of intermediate Kaizen organized by legally established institute (e.g. in Japan, Malaysia, Singapore) can be also included.

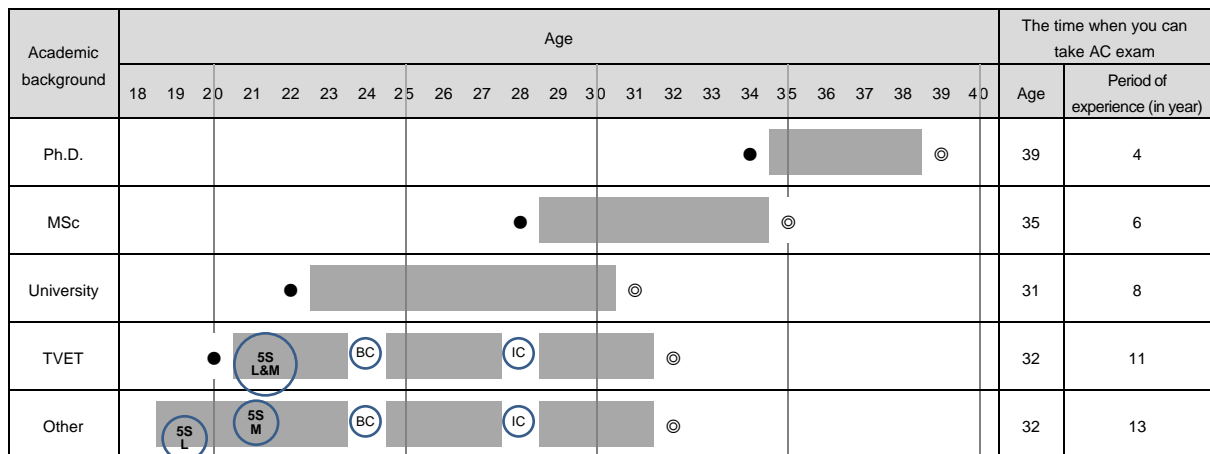
4.5. Evidence of academic background, business experience and others

A test taker of certification exam is supposed to submit an evidence record of essential requirements for the exam amongst academic background, business experience, acquisition of related certification, training/seminar attendance, when s/he submits the exam application form and self-assessment paper. The evidence records include the followings. Basically, these should be issued within one year before applying the exam.

- Ph.D. and MSc. graduation: Copy of the certificate of completion of the course.
- University graduation: Graduation certificate in which name of university, department and year of graduation are included. (It should be issued within one year before applying the exam.)
- TVET graduation: Graduation certificate in which name of TVET institute, major and year of graduation are included. (Idem.)
- Business experience: An original copy in which types of work engaging/engaged with starting time and ending time (month and year), and name and contact address/telephone of contact person(s) are included. It should be signed by the representative or personnel director of the company engaging/engaged and stamped by the company. (Idem.)
- Related certification: A pass certificate or registration card. (A copy is acceptable.)
- Training attendance: A certificate of completion of training that included the content and the period of training, which is issued by the training organizing institute. (A copy is acceptable.)

4.6. Sample road map of obtaining consultant certification

Figure 8 shows the possible shortest course to obtain certification up to Advanced Consultant (AC) level with five patterns, such as university graduate A, university graduate B, Master graduate, TVET graduate and a person without university or TVET schooling.



The age of obtaining Ph. d.: 34 years old; MSc: 28 years old; Univ.: 22 years old; and TVET: 20 years old.

● : The time of obtaining academic qualification amongst the required alternative background.

○ : The time of obtaining BC or IC.

◎ : The time when you are able to take AC exam.

■ : The period of business experience.

Figure 8: The possible shortest roadmap until obtaining AC certification by academic background

In EKI, it is necessary to have a certain period of working experience to enter MSc and Ph.D. courses. Thus, if you use these academic backgrounds as qualification to take AC exam, the age that you can challenge AC would be around the latter half of 30's. If you have no academic background, it is suggested to take exam of 5S Leader and 5S Master.

5. Procedure of Certifications

5.1. 5S Leader and 5S Master

As mentioned earlier, the titles of the 5S Master/5S Leader are given to those who obtain the standard mark in the exam. The below explains the examination method, minimum standard of the exam and others.

Table 5: Examination of 5S Leader and 5S Master

Item	Description
Position of exam	The level of knowledge and experience is equivalent to BC, but only for the limited field of 5S. Dividing the target of the exam into two level, 5S Master and 5S Leader; 5S Master is to conduct 5S company-wide (e.g. equivalent to Kaizen officer or System officer of the company), while 5S Leader is to conduct 5S at department level (e.g. KPT or CFT members).
Outline of exam	The exam contains 25 multiple-choice questions for 5S Leader and 40 questions for 5S Master. Time given for each exam is 60 min and 90 min respectively. The exam will be prepared in international, national and regional languages. The exam will be administered once a year. The exam venue will be at EKI and major cities.
Target	Those who have the knowledge and experience that is capable of guiding 5S in companies, educational / public institutions.
Exam qualification	Neither age, nor academic background nor experience is required. However, in order to obtain the certification of the 5S M/L, s/he should have 5S practical experience for one year or more for 5S Leader; and two years or more for 5S Master (or 5S leader + one-year or more experience).
Scope of the exam	5S Leader: 5S General, 5S in work and 5S in Information 5S Master: The scope of “5S Leader” plus Kaizen General and Muda Elimination
Acceptance requirement	Obtain at least 70 points in each exam; and have 5S practical experience for one year or more for 5S Leader, and two years or more for 5S Master. If s/he obtain a given score in the exam, but does not have the required period of experience, s/he will be given the name “Assistant 5S Master/5S Leader”.
Exam fee	100 Birr
Certification update	Not necessary. It is perpetual qualification.
Benefits of the certification	The holders of 5S Master / 5S Leader is given favorable conditions for taking the BC exam based on the provisions set forth in the CARS guideline, for instance, the required business experience for the candidacy of BC exam is <u>to be reduced by one year.</u>

The proposed exam implementation schedule for 5S Master and 5S Leader is shown here below.

- October 1: Announcement of the application guideline of each verification exam
- October 1-31: Exam application
- October 31: The deadline of exam
- November 15: The implementation of exam (several venues, depending on the number and affiliation of the applicants)
- November 30: Announcement of paper test result (only examinee’s number)

5.2. Core certifications

5.2.1. Basic consultant (BC), intermediate consultant (IC) and advanced consultant (AC)

5.2.1.1. Examination system

This chapter explains about paper test and oral test of certification examination. It includes: (i) Paper and oral test, (ii) Coverage and time allocation of exam of each certification; (iii) Style of paper and oral test; (iv) Sample questions of paper test; (v) Marking of paper and oral test; (vi) Determination of passing or failing; and (vii) Implementation of examination.

(1) Paper test and oral test

There are “Paper test” and “Oral test” in each certification examination. Table 6 shows the difference of the two tests.

Table 6: The difference between paper test and oral test

Type	Implementation method	Evaluation criteria
Paper test	It is a written test regarding theory and its application.	<ul style="list-style-type: none">- Level of acquisition and understanding of theoretical knowledge- Ability of application- Persuasiveness by writing
Oral test	Those who obtain standard mark of 60% and the above in the paper test can seat the oral test. The test-taker will prepare and submit a report of his/her own Kaizen case in advance. Based on the report, examiners will give questions.	<ul style="list-style-type: none">- Ability of explanatory by writing- Ability of oral presentation- Persuasiveness- Logical ability to construct an argument

(2) Coverage and time allocation of examination

The coverage and time allocation of examination by level is shown in Table 7 and 8. Basically, the coverage of exam aligns with the contents of three levels of Kaizen that EKI Strategic Framework stipulates, namely First-level, Second-level and Third-level Kaizen as shown in Table 7. Note that the coverage of exam of each level includes not only the content of the corresponding level, but also the contents of the lower levels. This is because there are some candidates who will take examination of higher level (e.g. Advanced Consultant) directly, without taking the lower level exams (e.g. Basic or Intermediate Consultant). If AC exam focuses only technologies listed in Strategic Framework, the evaluation of Kaizen technologies of lower levels, such as 5S, MUDA elimination, would be missed out. In addition, the coverage of exam also includes the Kaizen knowledge necessary for Kaizen consulting

Table 7: The coverage of exam by level

Kaizen technology and technique		Grade of exam					Level-KAIZEN							
Kaizen tool, system, and management		5S L	5S M	BC	IC	AC	First Level			Second Level			Third Level	
KAIZEN concept	What is KAIZEN?	✓	✓	✓	✓	✓	History of scientific Management	Emergence of KAIZEN	Experience of Singapore in KAIZEN					
	KAIZEN and similar concept	✓	✓	✓	✓	✓								
	KAIZEN Basic			✓	✓	✓								
	Prerequisite for KAIZEN				✓	✓								
KAIZEN meta-technology	PDCA & project management		✓	✓	✓	✓	PDCA -SDCA			Basics of KAIZEN leadership-Lean Leadership				
	Problem solving approach & task achieving approach			✓	✓	✓	Problem Solving KAIZEN	Task Achievement KAIZEN	Soft Problem solving/ MUDA Identification, elimination and standardization tools					
KAIZEN Common technology	5S	✓	✓	✓	✓	✓	5S							
	7 QC tools			✓	✓	✓				7 QC Tools/ QC story.				
	New 7 QC tools				✓	✓								
	QCC (KPT)		✓	✓	✓	✓	Junior KPTs			Medium KPTs				
	QC story		✓	✓	✓	✓				7 QC Tools/ QC story.				
	Visualization		✓	✓	✓	✓								
	Idea method (Brain storming, TRIZ)			✓	✓	✓	Brain Storming						TRIZ	Idea generation methods
	Why-why analysis			✓	✓	✓	Why-Why Analysis							
Standardization	MUDA elimination		✓	✓	✓	✓	3MUs							
	Outline of standardization				✓	✓								
Pattern of factory	How to prepare standard				✓	✓								
	Category of factory pattern			✓	✓	✓								
IE (Industrial Engineering)	Frequent problem by pattern				✓	✓								
	Basics of Industrial Engineering			✓	✓	✓				Productivity management.				
	Basic approach and techniques			✓	✓	✓								
	Process analysis			✓	✓	✓				Process analysis.				
	Time study			✓	✓	✓				Time study				
	Motion study			✓	✓	✓				Motion study.				
	Work sampling			✓	✓	✓								
	Line balancing			✓	✓	✓				Line balancing				
	Multiple-activity analysis			✓	✓	✓				Multi-Activity Analysis				
	Plant layout			✓	✓	✓				Layout				
	Operation analysis				✓	✓				Operation analysis.				

Kaizen technology and technique		Grade of exam					Level-KAIZEN							
Kaizen tool, system, and management		5S L	5S M	BC	IC	AC	First Level			Second Level			Third Level	
Quality control	Ratio-delay study			✓	✓	✓				Ratio-delay study				
	Basic quality control			✓	✓	✓				Quality management				
	SQC			✓	✓	✓								
	QC Process Chart				✓	✓				Quality control process chart.				
	Process capability			✓	✓	✓				Process capability index.				
	SOP			✓	✓	✓				SOP.				
	QFD				✓	✓							Quality function deployment	
	VE/VA				✓	✓	Value Analysis- Process evaluation						Value engineering.	
	FMEA					✓							FMEA (Failure Mode Effect Analyses)	
	Reliability Engineering				✓	✓							Reliability Engineering	
Cost management	Cost accounting			✓	✓	✓	Cost accounting			Cost management.		Costing (P = P-C).		
	Standard cost			✓	✓	✓	Cost accounting			Cost management.	Standard costing	Costing (P = P-C).		
	Value added			✓	✓	✓	Cost accounting			Cost management.		Costing (P = P-C).		
	Breakeven point			✓	✓	✓	Cost accounting			Cost management.	Standard costing	Costing (P = P-C).		
	Target costing				✓	✓					Target costing			
	Economic engineering				✓	✓	Cost accounting			Cost management.		Costing (P = P-C).		
Delivery time	Meaning of delivery time				✓	✓				Delivery management				
	Delivery control				✓	✓				Delivery management				
	Shortening delivery time				✓	✓				Delivery management				
	Decoupling point					✓				Delivery management				
Stock management	Proper stock			✓	✓	✓								
	Periodic reordering method			✓	✓	✓								
	Fixed order quantity system			✓	✓	✓								
Production management	Scheduling			✓	✓	✓				Production scheduling.				
	Process control			✓	✓	✓								
	ERP				✓	✓				MRP				
	BOM				✓	✓								
TQM	Policy management				✓	✓				Policy management.	TQM.			
	Cross functional team				✓	✓				Policy management.	TQM.			
	Dairy management				✓	✓				Policy management.	TQM.			

Kaizen technology and technique		Grade of exam					Level-KAIZEN							
Kaizen tool, system, and management		5S L	5S M	BC	IC	AC	First Level			Second Level			Third Level	
TPS	JIT				✓	✓				Basics of KAIZEN leadership-Lean Leadership	TPS		Advanced KAIZEN leadership-Lean Leadership	
	SMED			✓	✓	✓				Basics of KAIZEN leadership-Lean Leadership	TPS	Shortening set-up time	Advanced KAIZEN leadership-Lean Leadership	SMED (Single Minutes Exchange of Die)
	Pull production system				✓	✓				Basics of KAIZEN leadership-Lean Leadership	TPS		Advanced KAIZEN leadership-Lean Leadership	
	Kanban				✓	✓				Basics of KAIZEN leadership-Lean Leadership	TPS		Advanced KAIZEN leadership-Lean Leadership	
	Pokayoke				✓	✓				Basics of KAIZEN leadership-Lean Leadership	TPS		Advanced KAIZEN leadership-Lean Leadership	
	Leveling				✓	✓				Basics of KAIZEN leadership-Lean Leadership	TPS		Advanced KAIZEN leadership-Lean Leadership	
TPM	Autonomous maintenance			✓	✓	✓	Autonomous Maintenance			TPM			TPM	
	Preventive maintenance				✓	✓				TPM			TPM	
	OEE				✓	✓				TPM			TPM	
	FTA				✓	✓							FTA (Fault Tree Analysis)	
	Reliability Engineering				✓	✓							Reliability Engineering	
Consultant ethics	Consultant ethics			✓	✓	✓								
Strategic analysis	5 force analysis				✓	✓							Competitive Analysis	
	SWOT analysis				✓	✓							Competitive Analysis	

Table 8: Time allocation of examination

Grade	Paper test	Oral test
BC	2 hours	15 minutes
IC	3 hours	20 minutes
AC	4 hours	25 minutes

(3) Style of paper and oral test**1) Style of paper test**

Regarding the paper test, the following five types of questions are to be used.

- **A multiple-choice question:** Among some descriptions about a topic, one correct (appropriate) or wrong (in appropriate) description is chosen. This type is often used for easy questions for beginner's level. In case of two-choice question, even if a test-taker chose one at random, s/he would get 50% marks. In case of four-choice question, it would be 25% of correct answers.
- **An optional question:** It is the problem for the test-taker to select and answer according to the instruction of an exam setter. The knowledge and skills of KAIZEN is wide-ranging. If the exam covers all areas of KAIZEN, the learning burden of a test-taker would be very heavy. Thus, it is allowed for the test-taker to select and answer the questions about topics that the test-taker is good at. This type of question is often used for exams of intermediate and advanced level.
- **A fill-in-the-blank question:** In descriptions of questions, a word or statement is partially missing. A test-taker fills in such parts. This type of question is for basic and intermediate level.
- **An essay question:** It is the type of question where a test-taker answers the analysis, cause exploration, countermeasure, etc. required by the question by using statements and chart/diagram/graph. This type of question is often used for exams of intermediate and advanced level.

According to the level of certification, the above-mentioned types of questions are used as shown in Table 9.

Table 9: Types of paper test question by level

Certification level	A multiple-choice question	An optional question	A fill-in-the-blank question	An essay question
BC	●		○	○
IC		○	○	●
AC		○		●

(Note: ●: Often used. ○: Used.)

2) Style of oral test

The applicants will prepare and submit a report of individual Kaizen case (in two pages) in advance. In oral test, examiners will ask related and non-related questions to the report content. The examiners will evaluate the responses/answers of the applicants. Basically, minimum two examiners will be assigned for one applicant.

(4) Sample questions of paper test

A few sample examination questions of paper test of each are shown here below. The whole set of sample questions are annexed as ANNEX 4.

A multiple-choice question

For intermediate level

Regarding < Buffer Functions > as shown below, ①~⑧, which one of the followings is the combination of buffer functions by capacity?

< Buffer Functions >

- | | | | |
|----------------------------|--------------------------|---------------------|-----------------|
| ① Schedule planning | ② Human resource reserve | ③ Materials | ④ Parts |
| ⑤ Delivery time with spare | ⑥ Outsourcing | ⑦ Product inventory | ⑧ Overtime work |

- (a) ①-③-⑥
- (b) ②-⑤-⑧
- (c) ②-⑥-⑧
- (d) ③-④-⑦

A fill-in-the-blank question

For intermediate level

One product is manufactured by lot production. The finished products are once stored in a storehouse. When the order is received from customers, the sales department makes a shipping instruction. Then, the products are took out of the storehouse and delivered. The economical lot size in production is the minimum lot size, which is the sum of set-up cost due to the switchover of production lot and inventory holding cost of the finished products.

The economical lot can be found out through the following steps ①~⑤, by using the following symbols (A), (B) and (C). Which one of the following is the appropriate combination of formula of (A), (B) and (C)?

- Q : Production lot size
- P : Quantity of production per hour
- T : Set-up time
- S : Set-up time per hour
- H : Inventory holding cost of one product per hour
- R : Quantity of delivery per hour

Step

- | | | | |
|---|-----|---|----------------------------|
| ① | I | : Average quantity of product stock | $I = [Q/P \times (a)] / 2$ |
| ② | Z | : Inventory holding cost per one production cycle (L) | $Z = (b) \times I$ |
| ③ | D | : Set-up cost per one production cycle (L) | $D = (c)$ |
| ④ | G | : Total cost per one production cycle (L) | $G = Z + D$ |
| ⑤ | G/L | : Total cost per hour | $G/L = Z/L + D/L$ |

The economical lot size is Q that makes the value of G/L the least.

Here, $L = Q / R$.

- | | | | |
|-----|---------------|--------------------|--------------------|
| (a) | (A) : $P - R$ | (B) : $S \times L$ | (C) : $S \times T$ |
| (b) | (A) : $P - R$ | (B) : $P \times L$ | (C) : $H \times T$ |
| (c) | (A) : P / R | (B) : $H \times L$ | (C) : $S \times T$ |
| (d) | (A) : P / R | (B) : $S \times L$ | (C) : $H \times T$ |
| (e) | (A) : $P - R$ | (B) : $H \times L$ | (C) : $S \times T$ |

An essay question:

For advanced level

[General Outline of Company C]

Company C makes production and sales mainly of construction materials as well as cast-metal products such as agricultural machine parts and industrial machine parts. Most construction materials are manhole covers for sewage system and buried electric and communication cables. The agricultural machine parts are the ones related to drives of tractors; and the industrial machine parts are the ones related to structure of bulldozers, forklifts and machine tools. The clients are construction companies regarding the manhole covers, and that of the agricultural and industrial machine parts are respective parts makers.

Company C was established in 1954 as cast-metal factory such as manhole covers. The company consists of sales department, design department, manufacture department and general affair department. The present number of employees is 50. As it is difficult to secure young human resources due to so-called HDD (Hard, Dirty, Dangerous) work environment, the company faces aging employees. The annual business amount is about 200 million ETB.

There was the period that the sales hanged low because the number of receiving order decreased due to the influence of the shrink of the public works budget as well as the intensification of the competition against foreign products. In order to correspond to this situation, the company reinforced the production capacity of casting process actively, while the number of small and medium cast-metal factories decreased. In addition, the company built up the uniform production system by newly establishing the machine work process and coating process, and successfully got orders of the agricultural and industrial machine parts. At that time, the company created the sales department by selecting core engineers internally, and worked for developing new market. This also greatly contributed to the success.

The present sales is composed of industrial materials (55%), agricultural machine parts (30%) and industrial machine parts (15%). The amount of receiving orders of agricultural and industrial machine parts shows the trend of increment. However, the improvement of

casting skills is required because the client's request of weight reduction and complicated formation of the parts is becoming strong.

Further, one client company of the industrial machine parts, which is the second subcontractor of automobile parts, is making a request on automobile parts that is a new order to Company C. The company is now considering how to obtain the order.

[Production Outline of Company C]

Figure 1 shows five processes of casting, after-treatment, machine work, coating, and inspection and dispatch.

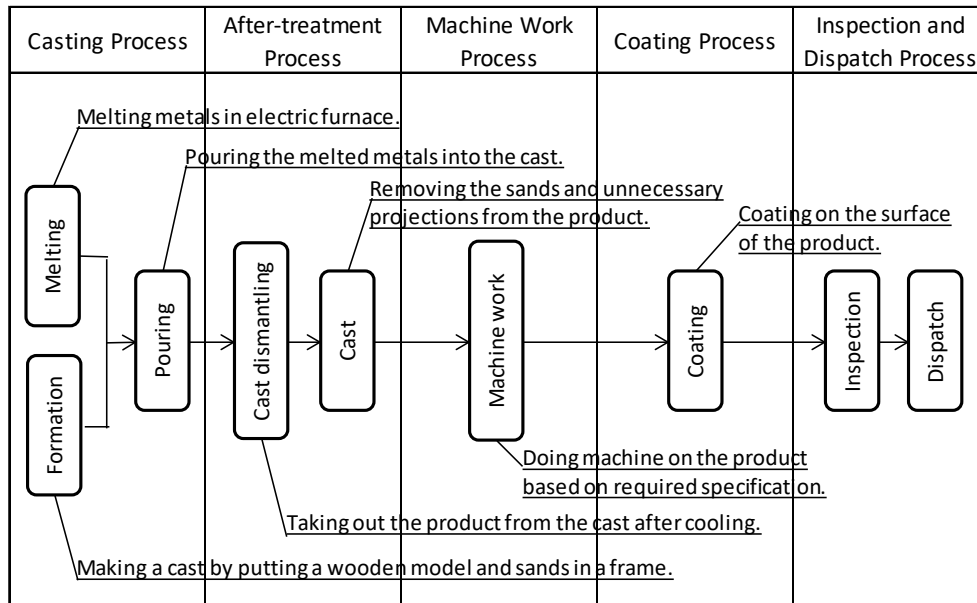


Figure 1: Production process of Company C

Regarding the manhole covers, which is the major product of the company, there are many kinds as the specifications differ from each enterprise body, such local public body and communication firm. In addition, the quantity of receiving orders also varies greatly with seasons because the orders are made to Company C after the budget of each enterprise body is confirmed. Therefore, based on the estimation from the client's information obtained in the sales department, the company manufactures the standardized products in high demand by make-to-stock beforehand, and delivers from stock in store when the order is confirmed. On the other hand, the company manufactures agricultural and industrial machine parts when the client's order is confirmed.

Regarding the production plan, only the plan of casting process is made. The way of planning is: first, the plan is made based on the delivery time of products whose content of order is confirmed; then the plan of make-to-stock products such as the manhole covers is included in the period when there is surplus power. In the process of the after-treatment, machine work, coating, and inspection and dispatch after the casting process, respective person-in-charge of each process decides the order of work in order to make the number of set-up minimal by confirming the types and quantities of work-in-process. In one day, four times (4 lots) of casting process are carried out, but the delivery delay occurs on agricultural and industrial machine parts. As one measure against the delay, the company considers introducing Information and Technology (IT) to integrate the dealing of order acceptance, production plan, production control and inventory control.

When receiving a new order, the sales department holds a technical meeting with a client to grasp the client's request and informs the content of the request to the design department, and the design department prepares the specification such as a drawing. Once the specification is agreed by the client, it is handed over to the manufacture department. The department makes the preparation and includes it into the production plan; and the manufacturing process begins after procuring the materials.

[Survey result by KAIZEN team]

At present, Company C forms KAIZEN team in manufacture department aiming to obtain a new order of automobile parts. The team implements KAIZEN activity to improve the production capacity.

According to the KAIZEN team, there are many in-process inventories after the casting process in Gemba that occupies a large space. When moving the products by a forklift, it should avoid the scattered storage spaces of in-process inventory. The in-process inventory also makes the movements between the equipment very difficult in the machine work process that employs multi-machine assignment. Due to this, the production lead time is prolonged, which is the cause of delivery delay.

Company C grasps the production capacity by taking a processing capacity of the casting process as the capacity of whole factory. Thus, as a countermeasure to correspond to the increment of the receiving orders, the company reinforces the production capacity of the casting process especially. However, according to the process analysis done by the KAIZEN team on the manhole covers, which is the staple product, the bottleneck process is the machine work process as shown in Figure 2. The similar result also appears in the process analysis of other products. The analysis found out the cause of regular occurrence of overtime work in the machine work process.

Then, the KAIZEN team examines the equipment operation status of the machine work process. The result is shown in Figure 3. The ratio of the operation of the equipment is as low as 48%; and as non-operation items, there is the stoppage of 37% and idling of 15%. The major causes of the occurrence of the stoppage are the exchange of cutting tools and jig, the product transportation before and after the process, and the set-up such as machine adjustment. The idling happens when removing or putting the product after processing, and when the equipment is being hold due to the work delay by the workers.

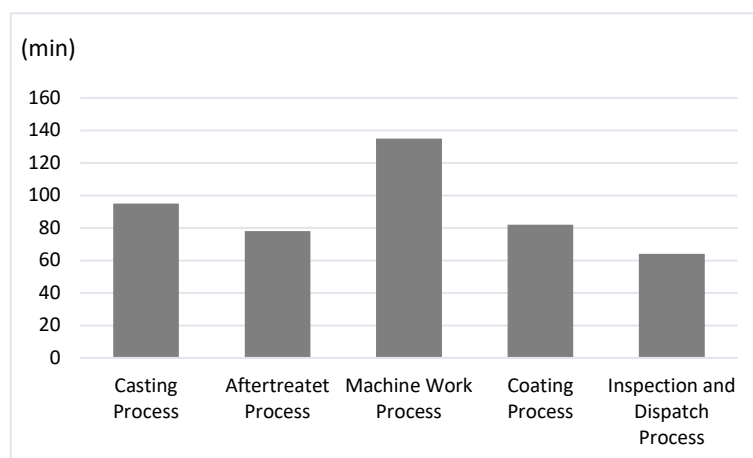


Figure 2: Processing Time by Process per one Lot of Leading Manhole Cover

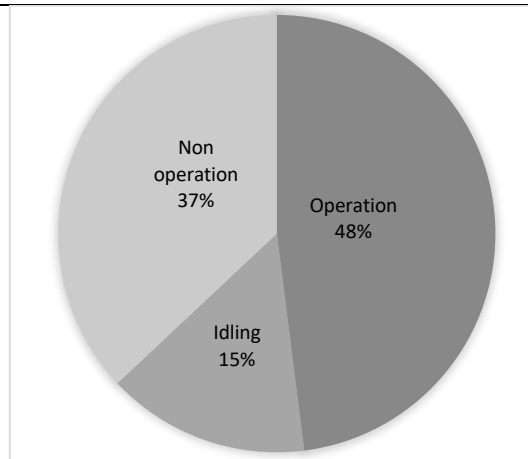


Figure 3: Status of Equipment Operation in Machine Work Process

Question 1

Company C is planning to obtain a new order, as the company is receiving the new request of manufacturing automobile parts from one industrial machine part maker with which the company has business currently. Answer the following questions regarding the plan.

- (1) Take two points as strengths of Company C, when entering automobile part sector. State them in within 40 characters.
- (2) What kind of advantage will Company C receive by the acquisition of the order of automobile parts? State it within 100 characters.
- (3) In order to obtain the order of automobile parts, it is necessary to correspond to shortening delivery time that is required in automobile industry. What remedial measures should Company C take? State it within 100 characters.

Question 2

Company C made investment in plant and equipment by prioritizing the casting process. What is the problem occurred due to this, and what kind of measures are needed? State it within 100 characters.

.....

(5) Marking paper and oral test

Regarding marking “essay question” of the paper test and “oral test”, two assigned examiners (at minimum) shall evaluate applicants by using the following evaluation criteria (Table 10 and 11). If the difference of each score is more than 20%, examiners will negotiate and decide the score. When the difference is within 20%, the score is determined as average of each score.

Table 10: Evaluation criteria of essay question of paper test

Area of evaluation	Point of evaluation
Ability of grasping current situation (20 point)	<ul style="list-style-type: none"> - To list all key words that connect with the problem/task from key words that present current situation. (+: giving points) - To list key words with low importance as important key words. (-: subtracting points)
Ability of problem analysis (20 point)	<ul style="list-style-type: none"> - To grasp the substance and structure of problems and to recognize them as task properly. (+) - To correctly understand difference between “possible cause” and “root cause”. (+) - To repeat “why?” to confirm the work site and/or to conduct experiment in order to explore the root cause. (+) - To prematurely judge and take mere correlation as causal relation. (-) - To define problem/task adequately. (+)
Ability of planning and creation (20 point)	<ul style="list-style-type: none"> - Whether or not the viewpoint as well as the plan for the breakthrough of a problem/task is clear. (+) - Whether or not there is new viewpoint and/or perspective in the plan. (+)
Logical consistency (20 point)	<ul style="list-style-type: none"> - Whether or not the process from the problem analysis to proposal of countermeasure is discussed without any logical inconsistency. (+) - Whether or not the difference between main logical deployment and minor details is clear. (+)
Ability of persuasiveness (20 point)	<ul style="list-style-type: none"> - Whether or not there is creativity, uniqueness and “element of surprise” in expression. (+) - Whether or not the exam-taker is aware of the points of persuading the clients (it is the examiner in this case) and make the proposal. (+)

Table 11: Evaluation criteria of oral test

Area of evaluation	Point of evaluation
Ability of expression of report (20 point)	<ul style="list-style-type: none"> - Whether or not there is any contradiction logically in the flow of “Definition of problem/task → Cause analysis → Proposing countermeasure(s) → Implementation of countermeasure(s) → Confirmation of the effect of the countermeasure(s) → Standardization”. - Whether or not the report has necessary and sufficient content. - Whether or not the amount of the report exceed the fixed page (1 page).
How to correspond to oral questions (20 point)	<ul style="list-style-type: none"> - Whether or not an applicant respond to the questions of examiners properly. - Whether or not the applicant asks the question(s) posed, if they are not clear. - Whether or not the response is too late.
Logical consistency in response/answer (20 point)	<ul style="list-style-type: none"> - Whether or not there is omission in stages (Confirmation of question → outline of the response → detailed explanation → reasoning) in response/answer. - Whether or not there is a logical connection without contradiction in the abovementioned stage.
Persuasiveness of response/answer (20 point)	<ul style="list-style-type: none"> - Whether or not the applicant figures out in order to make the response persuasive by giving concrete example(s), instead of only giving abstract idea. - Whether or not the response/answer is presented with confidence and energetically.
Response regarding consultant ethics (20 point))	<ul style="list-style-type: none"> - Whether or not the applicant can answer five and more items of consultant ethics. - What is the most valued ethic of the applicant, and what are the things to remember in daily work in order to comply with it. - Whether or not the response/answer of the applicant is appropriate.

(6) Determination of passing or failing

Figure 9 shows the flow chart of determination of passing or failing of certification examination. Based on the chart, those who obtain 60% and more in paper test can seat in oral test; and those who obtain 60% and more in oral test can proceed to the overall evaluation. Those who obtained

70% and more in the overall evaluation can be qualified as certified consultants. Those who fail in oral test or in the overall evaluation can repeat from oral test (i.e. without taking paper test) within one year. The overall evaluation for those who can repeat without taking paper test shall be calculated based on the previous result of paper test.

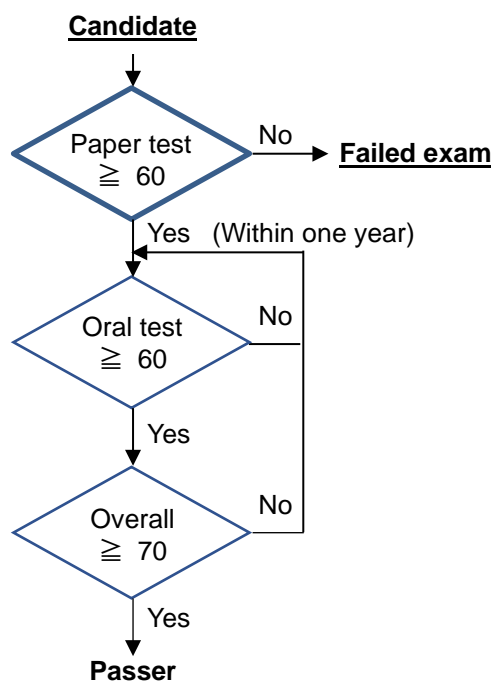


Figure 9: Flow chart of determination of passing or failing

For the overall rating in qualifying consultants, the following criteria shall be considered: (1) the result of paper test, (2) the result of oral test, (3) business experience and (4) others. Based on the weighting shown in Table 12, the overall rating shall be calculated. The passing line is 70 points and above out of 100.

Table 12: Weighting for calculation

Criteria	Examination		Job experience	Others	Total
	Paper test	Oral test			
BC	0.40	0.25	0.25	0.10	1.00
IC	0.35	0.20	0.30	0.15	1.00
AC	0.30	0.15	0.35	0.20	1.00

(Points to note)

1. Each of the four criteria (from paper test to others) should be graded out of 100 (full marks).
2. Overall rating shall be calculated by Σ (mark of each criterion x weight). For example, if the result of an applicant of advanced consultant is 70 points for paper test, 80 points for oral test, 60 points for job experience and 90 points for others, the overall rating shall be:
Overall rating = $70 \times 0.30 + 80 \times 0.15 + 60 \times 0.35 + 90 \times 0.20 = 72.0$ points
3. The rating of business experience shall be done based on Table 13.
4. The rating of others shall be done based on Table 14.

Table 13: Evaluation table of business experience

No. of applicant:	Level of application: BC IC AC
-------------------	--------------------------------

Business career in the past 10 years (Describe them from new to old.)

No.	From when to when (Period in year)	Place of employment	Engaged work	Similarity of work*	Rating**
1	- ()				
2	- ()				
3	- ()				
4	- ()				
5	- ()				
6	- ()				
7	- ()				
8	- ()				
9	- ()				
10	- ()				
11	- ()				
12	- ()				
Note: If you were engaged in different works in one work of employment, describe the major works. If you were engaged in different works in different period of time, describe each of them separately.				Total	
				Total score when taking 100 at max (by cutting off the marks more than 100).	

* The similarity of work means that similarity between work as a consultant and business experience in the past. The degree of similarity shall be evaluated based on the following standard.

Table for judgement on similarity of work

Similarity	Type of job
1	Consultant, researcher, assessor, certified public accountant, Cross Functional Team (CFT) members, lecturer or above who teaches Industrial Engineering (IE) and production control, and other jobs which are similar to these.
2	Managerial position in manufacturing or service sector, TVET instructor, and other jobs similar to these.
3	Foreperson or supervisor in job site in manufacturing or service sector, and other jobs similar to these.
4	Worker in job site in manufacturing or service sector, and other jobs similar to these.

** The rating shall be read from the table below, and write down points for each engaged work in the right column of the above table.

Rating chart of business experience based on work similarity and period of work

Similarity Period	Less than 1 yr	More than 1 yr Less than 2 yrs	More than 2 yrs Less than 3 yrs	More than 3 yrs Less than 5 yrs	More than 5 yrs Less than 8 yrs	More than 8 yrs
1	10	20	30	40	50	60
2	7	14	21	28	35	42
3	4	8	12	16	20	24
4	1	2	3	4	5	6

Table 14: Evaluation table of other items

1. Attendance of seminar and training (within past 7 years)

Date/Month/Year	Theme	Time				
		Less than 1 day	1-3 days	4-7 days	1-2 weeks	More than 2 weeks
Attendance record		2	4	8	10	12
		2	4	8	10	12
		2	4	8	10	12
		2	4	8	10	12
		2	4	8	10	12
		2	4	8	10	12
		2	4	8	10	12
		2	4	8	10	12
		2	4	8	10	12
Select and circle one appropriate, and sum up the numbers with circles.						S:

2. Educational materials, research works and book (Limited to the ones that are presented or published within past 10 years.)

Date of use, presentation, publication	Type			Theme	Name of training, journal or publisher
	Material*	Research works	Book		
	EM	R	B		
	EM	R	B		
	EM	R	B		
	EM	R	B		
	EM	R	B		
	EM	R	B		
No. of educational materials, thesis and book				No. of EM×10+No. of R×20+No. of B×50	P:
				Total score of (S+P) when taking 100 at max (by cutting off the marks more than 100).	

* Education materials here mean newly developed materials for Case Method. It does not include the modification of the existing materials, mere exercise questions or power point materials.

(7) Implementation of examination

The examination for each core consultant level is implemented once in every year. The sample implementation schedule is shown here below.

- Time schedule (sample) ⁴
 - December 1: Announcement of the application guideline of each exam
 - December 1-31: Exam application
 - December 31: The deadline of exam
 - January 15: Paper test
 - January 30: Announcement of paper test result (only examinee's number)
 - February 15: The deadline of report for oral exam
 - February 31: Oral test
 - March 1-15: Final overall evaluation
 - March 15: Announcement of the successful applicants (only examinee's number)
 - March 15 – April 15: Registration of certified consultant
- Examination and registration fee

Grade	Examination fee	Registration fee
BC	300 Birr	100 Birr
IC	400 Birr	100 Birr
AC	500 Birr	100 Birr

5.2.1.2. Registration of certification

The passer of the certification examination is supposed to register to Secretariat of the CARS (refer to 10-3. Secretariat) using the application of registration. The Secretariat shall finalize the registration within one month from the application and issue the certification.

5.2.1.3. Renewal of certification

The renewal cycle of the Kaizen certifications is two years. The renewal of the certifications requires the engagement of consulting service, the experience of seminar lecturer and the attendance of renewal seminar. Table 15 shows the details of the conditions of the certification renewal.

Table 15: Conditions of renewal of certification

Level		Consulting	Seminar lecturer	Attendance of renewal seminar *2 Once in 2 years	Renewal fee
	Condition by number	Two companies and more	Two theme and more		1,000 Birr
BC	Condition by time	In total, 30 hours in 2 years *1			1,000 Birr
IC		40 hours in 2 years *1			1,000 Birr
AC		50 hours in 2 years *1			1,000 Birr

*1 The accumulated time of consulting to be provided in two companies and more; and that of seminar lecturing on two themes and more.

*2 The renewal seminar will be organized by EKI once every year (eight hours). The seminar fee is 800 Birr.

For renewal procedure, the certified consultant(s) shall fill in and submit the renewal application to the CARS Secretariat. In addition, the consultant(s) shall request the clients (companies) and the

⁴ The detailed implementation of 5S Leader and Master exams is written in Chapter 5-1.

organizers of the seminars to send the engagement certificate to the Secretariat directly. The Secretariat will examine the content of the self-assessment against that of the engagement certificates; and check whether or not the applicants meet the conditions.

If the consultant(s) does not take any action of renewal by a designated period, or does not meet the renewal conditions, the certification will become invalid.

5.2.2. Principal consultant (PC)

The definition of Principal Consultant (PC) described in Table 3 is as follows:

It is the highest title given to EKI staff that brought great outcomes for clients through long-time activities; who improved the consulting quality by developing Kaizen technologies and/or localizing Kaizen technologies; and who made remarkable achievement in the management of Kaizen dissemination. The PC shall be given to those who pass an oral exam that is to be carried out based on the thesis of the candidate. The minimum condition to be selected as the candidate is to have served as AC or managerial position (director and the above) for five years and more.

Figure 10 shows the flow of granting the PC consultant title.

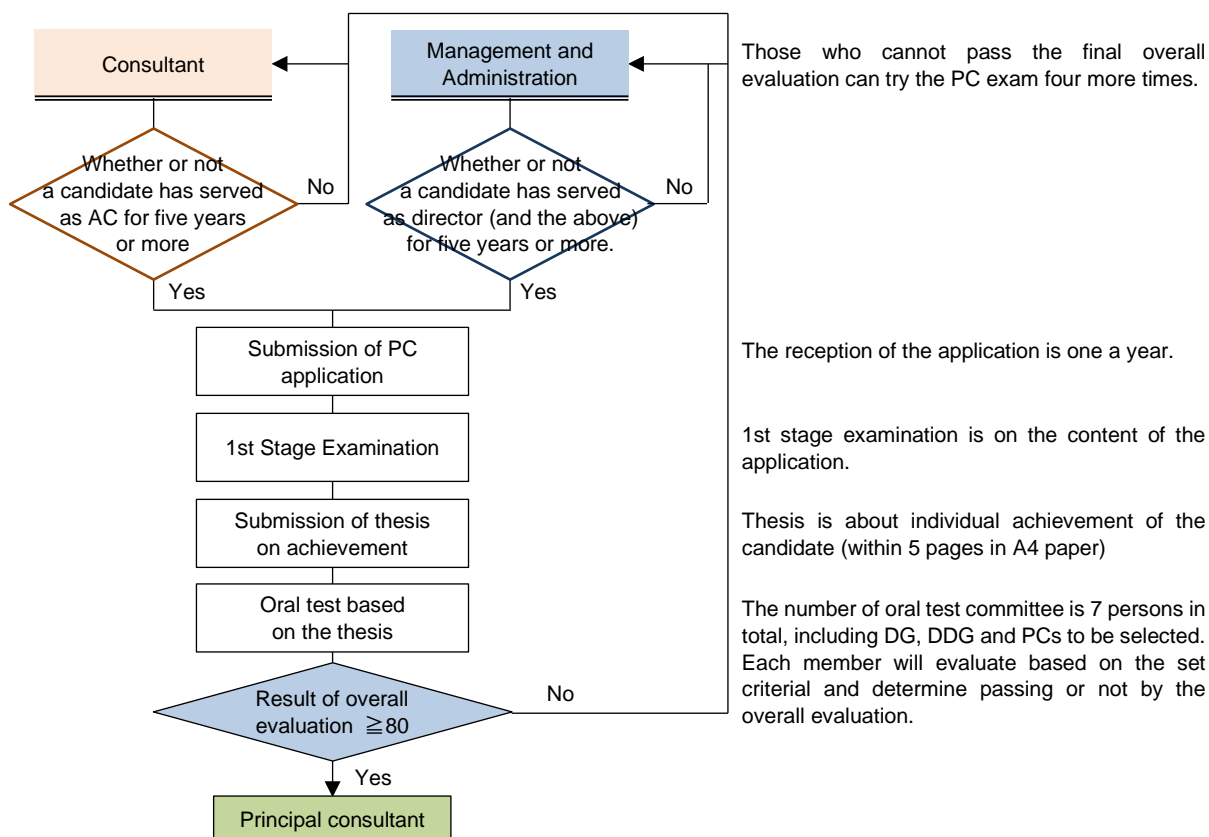


Figure 10: Flow of granting PC consultant title

The details of the procedure of granting the PC title shall be as follows.

(1) Confirmation of satisfying the PC application qualification.

Those who satisfy one of the following two conditions can apply the PC title. Note that the maximum number to apply the PC title is five times.

- (i) Those who apply to the title based on the achievement as a consultant, researcher or assessor, s/he must have been served as a certified AC consultant for five years and more; or
- (ii) Those who apply to the title based on the achievement of management and administration⁵, s/he must have been served as a director or the above for five years and more.

(2) To apply to PC title

The Secretariat will receive the application from the candidate. The Secretariat shall conduct the first stage evaluation by examining the content of the application and confirming whether or not the candidate meet the qualification of the application mentioned the above. If there is no problem, the Secretariat shall request the candidate to submit his/her thesis as follows.

- ✧ Thesis theme: Individual contribution to EKI's Kaizen dissemination
- ✧ Volume: Within 5 pages in A4 paper (within 1,000 words)
- ✧ Format: Font size 11, leaving one line after each paragraph
- ✧ Language: Amharic
- ✧ Submission deadline: (to be determined)

Those who are willing to apply the PC title shall prepare and submit his/her thesis to the Secretariat by the designated date. The acceptance of the application is once a year.

(3) Thesis examination and oral test

The submitted thesis shall be evaluated by the committee comprised of Director General, Deputy Director Generals, principal consultant(s) to be selected. The committee shall identify one area of contribution from those described in Table 16 and evaluate the degree of the contribution on the basis of 100 points. Based on that, an oral test will be conducted to confirm the evaluation point.

⁵ Director General (DG) is included in this category.

Table 16: Evaluation criteria of Principal Consultant

Area	Evaluation criteria
Bringing outcomes for client(s) through long-time activities	The degree of contribution to qualify, productivity, cost, delivery and other area of Kaizen of client enterprises and/or organization.
Developing Kaizen technologies and/or localizing Kaizen technologies	The degree of contribution to the development, application and dissemination of new Kaizen technologies.
Making remarkable achievement in the management of Kaizen dissemination	The degree of contribution to EKI development in dissemination of Kaizen.
Similar contribution to the above three	The degree of contribution to the capacity development of EKI and EKI consultants. The degree of contribution to CARS as an examination committee member.

(4) Overall evaluation

Finally, similar to the core consultant certifications, the overall evaluation shall be conducted to determine granting the title or not. Three aspects of evaluation and the weighting are shown in Table 17. Those who obtain 80% and more will receive the PC title.

Table 17: Weighting for calculation

Thesis examination and oral test	Job experience	Others	Total
0.40	0.40	0.20	1.00

Note:

- Each criterion shall be calculated on the basis of 100 full marks.
- Overall points shall be calculated by Σ (mark of each criterion x weight). For example, if the result of an applicant is 75 points for thesis and oral test, 80 points for job experience and 90 points for others, the overall rating shall be: Overall rating = $75 \times 0.4 + 80 \times 0.4 + 90 \times 0.20 = 80.0$ points

6. Ethical code of certified Kaizen consultants

This code is applicable for Kaizen consultants (three core consultants and PC) certified under the Certification, Accreditation and Registration System (CARS).

(Confidentiality)

- 1) A consultant does not leak the work-related secret of a client to others, nor divert it to some other purpose without sufficient reason.

When working as a consultant inside the company of a client, s/he has opportunities to know various information of the client, such as raw materials, machine and equipment, the way of processing, personnel, customers and market, and financial information of the client. In principle, the consultant should not leak any information to the outside or present it in a seminar. Only when the consultant obtains the permission from the client, s/he can do so.

From point of view of Kaizen dissemination, it is very useful to share the kaizen practice of other companies. Thus, it is suggested to widen the scope of disclosing the information as much as possible and to get the permission from the companies in advance. When talking about the permission, there are several stages of opening the information, such as “Opening all information”, “Opening all information except financial statements”, “Opening information without announcing the name of company”, or “Sharing photographs”, etc.

When the consultant is in charge of some clients of the same line of business, s/he shall get to know the company that employs an excellent way of processing among the companies. S/he may want to inform it to the other companies. But, it is the act of leaking information by consultant, if s/he does do so. Therefore, it must NOT happen. Note that it could be permitted that the consultant may provide a piece of advice to other companies, such as “Why does the company consider drying by using the wind, instead of natural drying in this process?”

(Highest priority given to Kaizen needs)

- 2) A consultant puts top priority on problem solving/task achieving of client(s). S/he must not give priority to the use of the Kaizen technology in which s/he is interested.

When a consultant learns new Kaizen technology, s/he wants to use it immediately. Then, s/he happens to find the problem/task that the new technology can be used and to make a trial of it, regardless of the request of a client. This is a wrong act of the consultant. For the consultant, the client is a customer that s/he provides the service of problem-solving/task achievement, but is not the field of experiment that s/he tries new technologies. Thus, it is suggested that for example, only when the consultant cannot make cause analysis or exploring the root cause done well with existing methods, new technologies can be used.

It is common for enthusiastic consultants who study well that they make analysis with a difficult method and prepare a lengthy report, while it can be done with a simple method such as 7QC tools. This does not lead the consultants to find a proper countermeasure, nor to gain prestige on their proposal. What the client needs is a precise conclusion based on simple analysis, but not about how much the consultant studied, nor how long the consultant spent time for writing the report. It should not be a festival of the arts that the consultant shows his/her efforts made.

The final goal of the consultant is to equip the client with ability of implementing Kaizen activity without the presence of the consultant. Therefore, it is recommendable that Kaizen technologies to be used should be simple and easy to use. In order to establish the Kaizen in the company firmly, the consultant should figure out a good way, such as making data collection as less as possible, or finding out true cause with as a simple method as possible to make its countermeasure.

(Serious consideration on work-site observation)

- 3) In making problem analysis and planning countermeasure(s), a consultant uses the information based on work-site observation and/or experiment. S/he must not make problem analysis or countermeasure planning only by a simple argument, a speculation and/or the opinion of a client.

There is a coined word “Lack syndrome”. It is an attitude of a consultant to make a conclusion that there is lack of something, for instance, lack of skill, lack of knowledge, lack of attention, lack of time, lack of human resources as the root cause of a problem, after analyzing the causes that bring the problem. This syndrome then brings an aftereffect called “Fill up lack syndrome”. That is, the consultant jumps to a conclusion that it is good to fill in the lacks and propose the provision of training, awakening of attention, increment of human resources, etc. These cannot be effective measures, as it is similar to the case that a poster “Beware of fires!” is put on to prevent the occurrences of fires.

In most cases, the cause of “Lack syndrome” is lack of something existing. It is lack of OEW, that is “Observation”, “Experiment” and “Why-why analysis”. The causes of a problem exist in Gemba (worksite), but the consultant repeatedly does discussion based on his/her guesswork in a meeting room. S/he cannot be confident about own conclusion, and then tends to make decision by following a person who has a big voice or who has been working in the company for longer time, as well as to implement all measures as s/he cannot narrow down the possible causes of a problem. This is a wrong way of implementing Kaizen.

The consultant should always discover things through observation in Gemba (workplace), rather than discuss in the meeting room.

(Taking due consideration on human side in Kaizen)

- 4) A consultant takes special consideration on the human side of people influenced by Kaizen. The involved people shall be willing to understand it and give cooperation Kaizen positively.

Whether or not Kaizen can be sustained depends on whether or not the independency generates in a company, even though the Kaizen initiated with top-down way. Thus, Kaizen put value on the autonomy of bottom-up.

Kaizen is usually accompanied by change. However, most people tend to avoid the change. If there are 10 workers in a worksite, eight or nine of them refuse the change. Further, amongst them, two people become the stubborn forces of opposition to the change.

On the other hand, if asking whether or not there is someone who likes change, there certainly is. The number is only one or two though. One of them always gives agreement on any change, unless s/he loses something or becomes in a disadvantageous position due to the change. It is his/her character. The second one usually gives agreement after considering

the case well. This person could be a strong Kaizen supporter. Thus, the consultant should see through who is such a person, gain him/her on the side of the consultant, and create the environment where sympathizers come to appear. The aforementioned “Consideration on human side of people” means creating such an environment.

To be specific, when initiating Kaizen, the consultant should explain to the workers to be involved why and for what Kaizen is needed by using familiar examples to obtain their consent. If the consultant carries out the activity of the creation of worker-friendly environment where less work-related accident cases occur or the workers feel comfortable in work at the beginning, the consultant can gain the followers of the Kaizen activity. From this point of view, it is reasonable to implement 5S at the beginning of Kaizen. In addition, it is necessary to collect the opinions of the workers in the critical stages of Kaizen (e.g. root cause analysis of a problem and countermeasure proposal). It is not necessarily to hold a formal meeting. If the consultant listens to the voice of the workers seriously, s/he will obtain helpful ideas from the workers.

(Possession of trust)

- 5) A consultant keeps dignity and a promise. S/he must not do an act that loses trust, including receiving the unfair reward, which is not in a contract.

This article is easy to understand. What is written is something natural. However, there is one item that leaves question when asking whether it is executed properly or not. That is “keeps a promise”.

The consulting is intangible service. The product of a maker is visible and touchable, and even can be operated. This is because it is a tangible material. It is easy to judge good or not on the tangible materials. On the other hand, Kaizen consulting service, a kind of intangible material, is difficult to evaluate. Thus, a client tends to evaluate the service not only by the result, but also by the process of the service provision. When it comes to the product, the majority of the consumers are not interested in the production process (how the product is produced under what kind of quality control process). This is because the consumers can confirm the degree of quality by the final product. On the other hand, in consulting service, not only “what was proposed”, but also “how it was proposed (in what process)” are important.

The target of the evaluation in the process is whether or not “the consultant keeps a promise”. Whether or not s/he visited the company on the promised date and time, whether or not s/he informed the client if s/he comes late, whether or not s/he prepared materials that were promised to bring, etc. The trust on the consultant can be established based on the accumulation of such small acts.

Whether the proposal of the consultant is accepted or not usually depends on the content of the proposal by half, and by what kind of person the proposal is made by half. “What kind of person” here means that whether s/he is the one who keeps a promise or not.

(Mutual cooperation)

- 6) A consultant trusts mutually and makes an effort to cooperate with colleagues by respecting the points of view of others.

A consultant usually works in team. The team is a kind of project team that has specific objective, limited period and available resources and is comprised of experts of different specialization.

Sometimes, however, the consultants of different field have different way of thinking. For instance, when comparing the consultant whose specialization is QC and that of IE, the former may put more value on the quality of a product even though the productivity decreases. On the other hand, the latter one thinks that the competitiveness of the company depends on the productivity. The latter one often thinks that even though a good quality product is launched in the market, if it is produced without considering cost, the price of the product increases and then cannot be sold well, there is no way to take any measure. In this case, it is difficult to say which one is correct. There must be an optimal point that maximizes the long-term profit of the company in balancing quality and productivity.

In order to find the optimal solution, it is dispensable to respect each other as experts of different fields and to collaborate each other. In such an atmosphere, respective consultants propose his/her ideas, make serious discussion and produce the recommendation that could bring greater contribution to the client (i.e. greater value added recommendation).

(Continuous self-development)

- 7) A consultant recognizes the importance of the public mission of the certification. S/he always attempts at the development of technologies and self-development in her/his specialized field, and must execute his/her responsibility faithfully.

There are not many Kaizen technologies that were invented for Kaizen. Most 7 QC tools have been used in Statistics, Economics and practical business as in the past. Venture to say, “cause and effect diagram” that arranges and summarizes the possible causes of a problem is only one tool devised for Kaizen.

As shown in this example, most Kaizen technologies are the application of existing technologies. This means that any technologies that are useful to Kaizen can be utilized. Thus, it can be said that there are countless Kaizen technologies available. However, a consultant is not requested to acquire all of them to become the consultant. If so, his/her life time as consultant would be over before engaging in the service.

Thus, it is important for the consultant to acquire the technologies of his/her area of specialization, in addition to the common and versatile Kaizen technologies. Needless to say, s/he should continue self-study. However, s/he may encounter the case that Kaizen technologies s/he possesses are not sufficient to solve the problem or to achieve the task in Gemba. What can the consultant do? S/he can inquire from colleagues, study by internet, but in a few case, s/he still cannot find the solution. What is important in this situation is not new technology, but one’s attitude, practice and skill of continuing to obtain it by self-education.

To sum up, Kaizen technologies necessary to Kaizen consultant is fundamental Kaizen technologies and self-enlightenment (self-education) technology. That is, it is necessary to have both technologies related to “Know What” and that of “Know How”.

(Fulfillment of independency)

- 8) A consultant always implements Kaizen consulting service with an appropriate attention and judgment. S/he maintains his/her independence in all Kaizen processes and must not cater to the request of a certain person.

The former part of this article is easy to understand and thus no need to explain. But, the latter part needs some explanation.

A consultant is often in middle position of two parties, such as between owner and employees; owner and managers; managers and front workers; or Department A and Department B. In such a case, the consultant should not support any one of the parties. This is described as “S/he maintains his/her independence in all Kaizen processes” and “must not cater to the request of a certain person”.

The owner and managers often request the consultant to give instruction that includes their intention to employees as well as to other department, instead of making direct communication. What the owner and manager intends to tell is usually a severe request or proposal. For instance, “Reducing the number of employees by half and increasing the productivity twice” and “If producing defects in quality, the salary would be reduced by 20 Birr per one defect” are the examples. The owner and managers want to know the reaction of the workers when such requests are made. Thus, they request the consultant to fly an observation balloon. From the workers, the consultant looks like “a running dog” of the owner if s/he does so. Then, the workers would not tell the consultant what they really think any more.

If the consultant maintain his/her neutral position, s/he should attempt not to lean to one side, for example, by creating the position of reallocation of surplus workers as a result of the productivity improvement, by preparing and proposing to the owner a countermeasure of transferring the surplus workers to other growing section/department, or by making recommendation to the owner to establish the system of process control instead of making the penalty system that has only temporary effect.

(Compliance with law)

- 9) A consultant implements his/her task by complying with the law and keeping the contribution to national growth strategy in mind.

This Kaizen consultant CARS is the system that would contribute to the realization of GTP 2 through Kaizen activity. Kaizen consulting service is invisible and intangible asset, which is different from the tangible things such as a product. It has a unique characteristic of simultaneity of production and consumption, that is, when a consultant provides Kaizen service to client (“production”), the client receives and accepts the Kaizen service (“consumption”).

Due to such characteristics of Kaizen service, it is not easy to sustain and improve its quality. If it can be kept in stock, then, the quality inspection of the service can be done and only the service that have the quality of a certain level can be delivered. But it is not the case for consulting service.

In order to disseminate the Kaizen consulting service, it is indispensable to level off the quality of the service, in parallel to the visualization of the service. From the point of view of the dissemination and expansion of Kaizen to bring contribution to GTP 2, this system is essential and important tool of quality management in sustaining and expanding the Kaizen contribution, not just certifying consultants.

(Prohibition against facilitation of illegal act)

10) A consultant must not facilitate any illegal act or anti-social behavior of client(s).

Most clients are business firms. The laws related to business administration include the one about estate lease, labor, trade and other field.

There are a few laws that may be a big issue in the future. One of them is the law on industrial safety and health; and the other one is law related to environmental pollution of the surroundings of a factory. In order to implement the countermeasure(s) to such issues, additional investment in plant and equipment is needed. Nonetheless, it would not increase the sales of the firm. There are managers who pursue the profit of the firm alone and overlook the issues. If the consultant also overlooks the issue, it would be taken as assisting anti-social act of the firm.

Thus, the consultant should be sensitive to safety and health of work place inside the factory; and be sensitive to the effect on environment (e.g. air, water, noise and vibration pollution) outside the factory. In addition, the consultant is expected to be a pioneer to encourage the Kaizen on the issues.

(Serious violation of ethic code)

11) When a consultant erodes the honor and/or the trust of Kaizen consultant certification by the violation of an ethic code stipulated in this paper, and/or brings a client the damage, the Secretariat (see 7-3) shall investigate and discuss the case to determine a certain punishment for the concerned consultant depending on the degree.

- Deprivation/cancellation of consultant certification
- Moratorium/suspension of consultant certification (for three months / for one year)
- Submission of letter of apology / warning

7. Managing organizations of Certification, Accreditation and Registration System (CARS)

The CARS will be managed under EKI with two Committees and Secretariat as shown in Figure 11. As shown, since the CARS should be managed by independent entity ideally, some roles and responsibilities, in particular, which is related to exam, are delegated to Ethiopian Industrial Engineering Association (EIEA) from November 2019. The role and member of each organization will be explained in detail here below.

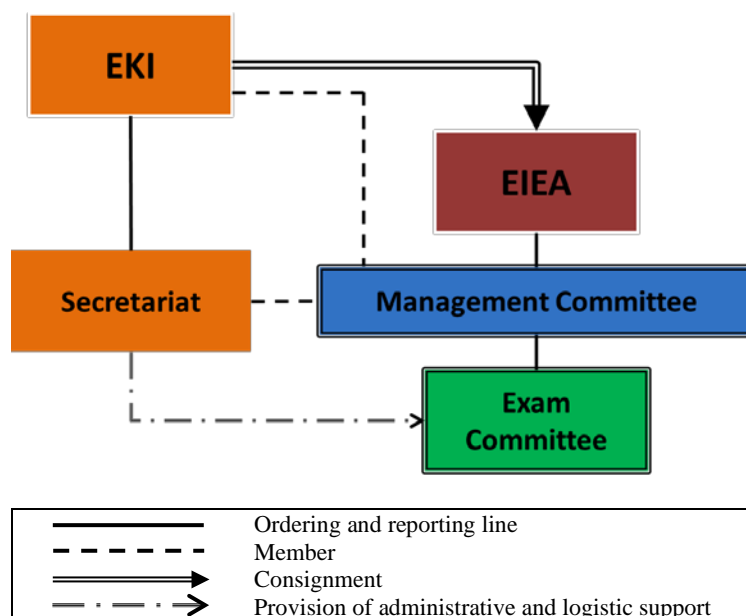


Figure 11: Chart of managing organizations of CARS

7.1. Management Committee

This committee is in charge of establishment, management and revision of the system and its guideline. The member includes:

- (a) EKI: Three (3) persons (DG, DDG of Research and Certification Sector, and Director Awarding, Recognition and Certificate)
- (b) Ethiopian Industrial Engineering Association (EIEA)
- (c) University: One (1) person
- (d) Ethiopian Chamber of Commerce: One (1) person
- (e) Ministry of Trade and Industry: One (1) person
- (f) Civil Service Commission

The member shall be appointed by EKI DG and the term of service shall be for three years.

7.2. Examination Committee

This committee is in charge of preparation of examination, determination of passing and failing, and administration of the examination. The committee takes responsibility of planning and administration of updating seminar of certifications in cooperation with Secretariat (Directorate of Awarding, Recognition and Certificate) of EKI. Initially, these tasks were handled by the JICA Kaizen Project together with selected university members. However, from November 2019, it will be handed over and taken care of by EIEA.

The examination committee includes examination assessors. The member of assessors shall be in charge of development of exams, marking of exams and examiners of oral test.

7.3. Secretariat

The Secretariat of the system shall be established as an annex of Research and Certification Sector of EKI. It is in charge of the registration and renewal of the certifications as mentioned earlier. In addition, it shall take a role of a window of inquiry about the system.

This committee is also in charge of handling any complains about the certification examinations. The committee shall receive and examine the cases, and provide necessary information and response to the exam applicants.

Further, this secretariat shall be is in charge of any cases related to Ethical code (Chapter 6). The secretariat shall investigate the cases, and report its result to EKI DG. EKI DG shall determine the punishment (e.g. cancellation, suspension and resumption of the certifications) based on the result.

8. Difference between certifications and EKI job title

It should be noted that there is no relationship between the certifications explained in this paper and the job title of EKI. The EKI job title is mainly for the treatment of the consultants; and does not prove the capacity as a certified consultant.

9. Summary

- ✓ The CARS is a six-tier certification system, namely, 5S Leader, 5S Master, Basic Consultant (BC), Intermediate Consultant (IC), Advanced Consultant (AC) and Principal Consultant (PC). Out of the six, the core three certifications of BC, IC and AC, two tests of paper and oral tests shall be given.
- ✓ Among the six levels, four levels (5S Leader, 5S Master, BC and IC) will be implemented in the year of 2019.

(END)

ANNEX

Annex 1: Japanese certification systems

Name of certification	Small and Medium sized Enterprise Consultants (SMECs)	Management Consultants	Professional Engineers (P.E.)	The Quality Management (QM) and Quality Control (QC) Examination (Certification)
Characteristic	<p>SMEC is the national qualification stipulated by the Small and Medium Enterprise Guidance Law. SMEC is a specialist who diagnoses and gives advice to the Small and Medium sized Enterprises (SMEs), concerning their various management issues. The SMEC System is designed to make easy the selection of those who are supposed to diagnose and give advice to SMEs by registering the specialists equipped with the capability above a certain level.</p> <p>The basic role of SMECs is to help SMEs in drafting their growth strategies and give advice for their implementation, and at the same time, to work in wider fields such as a liaison between SMEs, the administration and the financial institutions, or as a facilitator for the proper SME policy implementation by use of their expertise.</p>	<p>Management consultant is a specialist who can contribute to the improvement of efficiency on management and business performance and to the creation and maturing of company culture by using freely advanced expert knowledge regarding business administration.</p> <p>The specialized areas of management consultants include business administration, production, marketing, personnel affairs, financial affairs and information.</p>	<p>Professional Engineer, Japan (P.E. Jp) is the national qualification stipulated by the Professional Engineer Act. A Professional Engineer is defined as an engineer engaged in the professional practice (except for cases where such practice is prohibited under other laws) of rendering services for science and technology in planning, research, design, analysis, testing, evaluation, and training in such work, which requires application of extensive scientific and technical expertise.</p> <p>P.E. covers almost all fields (21 divisions of technology) related to industry and economics, and science and technology of life in society. Industrial engineering is one of the 21 divisions of P.E.</p>	<p>"Kaizen", "Quality Management" and "Quality Control" are the key-words for realizing better quality products and services, and capacity in these activities is based on knowledge and experience.</p> <p>The Quality Management (QM) and Quality Control (QC) Examination (Certification) is a measure for assessing knowledge (at four levels) of QM, QC and Kaizen, and is intended for people working or preparing to work in any organization.</p>
Responsible institute	<p>Registered by Minister of the Ministry of Economy, Trade and Industry (METI).</p> <p>Examination of the SMECs is administered by Japan Small and Medium Enterprise Management Consultant Association (J-SMECA), as the organization designated by METI, based on the Small and Medium Enterprise Guidance Law.</p>	<p>Administered and approved by Association of Management Consultants in Japan (AMCJ), General Incorporated Association.</p>	<p>Administered by the Minister of Education, Culture, Sports, Science and Technology (MEXT), as the jurisdiction, in accordance with the P.E. Act (Act No.25/1983).</p> <p>Examination and Registration of the P.E. is managed by the Institution of Professional Engineers, Japan (IPEJ), a non-profit institution, as the organization designated by the MEXT.</p>	<p>Administered by Japanese Standards Association (JSA) and Union of Japanese Scientists and Engineers (JUSE), as organizations approved by the Japanese Society for Quality Control (JSQC), General Incorporated Association.</p>
Established year	1952	1951	1958	2005
Legal basis	Article 11 of the Small and Medium Enterprise Guidance Law	n/a	Professional Engineer Act	n/a
Purpose of exam	<p><u>1st Stage:</u> To judge whether or not a test taker possesses necessary knowledge to be a SMEC.</p> <p><u>2nd Stage:</u> To judge whether or not a test taker possesses necessary application ability to be a SMEC.</p>	<p>The purpose of the management consultant exam is to judge whether or not a test taker possesses necessary advanced expertise, methods of supporting business administration and aptitude as consultant.</p>	<p><u>1st Stage:</u> To judge whether or not a test taker possesses basic knowledge of the whole range of science and technology, and aptitude related to the observance to the stipulation (Act Chapter 4).</p> <p><u>2nd Stage:</u> To judge whether or not a test taker possesses technical knowledge of necessary technical division as well as advanced technical application ability.</p>	<p>To assess objectively to what degree a test taker possesses the knowledge about quality control by a written examination.</p>

Name of certification	Small and Medium sized Enterprise Consultants (SMECs)	Management Consultants	Professional Engineers (P.E.)	The Quality Management (QM) and Quality Control (QC) Examination (Certification)
Types and coverage of exam	<p>The SMEC screening consists of three stages as below.</p> <p><u>1st Stage:</u> The exam concerning necessary knowledge as SMEC includes seven subjects. The seven subjects are "Economics and economic policy", "Finance and accounting", "Corporate management", "Corporate operations", "Management law", "SME management and government policy". The exam employs a computer-graded multiple-choice test. In principle, the pass condition of Stage 1 is that the total mark should be 60% and the above and no subject which is below 40%.</p> <p><u>2nd Stage:</u> The exam is about necessary application ability as SMEC. There are four subjects (four case studies). It consists of written examination about a case diagnosis and the advice thereon and oral presentation test. The target is only the passer of Stage 1 exam.</p> <p><u>3rd Stage:</u> Actual Diagnosis Practice at SMEs for 15 days or more.</p> <p>Those who have passed above three stages of screening shall be registered with the Minister of METI for initial five years with a mandatory renewal training every year.</p>	<p>There are three types of examination: (1) written exam, (2) interview and (3) career record inspection. The exam of (1) consists of (a) common exam and (b) exam on special fields (two subjects to be selected from business administration, production, sales and marketing, personnel affairs, financial affairs and information).</p>	<p><u>1st Stage:</u> The exam consists of three subjects, namely basic subject (the whole field of science and technology), aptitude subject (about obligation of P.E., Chapter 4, Professional Engineer Act), and special subject (basic and technical knowledge on special field that a test-taker selected in advance). The basic subject covers the contents of engineering curriculum of university level (engineering, agriculture, science, etc.). The exam employs a computer-graded multiple-choice test (5-choices).</p> <p><u>2nd Stage:</u> The written exam consists of compulsory subject and optional subject. The former one is a computer-graded multiple-choice test; while the latter one is a written exam. Those who pass the exam proceeds to oral examination.</p> <p>After the exams of 2nd stage, the exam passers should register to MEXT to be P.E.</p>	<p><u>Grade 1:</u> There are 1st stage, which is a computer-graded multiple-choice test; and 2nd stage, which is a written exam. The 1st stage exam covers technique field and practical field. The contents include: the whole QC methods, the whole QC practice, and contents of Grade 2, 3 and 4.</p> <p><u>Grade 2:</u> A computer-graded multiple-choice test. The exam covers technique field and practical field. The contents include: necessary knowledge to autonomously use and practice statistic methods including 7QC tools; basic matters related to probability distribution, inspection and presumption, correlation analysis and regression analysis, experimental design, sampling inspection, reliability engineering, deployment of quality and function, statistical process control; basic knowledge related to topics about methods and practice beyond QC, and contents of Grade 3 and 4.</p> <p><u>Grade 3:</u> A computer-graded multiple-choice test. The exam covers technique field and practical field. The contents include basic management and Kaizen activity (e.g. the collection and analysis of data, use of 7QC tools, basics of new 7QC tools, the QC way of thinking and understanding, quality, process control, problem-solving, inspection and examination, standardization), in addition to the contents of Grade 4.</p> <p><u>Grade 4:</u> A computer-graded multiple-choice test. It covers common practice of company activities, such as QC, management, Kaizen, process, inspection, standard and standardization, data, 7QC tools, basis of company activity.</p>

Name of certification	Small and Medium sized Enterprise Consultants (SMECs)	Management Consultants	Professional Engineers (P.E.)	The Quality Management (QM) and Quality Control (QC) Examination (Certification)
Qualification for an exam	No restriction by age, academic background and work experience.	For those who have academic background of university degree holder or the above, and have engaged in business experience in business administration for five years and the above. In addition, the person should not be the one who recognized as inappropriate by AMCJ, such as a person offending a law and receiving a punishment.	No restriction by age, academic background and work experience.	No restriction for all grades. However, following people are suitable as candidates for each grade. <u>Grade 1:</u> Those who work in QC management or technical departments and require a high level of proficiency and understanding in all areas of quality control. <u>Grade 2:</u> Those who play a leading role in solving quality related issues through the application of QC methodology. <u>Grade 3:</u> Persons include those with a basic understanding of QC methodology, members of Kaizen activities and students of industrial universities or colleges. <u>Grade 4:</u> Persons include new recruits, temp staff and high school and university students and anyone interested in joining a company.
No. of examinee	1st stage : 13,605 2nd stage : 4,394 (2016)	n/a	1st stage : 17,561 (including IE division: 271) 2nd stage : 25,032 (IE division: 181) (2016)	Grade 1 : 2,400 Grade 2 : 25,187 Grade 3 : 61,144 Grade 4 : 17,874 Total : 106,605 (Mar.& Sep. 2016)
No. of passer	1st stage : 2,404 2nd stage : 842 (2016)	n/a	1st stage : 8,600 (IE division: 171) 2nd stage : 3,648 (IE division: 56) (2016)	Grade 1 : 166 Grade 2 : 5,144 Grade 3 : 32,183 Grade 4 : 15,229 Total : 52,722 (Mar.& Sep. 2016)
Pass rate	1st stage : 17.7% 2nd stage : 19.2% (2016)	About 70%	1st stage : 49.0% (IE division: 63.1%) 2nd stage : 14.6% (IE division: 30.9%) (2016)	Grade 1 : 6.9% Grade 2 : 20.4% Grade 3 : 52.6% Grade 4 : 85.2% (Mar.& Sep. 2016)
Average age of passer	Around 39 years old (2016)	n/a	1st stage : 33.3 years old 2nd stage : 43.1 years old (2016)	Grade 1 : 40.2 years old Grade 2 : 35.9 years old Grade 3 : 34.7 years old Grade 4 : 28.8 years old (Sep. 2016)

Name of certification	Small and Medium sized Enterprise Consultants (SMECs)	Management Consultants	Professional Engineers (P.E.)	The Quality Management (QM) and Quality Control (QC) Examination (Certification)
Exam fee	1st stage :JPY 13,000 2nd stage :JPY 17,200	Exam fee: JPY 10,000	1st stage : JPY 11,000 2nd stage : JPY 14,000	Grade 1 : JPY 8,220 Grade 2 : JPY 5,140 Grade 3 : JPY 4,110 Grade 4 : JPY 3,080
Renewal system	The certification of SMECs is valid only for five years. There are two requirements for renewal. One is take renewal training more than 5 times; and the other is to undergo practice diagnosis for more than 30 days.	n/a	n/a	n/a
Annual membership fee	Depending on prefectures to register. (JPY 50,000 in case of Tokyo)	Deposit for membership entrance fee of AMCJ: JPY 80,000 Annual membership fee AMCJ: JPY 50,000	Membership entrance fee of IPEJ: JPY 10,000 Annual membership fee of IPEJ: JPY 20,000	n/a
Source	J-SMECA HP: www.j-smeca.jp	AMCJ HP: www.keieishikai.com	IPEJ HP: www.engineer.or.jp	JSA HP : www.jsa.or.jp JUSE HP : www.juse.or.jp JSQC HP : www.jsqc.org

Annex 2: Strategic Framework of Ethiopia KAIZEN

First–Level-KAIZEN

1. KAIZEN Management	2. KAIZEN Systems	3. KAIZEN Tools
<ol style="list-style-type: none"> Brief History of the development of scientific Management from 1850-1950. The Emergence and Development of KAIZEN (Japanese Model) <ol style="list-style-type: none"> Japanese Economic History in 1950s and the Quest for Learning from abroad. The Role of JPC, JUSE and JMA in Knowledge Transfer and Productivity Movement. TOYOTA KAIZEN Principles of KAIZEN management and the development of KAIZEN from 1950 onwards. Experience of Singapore in KAIZEN Transfer (Singapore Model). Ethiopia KAIZEN Model and Strategies. 	<ol style="list-style-type: none"> PDCA -SDCA Junior KPTs Autonomous Maintenance Problem Solving Methodologies KAIZEN costing. KAIZEN Consulting procedure 	<ol style="list-style-type: none"> 3MUs 5s Soft Problem solving/MUDA Identification, elimination and standardization tools <ol style="list-style-type: none"> Brain Storming 5M+1I analysis QPCDSEMG analysis, Value Analysis- Process evaluation Why-Why Analysis, 5W+2H
Expected Outcome - Organized Work Place		
<ol style="list-style-type: none"> A Comprehensive Understanding of KAIZEN Mind set change 	<ol style="list-style-type: none"> Implementing 1st level K-System Standard Process 	<ol style="list-style-type: none"> Practicing 1st level K-Tools Work Standard

Second–Level-KAIZEN

1. KAIZEN Management	2. KAIZEN Systems	3. KAIZEN Tools
<ol style="list-style-type: none"> KAIZEN Management <ol style="list-style-type: none"> Productivity management. Quality management Cost management. Delivery management Policy management. Cross-functional management. Daily management. Basics of KAIZEN leadership-Lean Leadership 	<ol style="list-style-type: none"> Medium KPTs TPS TQM. TPM Appropriate Costing System (ABC, Direct, Standard, Target ..) MRP Production scheduling. 	<ol style="list-style-type: none"> SOP. 7 QC Tools/QC story. Value stream Mapping Quality control process chart. Basic IEs. <ul style="list-style-type: none"> ✓ Time study ✓ motion study . ✓ Line balancing ✓ Process analysis. ✓ Operation analysis. ✓ Control charts. ✓ Process capability index. ✓ Ergonomics ✓ Layout Multi – Activity Analysis Costing (P = P-C). Ratio-delay study Shortening set-up time
Expected Outcome - System Innovation		
<ol style="list-style-type: none"> A Comprehensive Understanding of Advanced KAIZEN Management Strategic Leadership 	<ol style="list-style-type: none"> Implementing 2nd level K-System Standard Systems 	<ol style="list-style-type: none"> Practicing 2nd level K-Tools Operation Standard

Third-Level-Kaizen

1. KAIZEN Management	2. KAIZEN Systems	3. KAIZEN Tools
1. Advanced KAIZEN Management <ul style="list-style-type: none"> i. Innovation Management ii. Global Production Management iii. Value Management 2. Advanced KAIZEN leadership-Lean Leadership	1. IKT (Innovative KAIZEN Team) 2. TPM 3. Advanced Analytical Systems <ul style="list-style-type: none"> i. Competitive Analysis ii. Financial Analysis iii. Value Analysis iv. Business Modeling v. Business Systems Analysis vi. Idea generation methods 	1. TRIZ 2. Off-shoring 3. Production Sharing 4. Value engineering. 5. Quality function deployment 6. FMEA (Failure Mode Effect Analyses) 7. FTA (Fault Tree Analysis) 8. Reliability Engineering 9. SMED (Single Minutes Exchange of Die) <div>3RD DEGREE</div>
Expected Outcome - Innovation Management		
1. Excelled Management 2. Lean Leadership	1. Implementing 3 rd level K-System 2. Company Model and Brand	1. Practicing 3 rd level K-Tools 2. World Standard

Annex 3: Strategic Framework and Coverage of Exam

First-Level-KAIZEN	
1. KAIZEN Management	
1-1	<i>History of scientific Management</i>
1-2	<i>Emergence of KAIZEN</i>
1-2-i	<i>Japanese Economic History in 1950s</i>
1-2-ii	<i>Role of JPC, JUSE and JMA</i>
1-2-iii	TOYOTA KAIZEN
1-2-iv	<i>Principles of KAIZEN and the development of KAIZEN</i>
1-3	<i>Experience of Singapore in KAIZEN</i>
1-4	Ethiopia KAIZEN Model
2. KAIZEN Systems	
2-1	PDCA -SDCA
2-2	Junior KPTs
2-3	Autonomous Maintenance
2-4	<i>Problem Solving KAIZEN</i>
2-5	<i>Cost accounting</i>
2-6	<i>Task Achievement KAIZEN</i>
3. KAIZEN Tools	
3-1	3MUs
3-2	5S
3-3	Soft Problem solving/MUDA Identification, elimination and standardization tools
3-3-i	Brain Storming
3-3-ii	5M+1I analysis
3-3-iii	QPCDSEMG analysis,
3-3-iv	Value Analysis- Process evaluation
3-3-v	Why-Why Analysis
3-3-vi	5W+2H

* Topics of cells without color are excluded from the coverage area of exam because of overlapping with other topics.

* Italic topics were modified from the original titles.

Second-Level-KAIZEN	
1. KAIZEN Management	
1-1	KAIZEN Management
1-1-i	Productivity management.
1-1-ii	Quality management
1-1-iii	Cost management.
1-1-iv	Delivery management
1-1-v	Policy management.
1-1-vi	Cross-functional management.
1-1-vii	Daily management.
1-2	Basics of KAIZEN leadership-Lean Leadership
2. KAIZEN Systems	
2-1	Medium KPTs
2-2	TPS
2-3	TQM.
2-4	TPM
2-5	<i>Appropriate Costing System</i>
2-5-i	<i>ABC</i>
2-5-ii	<i>Direct costing</i>
2-5-iii	<i>Standard costing</i>
2-5-iv	Target costing
2-6	MRP
2-7	Production scheduling.
3. KAIZEN Tools	
3-1	SOP.
3-2	7 QC Tools/QC story.
3-3	Value stream Mapping
3-4	Quality control process chart.
3-5	Basic IEs.
3-5-i	Time study
3-5-ii	Motion study .
3-5-iii	Line balancing
3-5-iv	Process analysis.
3-5-v	Operation analysis.
3-5-vi	Control charts.
3-5-vii	Process capability index.
3-5-viii	Ergonomics
3-5-ix	Layout
3-6	Multi-Activity Analysis
3-7	Costing (P = P-C).
3-8	Ratio-delay study
3-9	Shortening set-up time

Third-Level-KAIZEN	
1. KAIZEN Management	
1-1	Advanced KAIZEN Management
1-1-i	Innovation Management
1-1-ii	Global Production Management
1-1-iii	Value Management
1-2	Advanced KAIZEN leadership-Lean Leadership
2. KAIZEN Systems	
2-1	IKT (Innovative KAIZEN Team)
2-2	TPM
2-3	Advanced Analytical Systems
2-3-i	Competitive Analysis
2-3-ii	Financial Analysis
2-3-iii	Value Analysis
2-3-iv	Business Modeling
2-3-v	Business Systems Analysis
2-3-vi	Idea generation methods
3. KAIZEN Tools	
3-1	TRIZ
3-2	Off-shoring
3-3	Production Sharing
3-4	Value engineering.
3-5	Quality function deployment
3-6	FMEA (Failure Mode Effect Analyses)
3-7	FTA (Fault Tree Analysis)
3-8	Reliability Engineering
3-9	SMED (Single Minutes Exchange of Die)

Annex 4: Sample examination questions

A multiple-choice question

For intermediate level

Regarding < Buffer Functions > as shown below, ①~⑧, which one of the followings is the combination of buffer functions by capacity?

< Buffer Functions >

- ① Schedule planning ② Human resource reserve ③ Materials ④ Parts
⑤ Delivery time with spare ⑥ Outsourcing ⑦ Product inventory ⑧ Overtime work
- (a) ①-③-⑥
(b) ②-⑤-⑧
(c) ②-⑥-⑧
(d) ③-④-⑦

For advanced level

The following statements are about KAIZEN activity aiming to shorten the production lead time in one machine work workplace. Which one of the followings is the most appropriate?

- (a) The rule of dispatch was changed in order to shorten the total time taken from starting to the end of completing all the work process.
(b) The layout of the workplace was changed by preparing the flow diagram and calculating “distances between the equipment x sum of the quantity of material distribution”.
(c) In order to ensure the delivery control, the lot size was changed using PERT.
(d) The procedure of work process of workers was changed based on the prepared Man-Machine chart.

A fill-in-the-blank question

For intermediate level

One product is manufactured by lot production. The finished products are once stored in a storehouse. When the order is received from customers, the sales department makes a shipping instruction. Then, the products are took out of the storehouse and delivered. The economical lot size in production is the minimum lot size, which is the sum of set-up cost due to the switchover of production lot and inventory holding cost of the finished products.

The economical lot can be found out through the following steps ①~⑤, by using the following symbols (A), (B) and (C). Which one of the following is the appropriate combination of formula of (A), (B) and (C)?

- Q : Production lot size
P : Quantity of production per hour
T : Set-up time
S : Set-up time per hour
H : Inventory holding cost of one product per hour
R : Quantity of delivery per hour

Step

- | | | |
|-------|---|----------------------------|
| ① I | : Average quantity of product stock | $I = [Q/P \times (a)] / 2$ |
| ② Z | : Inventory holding cost per one production cycle (L) | $Z = (b) \times I$ |
| ③ D | : Set-up cost per one production cycle (L) | $D = (c)$ |
| ④ G | : Total cost per one production cycle (L) | $G = Z + D$ |
| ⑤ G/L | : Total cost per hour | $G/L = Z/L + D/L$ |

The economical lot size is Q that makes the value of G/L the least.

Here, $L = Q / R$.

- | | | |
|-----------------|-------------|-------------|
| (a) (A) : P – R | (B) : S x L | (C) : S x T |
| (b) (A) : P – R | (B) : P x L | (C) : H x T |
| (c) (A) : P / R | (B) : H x L | (C) : S x T |
| (d) (A) : P / R | (B) : S x L | (C) : H x T |
| (e) (A) : P – R | (B) : H x L | (C) : S x T |

For advanced level

Which one of the followings is the most appropriate combination of the terms in the blanks (XXXXXX) of the following calculation formula to find out overall equipment efficiency?

Overall equipment efficiency = XXXAX X x capacity operation rate x good product rate

Where,

XXXXX X = (Load time - XXXBX X) / Load time

Capacity operation rate = (Standard cycle time x XXXCX X) / Operation time

- | | <u>A</u> | <u>B</u> | <u>C</u> |
|-----|----------------------------|------------------|--------------------------|
| (a) | Rate of equipment downtime | Downtime | Quantity of processing |
| (b) | Rate of equipment downtime | Maintenance time | Quantity of defect |
| (c) | Rate of operation time | Downtime | Quantity of processing |
| (d) | Rate of operation time | Maintenance time | Quantity of good product |
| (e) | Rate of equipment downtime | Operation time | Quantity of good product |

An essay question:

For intermediate level

In one injection-molding plastic factory, the data of non-conforming products occurred in one week is summarized as shown in the table below. This data is going to be analyzed using Pareto Chart. Answer the followings.

Non-conforming items	No. of non-conforming products
Measure	25
Dirt	5
Scratch	10
Angle	3
Change of color	2
Rub	1
Others	4

- (1) Illustrate the outline of the Pareto Chart and explain how to make the chart and how to use it.
- (2) From the information obtained from the Pareto Chart, state the possible countermeasures.

For advanced level

[General Outline of Company C]

Company C makes production and sales mainly of construction materials as well as cast-metal products such as agricultural machine parts and industrial machine parts. Most construction materials are manhole covers for sewage system and buried electric and communication cables. The agricultural machine parts are the ones related to drives of tractors; and the industrial machine parts are the ones related to structure of bulldozers, forklifts and machine tools. The clients are construction companies regarding the manhole covers, and that of the agricultural and industrial machine parts are respective parts makers.

Company C was established in 1954 as cast-metal factory such as manhole covers. The company consists of sales department, design department, manufacture department and general affair department. The present number of employees is 50. As it is difficult to secure young human resources due to so-called HDD (Hard, Dirty, Dangerous) work environment, the company faces aging employees. The annual business amount is about 1 billion JPY (200 million ETB).

There was the period that the sales hanged low because the number of receiving order decreased due to the influence of the shrink of the public works budget as well as the intensification of the competition against foreign products. In order to correspond to this situation, the company reinforced the production capacity of casting process actively, while the number of small and medium cast-metal factories decreased. In addition, the company built up the uniform production system by newly establishing the machine work process and coating process, and successfully got orders of the agricultural and industrial machine parts. At that time, the company created the sales department by selecting core engineers internally, and worked for developing new market. This also greatly contributed to the success.

The present sales is composed of industrial materials (55%), agricultural machine parts (30%) and industrial machine parts (15%). The amount of receiving orders of agricultural and industrial machine parts shows the trend of increment. However, the improvement of casting skills is required because the client's request of weight reduction and complicated formation of the parts is becoming strong.

Further, one client company of the industrial machine parts, which is the second subcontractor of automobile parts, is making a request on automobile parts that is a new order to Company C. The company is now considering how to obtain the order.

[Production Outline of Company C]

Figure 1 shows five processes of casting, after-treatment, machine work, coating, and inspection and dispatch.

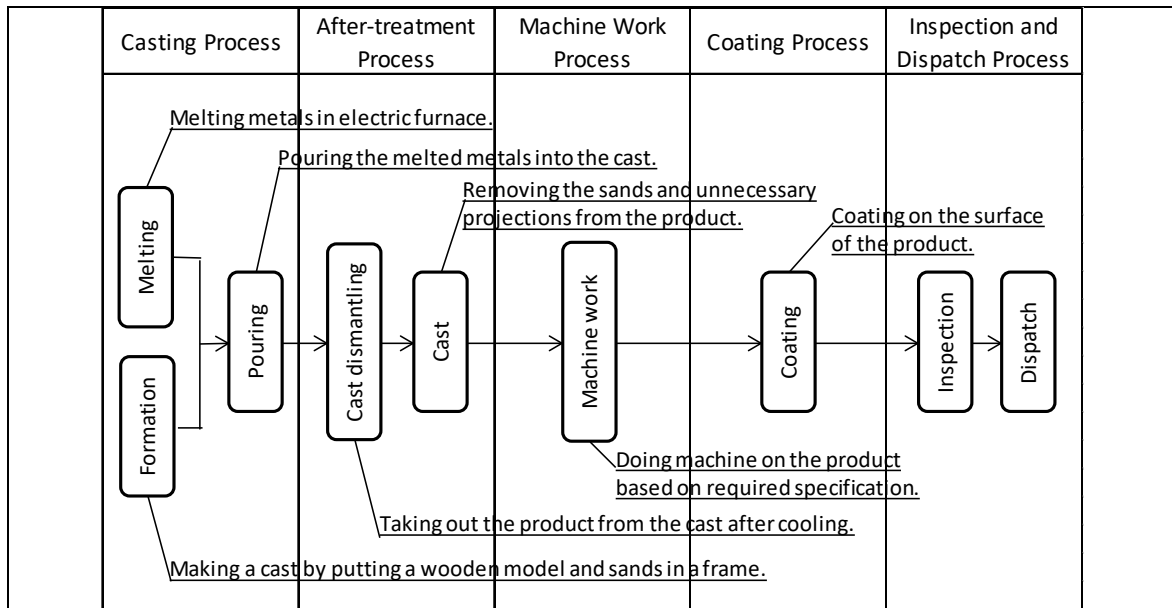


Figure 1: Production process of Company C

Regarding the manhole covers, which is the major product of the company, there are many kinds as the specifications differ from each enterprise body, such local public body and communication firm. In addition, the quantity of receiving orders also varies greatly with seasons because the orders are made to Company C after the budget of each enterprise body is confirmed. Therefore, based on the estimation from the client's information obtained in the sales department, the company manufactures the standardized products in high demand by make-to-stock beforehand, and delivers from stock in store when the order is confirmed. On the other hand, the company manufactures agricultural and industrial machine parts when the client's order is confirmed.

Regarding the production plan, only the plan of casting process is made. The way of planning is: first, the plan is made based on the delivery time of products whose content of order is confirmed; then the plan of make-to-stock products such as the manhole covers is included in the period when there is surplus power. In the process of the after-treatment, machine work, coating, and inspection and dispatch after the casting process, respective person-in-charge of each process decides the order of work in order to make the number of set-up minimal by confirming the types and quantities of work-in-process. In one day, four times (4 lots) of casting process are carried out, but the delivery delay occurs on agricultural and industrial machine parts. As one measure against the delay, the company considers introducing Information and Technology (IT) to integrate the dealing of order acceptance, production plan, production control and inventory control.

When receiving a new order, the sales department holds a technical meeting with a client to grasp the client's request and informs the content of the request to the design department, and the design department prepares the specification such as a drawing. Once the specification is agreed by the client, it is handed over to the manufacture department. The department makes the preparation and includes it into the production plan; and the manufacturing process begins after procuring the materials.

[Survey result by KAIZEN team]

At present, Company C forms KAIZEN team in manufacture department aiming to obtain a new order of automobile parts. The team implements KAIZEN activity to improve the production capacity.

According to the KAIZEN team, there are many in-process inventories after the casting process in Gemba that occupies a large space. When moving the products by a forklift, it should avoid the scattered storage spaces of in-process inventory. The in-process inventory also makes the movements between the equipment very difficult in the machine work process that employs multi-machine assignment. Due to this, the production lead time is prolonged, which is the cause of delivery delay.

Company C grasps the production capacity by taking a processing capacity of the casting process as the capacity of whole factory. Thus, as a countermeasure to correspond to the increment of the receiving orders, the company reinforces the production capacity of the casting process especially. However, according to the process analysis done by the KAIZEN team on the manhole covers, which is the staple product, the bottleneck process is the machine work process as shown in Figure 2. The similar result also appears in the process analysis of other products. The analysis found out the cause of regular occurrence of overtime work in the machine work process.

Then, the KAIZEN team examines the equipment operation status of the machine work process. The result is shown in Figure 3. The ratio of the operation of the equipment is as low as 48%; and as non-operation items, there is the stoppage of 37% and idling of 15%. The major causes of the occurrence of the stoppage are the exchange of cutting tools and jig, the product transportation before and after the process, and the set-up such as machine adjustment. The idling happens when removing or putting the product after processing, and when the equipment is being hold due to the work delay by the workers.

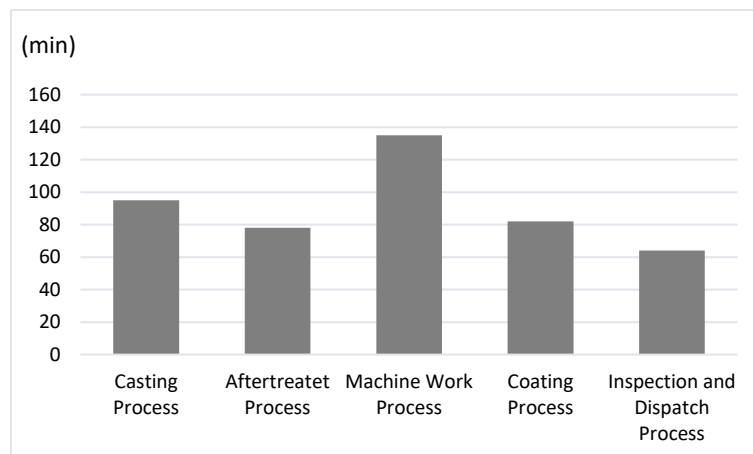


Figure 2: Processing Time by Process per one Lot of Leading Manhole Cover

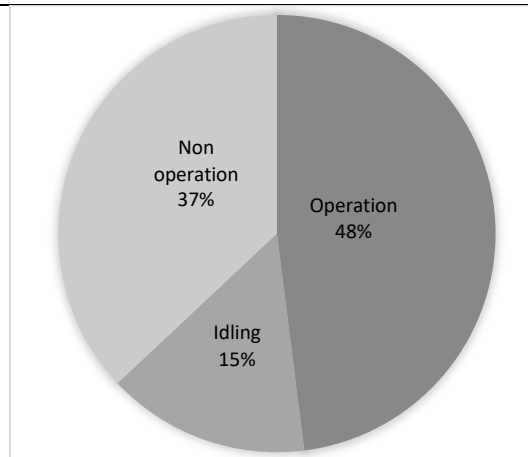


Figure 3: Status of Equipment Operation in Machine Work Process

Question 1

Company C is planning to obtain a new order, as the company is receiving the new request of manufacturing automobile parts from one industrial machine part maker with which the company has business currently. Answer the following questions regarding the plan.

- (1) Take two points as strengths of Company C, when entering automobile part sector. State them in within 40 characters.
- (2) What kind of advantage will Company C receive by the acquisition of the order of automobile parts? State it within 100 characters.
- (3) In order to obtain the order of automobile parts, it is necessary to correspond to shortening delivery time that is required in automobile industry. What remedial measures should Company C take? State it within 100 characters.

Question 2

Company C made investment in plant and equipment by prioritizing the casting process. What is the problem occurred due to this, and what kind of measures are needed? State it within 100 characters.

.....

7. CONSULTANT EVALUATION FRAMEWORK



CONSULTANT EVALUATION FRAMEWORK

(Aiming to establish a more convincing evaluation system)

June 2020

Ethiopian Kaizen Institute (EKI)

JICA Kaizen Project Team

Consultant Evaluation Framework
(Aiming to establish a more convincing evaluation system)

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1. Background of review of consultant evaluation system

The nature of work of consultants¹ is different from that of civil servants. The consultant is required to handle each case individually according to clients. On the other hand, civil servants can provide standard services regardless of client characteristics. However, in reality, the evaluation of EKI consultants is conducted based on the same evaluation framework as ordinary civil servants. In other words, the same evaluation items and weighting as civil servants is used. However, while the general civil servants are highly evaluated for punctuality, consultants should be highly evaluated for other perspective, such as persuasive ability. It can be said that the current evaluation does not properly represent the performance as a consultant. The evaluation of consultants should represent the attitude, competence and performance of consultant properly. In this respect, it is an urgent task to establish a new personnel evaluation framework.

2. Purpose of the evaluation system

When presuming that personnel evaluation system as sharing information is useful for management, we have following five purposes.

(1) Pervading the view of EKI values

The EKI can inform the consultant about the values by indicating what kind of person is highly evaluated.

(2) Realizing right person in right position

The evaluation provides the basic data necessary to realize the right person in the right position through promotion and relocation.

(3) Feedback to unify future directions of EKI and consultants

Based on the results of the evaluation, the directorate and subordinates regularly discuss and adjust the future directions, so that EKI vector and the consultant vector are in the same direction.

(4) Check to know difference between long-term human resource development (HRD) plan and actual situation

The evaluation system provides personnel information to identify the gap between EKI's long-term human resources development plan and its progress (achievement versus plan).

(5) Determination of personnel treatment

The evaluation system provides data regarding the attitude of the consultant toward the work, competence and performance, and EKI uses them as information for advancement in grade, promotion² and personnel allocation adequately. The table shows the two objectives of evaluation under the personnel treatment.

¹ The consultant here refers to the staff of the consulting sectors of EKI. In the future, this will include the consultants of not only Kaizen field but also of other fields (e.g. management, marketing).

² Promotion usually goes with a rise in pay. The rise in pay is to change column to upper class in the same wage scale in accordance with change in age and/or years of experience. On the other hand, the promotion accompanies the change to upper wage scale, for example, like change from the wage scale of junior to the that of assistant.

Table 1: Two objectives of consultant evaluation under personal treatment

	Objectives	Remarks
1	Evaluation for advancement in grade	It is generally evaluated with an emphasis on performance and competency.
2	Evaluation for promotion and personnel allocation.	It is generally evaluated with an emphasis on competency and attitude.

Figure 1 shows the relationship between the evaluation system and above-mentioned purposes. This paper describes mainly about the part that is inside the dotted ellipse.

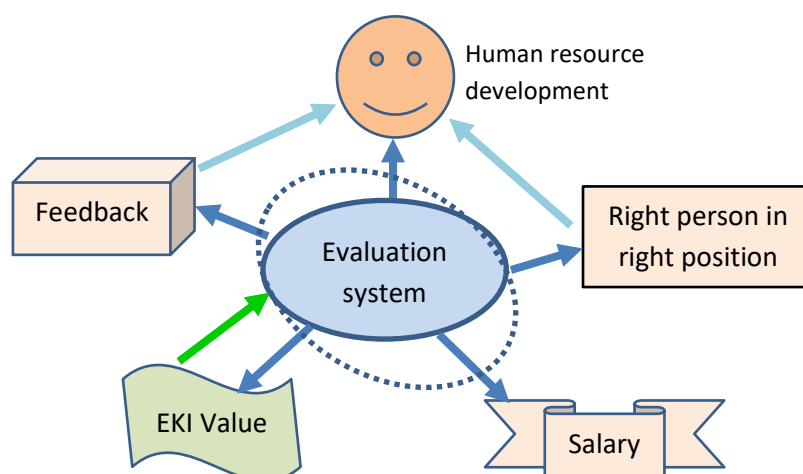


Figure 1: Relationship between evaluation system and purposes

3. Principle of the evaluation

There is a saying in Japan that the success of business depends on the person. And the most interesting thing for the person is how he/she is evaluated by his/her boss or organization. Consultancy is a "product" that cannot be produced using machines. The consultant uses computers, but the computer does not train instructors or pursue the cause of problems. In this sense, consulting is significantly labor-intensive, and one of the most prominent jobs of this saying is consulting.

An appropriate evaluation raises the motivation of consultants. Conversely, an unsatisfactory evaluation may reduce the motivation of consultants. If the beneficiary of the evaluation (consultant) is not convinced with the result of evaluation, what would happen? When the organization decides the salary or personnel change, it may face the repulsion. In this sense, the principle of evaluation is to carry out evaluations that obtain the convincing sense of person to be evaluated. Such evaluation requires three elements (Figure 2).

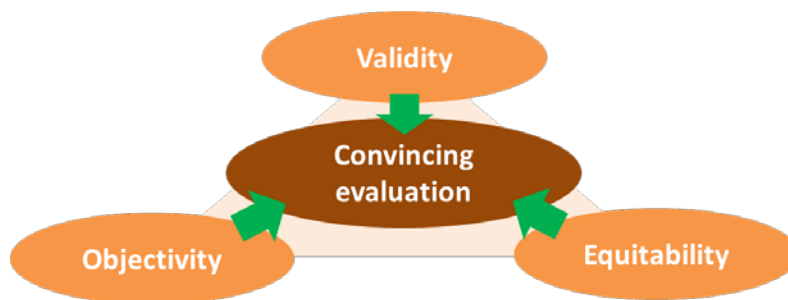


Figure 2: Three elements of evaluation principle

The first element is “Validity.” This means that evaluation should meet its purpose or the evaluation should consider and reflect the characteristics of an organization. The second element is “Objectivity.” This means that the evaluation should be done based on specific facts, and it should exclude the subjectivity or someone’s like or dislike. The third one is “Equitability.” This means that the evaluation is carried out fairly and equitably, without giving a favorable or unfavorable treatment to a specific person.

4. Outline of the evaluation

The evaluation consists of three components, (a) **Attitude**, (b) **Competency** and (c) **Performance**. Figure 3 illustrates the positioning of these three components with the human body. Attitude-related elements such as hidden spirit, posture and attitude are present in the heart. Competency appears on the surface of the body such as limbs. On the other hand, performance lies outside the body.

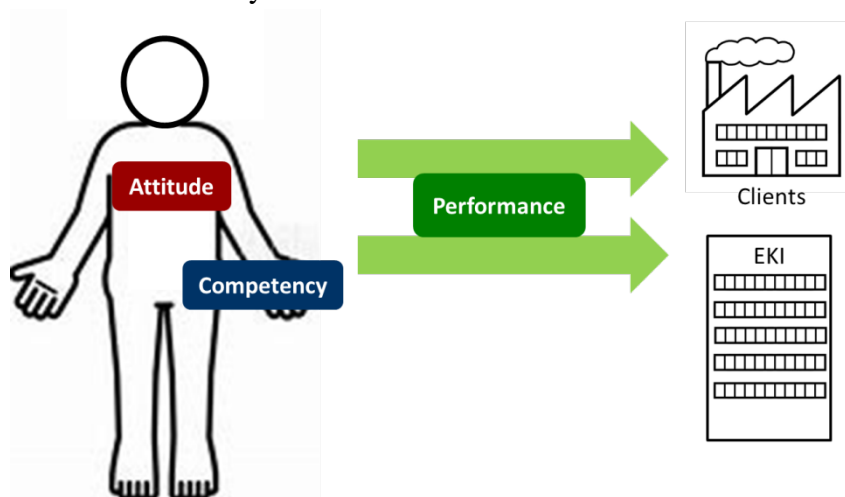


Figure 3: The relationship of three evaluation components

Here, the “Attitude” refers to the characteristics or potential that a person possesses naturally. For instance, it includes positiveness and tenacity. These may not appear on surface (hidden) or may be emerged in future. The “Competency” refers to the characteristics or ability that is common in order to produce results in a certain consulting field. For instance, it is the ability of persuasiveness and that of listening. These are usually appeared and seen, and are common characteristic among the excellent consultant. The “Performance” refers to the actual result that the evaluated person brings about. It indicates both the results contributed to the client

(externally) and the results contributed to the EKI (internally). For the latter case, it includes the trainings that foster young consultants, such as induction training (basic Kaizen training) for newly employees of EKI.

Regarding (a) Attitude evaluation, six criteria is to be used and evaluated in 5-scale evaluation (5: Excellent, 4: Very good, 3: Good, 2: Fair, 1: Not good).

Regarding (b) Competency evaluation, four criteria is to be used and evaluated in 5-scale evaluation (5: Excellent, 4: Very good, 3: Good, 2: Fair, 1: Not good). Secondly, it also includes CARS certificate as one criterion, using the different scale as shown in Table 2. If consultant has more than one certificate, the certificate of the highest level is considered. Here, it is noted that it is intended to encourage consultants to study continuously to acquire new knowledge and skills by the CARS. Thus, if a person with a low grade obtains a high-level certificate, a higher score will be added. On the other hand, if a high-grade person has a certificate that he or she is supposed to have, the adding points will be reduced. Furthermore, there is one more criterial, which is academic qualification. This includes the qualification of MSc and PhD in Kaizen and Kaizen-related area such as Industrial Engineering (See also Table 2).

Table 2: Score of CARS by ability-based grade and score of academic qualification

Ability-based grade	CARS			Academic qualification	
	5S Leader/Master	BC	IC	MSc	PhD
Junior/Associate Consultant	2	8	10	5	15
Consultant	2	6	8		
Senior/Lead Consultant	2	4	6		

Regarding (c) Performance evaluation, following four criteria are used: (1) **Kaizen achievement made for clients** through a series of training and consultation services, (2) **single/independent seminar or training** for domestic and international entities, (3) **accumulation of good practices** (hard component), and (4) **human resource development** (soft component). The first two criteria consider the output made for the external bodies, while the last two consider the output for internal bodies, which is the entire EKI as well as individual consultants. Regarding (2), there are not many opportunities at the moment. However, in near future, the needs of this kind would increase as mentioned in 10-year EKI strategic plan. Regarding (3), the evaluation shall be done by the number of educational materials, innovative Kaizen ideas and consulting methods, and its value. To evaluate the value of these items, “**Best Practice Committee**” is to be formed in EKI, by inviting one member from each directorate. The members will evaluate the value of the documents, ideas and methods (how much is it taken as EKI institutional property).

5. Weighting of each component of the evaluation

The score of each evaluation is calculated based the designated weight by ability-based grade (Table 3).

Table 3: Weight of each component by ability-based grade

Type of Evaluation	Ability-based grade	(a) Attitude	(b) Competency	(c) Performance
<u>Objective 1</u> For advancement in grade	Junior/Associate Consultant	30%	50%	20%
	Consultant	20%	40%	40%
	Senior/Lead Consultant	10%	40%	50%
<u>Objective 2</u> For promotion and personnel allocation	Junior/Associate Consultant	40%	50%	10%
	Consultant	30%	50%	20%
	Senior/Lead Consultant	20%	60%	30%

6. Evaluators of the evaluation

In the consultant evaluation, the evaluator changes depending on the evaluation component. For instance, the attitude is evaluated by director (i.e. the supervisor the consultant) and the consultant his or herself as shown in the Table 4, and the results are comprehensively judged. Similarly, the competency is evaluated by director, self and colleague. Regarding the evaluation by colleagues, the average score of several colleagues shall be taken. The performance is evaluated by director and client.

As for the evaluation from clients, the Research directorate collects the evaluation questionnaire, not the person who was in charge of consulting. It is recommended that consulting fees be obtained from clients of a certain size or more, although it is not from all clients. If this is realized, it is expected that the clients make a strict and more accurate evaluation. From the above two points, the objectivity of client evaluation is ensured.

Table 4: Evaluator by the component of evaluation

Component Evaluator	Attitude	Competency	Performance
Director	✓	✓	✓
Self	✓	✓	
Colleague		✓	
Client			✓

7. Flow of the evaluation

This figure shows the flow of the evaluation.

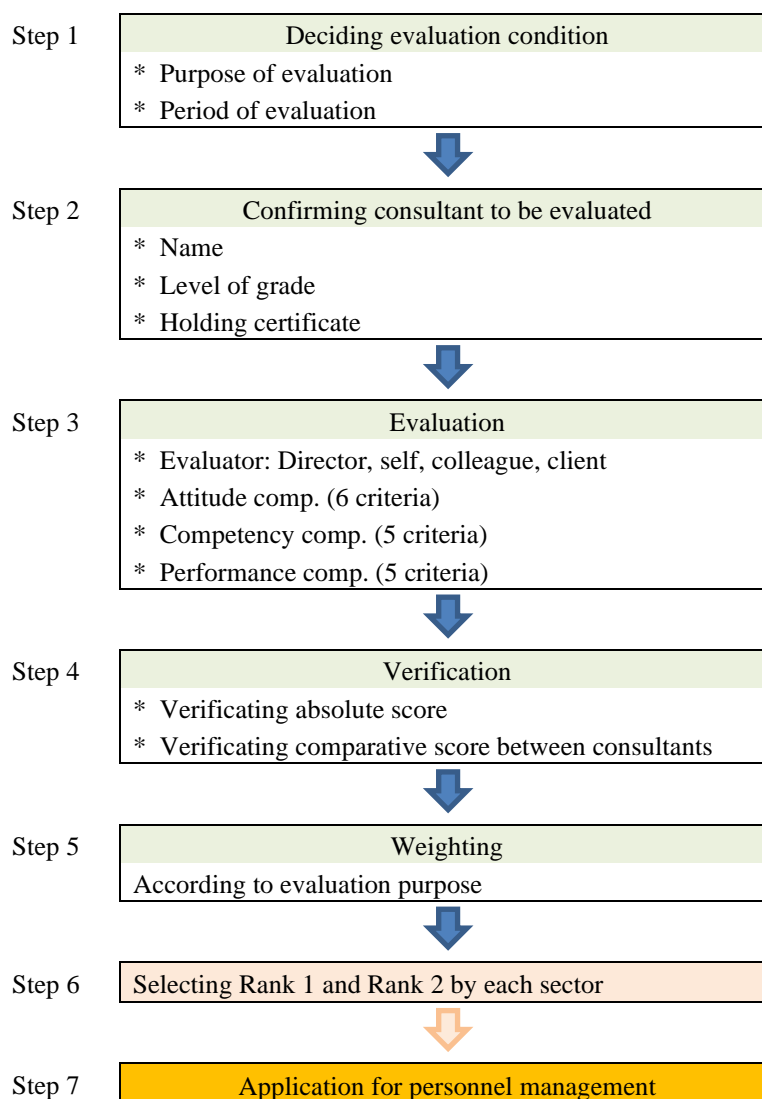


Figure 4: Flow of evaluation

8. Summary of the evaluation

The Table 5 shows the summary of the consultant evaluation framework.

Table 5: Summary of consultant evaluation framework

Component	Criteria	Indicators/tools						Max. points		
a) Attitude	1. Passion 2. Responsibility 3. Maturity 4. Mental toughness and initiative 5. Sincerity 6. Ethical character	Each criteria to be evaluated by 5-scale. Table 1.						30		
		Description	Excellent	Very good	Good	Fair	Not good			
		Point	5	4	3	2	1			
		Max. 5points/criteria, 5 x 6 = 30 points.								
b) Competency	1. Intellectual capacity 2. Ability to cooperate 3. Listening ability 4. Persuasive ability	Each criteria to be evaluated by 5-scale. Table 2.						20		
		Description	Excellent	Very good	Good	Fair	Not good			
		Point	5	4	3	2	1			
		Max. 5points/criteria, 5 x 4 =20 points.								
	5. CARS certification	The points are given according to the table below. If consultant has more than one certificates, the certificates of the highest level is considered. Table 3.						10	50	
		Leve				5S Leader/Master	BC			IC
		Junior/Associate Consultant				2	8			10
		Consultant				2	6			8
		Senior/Lead Consultant				2	4	6		
	6. Academic qualification	The points are given to MSc and PhD in Kaizen and Kaizen-related area, regardless of grade of consultants, according to the table below. Table 4.						5 or 15		
		Level		MSc	PhD					
		Junior/Associate Consultant		5	15					
		Consultant								
		Senior/Lead Consultant								
c) Performance	(External) 1. Kaizen result brought for clients through a series of training and consultation services (e.g. 1 st or 2 nd level Kaizen)	• Evaluation by the number of companies. The points are given based on the table below. Table 5.						~10	~30	
		Kaizen		Point / company						
		Newly introduced		3						
		Follow-up		1						
		Note: - For the newly introduced, consider the number of companies the introduction is completed in concerned 6 months. - For the follow-up, consider the number of company that the consultant is engaged in the activity in concerned 6 months.								

		<ul style="list-style-type: none">Evaluation by clients by 3-scale. The points are given based on the table below. If two or more than two client evaluation, take the average. Table 6. <table><tr><td>Description</td><td>Excellent</td><td>Good</td><td>Not good</td></tr><tr><td>Point</td><td>5</td><td>3</td><td>1</td></tr></table>	Description	Excellent	Good	Not good	Point	5	3	1	5			
Description	Excellent	Good	Not good											
Point	5	3	1											
(External) 2. Single/independent seminars/training organized for domestic and international bodies (e.g. Trainings to be given to external entities mentioned in 10-year strategic plan, such as Management Skill Training)	<ul style="list-style-type: none">Evaluation by trainees for each trainer, regarding his/her session (e.g. quality of material, the training method, etc.). Take the average of each evaluation aspect. Table 7. <table><tr><td>Seminar</td><td>Excellent</td><td>Good</td><td>Not good</td></tr><tr><td>1-5 days</td><td>3 points/time</td><td>2 points/time</td><td>1 points/time</td></tr><tr><td>6 days and the above</td><td>5 points/time</td><td>3 points/time</td><td>2 points/time</td></tr></table> <p>Note:</p> <ul style="list-style-type: none">If a consultant is the trainee of training, no points is given.	Seminar	Excellent	Good	Not good	1-5 days	3 points/time	2 points/time	1 points/time	6 days and the above	5 points/time	3 points/time	2 points/time	5
Seminar	Excellent	Good	Not good											
1-5 days	3 points/time	2 points/time	1 points/time											
6 days and the above	5 points/time	3 points/time	2 points/time											
(Internal) 3. Accumulation of good practices in Kaizen consultation	<ul style="list-style-type: none">Evaluation by the number of educational materials, innovative Kaizen ideas and consulting methods, and its value. “Best Practice Committee” is to be formed in EKI, inviting one member from each directorate. The members will evaluate the value of these items (how much is it taken as EKI institutional property). The points are given based on the table below. Table 8. <table><tr><td>Level of value</td><td>High</td><td>Middle</td><td>Low</td></tr><tr><td>Point per item</td><td>5</td><td>3</td><td>1</td></tr></table> <p>Note:</p> <ul style="list-style-type: none">The materials include training materials customized for specific directorate/sector, materials on one Kaizen management theme in depth, materials on Kaizen management and inherent technologiesMultiple materials prepared for one theme is considered to be one material.	Level of value	High	Middle	Low	Point per item	5	3	1	5				
Level of value	High	Middle	Low											
Point per item	5	3	1											
(Internal) 4. Human resource development (e.g. coaching subordinates and sharing knowledge and skills)	<ul style="list-style-type: none">Evaluated by his/her supervisors in terms of degree of coaching subordinates or any actions/behaviors that enhance the knowledge or skills of colleagues. Table 8. <table><tr><td>Description</td><td>Excellent</td><td>Good</td><td>Not good</td></tr><tr><td>Point</td><td>5</td><td>3</td><td>1</td></tr></table>	Description	Excellent	Good	Not good	Point	5	3	1	5				
Description	Excellent	Good	Not good											
Point	5	3	1											

9. How to use the result of consultant evaluation

Regarding the evaluation of objective 2 of personnel treatment, by using the score of the evaluation, relative evaluation is also conducted among the members of sector, regardless of the ability-based grade (e.g. 8th out of 25 consultants in sector). Based on this relating rating, the consultants will be categorized into three ranks:

Rank 1: Outstanding (10%)

Rank 2: Excellent (20%)

Rank 3: Good (70%)

Rank 1 consists of 10% of all the members of a sector, Rank 2 of 20% and Rank 3 of 70%. For instance, there are 30 consultants in a sector, the number of people in Rank 1, Rank 2 and Rank 3 would be 3, 6, and 21 respectively. If a consultant obtains Rank 1 in 2-year evaluation, s/he will obtain the promotion opportunity. For instance, it usually takes two years if a consultant at the rank of “Consultant” becomes “Senior Consultant.” If the consultant obtains Rank 1, she/he shall have an opportunity to be promoted in one year; if obtaining Rank 2, she/he shall be promoted in 1.5 year.

(end)

Appendix

Evaluation Format of Consultant

Name:	
Directorate:	
Consultant level / Period of service	

Director (Evaluator):	
Approved by Sector DDG:	
Date of evaluation:	

(a) Attitude evaluation

Criteria		View points	Score				
			Excellent 5	Very 4	Good 3	Fair 2	Not good 1
1	Passion	<input type="checkbox"/> Having passion to study Kaizen and Kaizen-related matters. <input type="checkbox"/> Feeling joy and pride in improving the client's worksite and factory, and in making the workers active by consulting. <input type="checkbox"/> When having contact with information or facts that may be useful for your work, looking to find it interesting even out of working time (e.g. on the way home from work, try entering a store that sells products similar to your clients' products? Do you see any behavior?)	5	4	3	2	1
2	Responsibility	<input type="checkbox"/> Having attitude not only to transfer Kaizen technology but also to achieve Kaizen result. <input type="checkbox"/> Having a strong will to achieve the tasks and results expected by your clients and bosses. <input type="checkbox"/> Enthusiastic about improving own consulting skills and collecting information that may be useful for client Kaizen. <input type="checkbox"/> Be aware that Kaizen gives priority to routine work, but it is not good to ignore the situation at all.	5	4	3	2	1
3	Maturity	<input type="checkbox"/> Speaking calmly without getting emotional. <input type="checkbox"/> Trying to produce results at a conference or meeting with clear awareness of the purposes. <input type="checkbox"/> Trying to lead or to cooperate to make smooth progress at a conference or discussions. <input type="checkbox"/> Listening to the opinions of other people.	5	4	3	2	1
4	Mental toughness and initiative	<input type="checkbox"/> Always be interested in new things and eager to challenge. <input type="checkbox"/> Be able to deal with difficult issues patiently. <input type="checkbox"/> Developing a plan and objectives and acts quickly.	5	4	3	2	1

Criteria		View points	Score				
			Excellent 5	Very 4	Good 3	Fair 2	Not good 1
5	Sincerity	<input type="checkbox"/> Sincere and honest. <input type="checkbox"/> Honestly admits and correct mistakes or errors. <input type="checkbox"/> Work with humble attitude.	5	4	3	2	1
6	Ethical character	<input type="checkbox"/> Keeping confidentiality. <input type="checkbox"/> Highest priority given to Kaizen needs <input type="checkbox"/> Taking due consideration on human side in Kaizen. <input type="checkbox"/> Possession of trust <input type="checkbox"/> Continuous self-development <input type="checkbox"/> Prohibition against facilitation of illegal act	5	4	3	2	1
Total Score:							

(b) Competency evaluation

Criteria		View points	Score				
			Excellent 5	Very 4	Good 3	Fair 2	Not good 1
1	Intellectual capacity	<input type="checkbox"/> Active research on what is not known and required knowledge (inherent technologies, etc.) <input type="checkbox"/> Thinking logically <input type="checkbox"/> Thinking based on facts <input type="checkbox"/> Proposal of new ideas <input type="checkbox"/> Observing the facts carefully and evaluating them properly (make judgement on whether the facts are important or not, what can cause by them, what are likely to cause by them). <input type="checkbox"/> Generalizing similar cases and inducing causal relationships. <input type="checkbox"/> Coming up with a causal relationship developed from general facts. <input type="checkbox"/> Supporting client companies with the awareness that most people are reluctant to make a difference in the workplace even if they agree.	5	4	3	2	1
2	Ability to cooperate	<input type="checkbox"/> Discussion and cooperation with counterparts of an enterprise with a good relationship <input type="checkbox"/> Discussion and cooperation with team members with a good relationship	5	4	3	2	1
3	Listening ability	<input type="checkbox"/> Having attitude to listen and understand other opinions. <input type="checkbox"/> Listening again if he/she do not understand well what others say? <input type="checkbox"/> Any occasion that he/she say something while the other person is talking? <input type="checkbox"/> Asking more questions to the other person's statements?	5	4	3	2	1

Criteria		View points	Score																				
			Excellent 5	Very 4	Good 3	Fair 2	Not good 1																
4	Persuasive ability	<div><input type="checkbox"/> Power of persuasion.</div> <div><input type="checkbox"/> Able to make logical and easy-to-understand statements and presentations.</div> <div><input type="checkbox"/> Speak in response to the depth of comprehension and level of the other person.</div> <div><input type="checkbox"/> Trying to persuade the other person's feelings and thoughts by understanding the other person's true feelings, and not trying to persuade them only by reasoning.</div> <div><input type="checkbox"/> If necessary, trying to persuade someone you want to persuade through an influential person (such as the person's boss or colleague).</div>	5	4	3	2	1																
5	CARS certification	<div>The highest certification: None / 5S / BC / IC</div> <table><tr><td>Leve</td><td>5S Leader/Master</td><td>BC</td><td>IC</td></tr><tr><td>Junior/Associate Consultant</td><td>2</td><td>8</td><td>10</td></tr><tr><td>Consultant</td><td>2</td><td>6</td><td>8</td></tr><tr><td>Senior/Lead Consultant</td><td>2</td><td>4</td><td>6</td></tr></table>	Leve	5S Leader/Master	BC	IC	Junior/Associate Consultant	2	8	10	Consultant	2	6	8	Senior/Lead Consultant	2	4	6					
Leve	5S Leader/Master	BC	IC																				
Junior/Associate Consultant	2	8	10																				
Consultant	2	6	8																				
Senior/Lead Consultant	2	4	6																				
6	Academic qualification	<div>MSc and PhD in Kaizen and Kaizen-related area, regardless of the grade of consultant.</div> <table><tr><td>Level</td><td>MSc</td><td>PhD</td></tr><tr><td>Junior/Associate Consultant</td><td rowspan="3">5</td><td rowspan="3">15</td></tr><tr><td>Consultant</td></tr><tr><td>Senior/Lead Consultant</td></tr></table>	Level	MSc	PhD	Junior/Associate Consultant	5	15	Consultant	Senior/Lead Consultant													
Level	MSc	PhD																					
Junior/Associate Consultant	5	15																					
Consultant																							
Senior/Lead Consultant																							
					Total Score:																		

Evaluation Format of Consultant Competency and Performance

Name:	
Directorate:	
Consultant level / Period of service	

Director (Evaluator):	
Approved by Sector DDG:	
Date of evaluation:	

(c) Performance Evaluation

No.	Criteria	View points	Score												
<External contribution>															
1	Kaizen result brought for clients through a series of training and consultation services (e.g. 1st or 2nd level Kaizen)	<ul style="list-style-type: none">Evaluation by the number of company. The points are given based on the table below.<table><tr><th>Kaizen</th><th>Point / company</th></tr><tr><td>Newly introduced</td><td>3</td></tr><tr><td>Follow-up</td><td>1</td></tr></table><p>Note:</p><ul style="list-style-type: none">- For the newly introduced, consider the number of company the introduction is completed in concerned 6 month.- For the follow-up, consider the number of company that the consultant is engaged in the activity in concerned 6 months.	Kaizen	Point / company	Newly introduced	3	Follow-up	1							
		Kaizen	Point / company												
Newly introduced	3														
Follow-up	1														
<ul style="list-style-type: none">Evaluation by clients by 3-scale. The points are given based on the table below. If two or more than two client evaluation, take the average.<table><tr><th>Description</th><th>Excellent</th><th>Good</th><th>Not good</th></tr><tr><td>Point</td><td>5</td><td>3</td><td>1</td></tr></table>	Description	Excellent	Good	Not good	Point	5	3	1							
Description	Excellent	Good	Not good												
Point	5	3	1												
2	Single/independent seminars/training organized for domestic and international bodies (e.g. Management Skill Training)	<ul style="list-style-type: none">Evaluation by trainees for each trainer, regarding his/her session in terms of:<ul style="list-style-type: none">- quality of material- the training method- the level of understanding.Take the average of each evaluation aspect.<table><tr><th>Seminar</th><th>Excellent</th><th>Good</th><th>Not good</th></tr><tr><td>1-5 days</td><td>3 points/time</td><td>2 points/time</td><td>1 points/time</td></tr><tr><td>6 days and the above</td><td>5 points/time</td><td>3 points/time</td><td>2 points/time</td></tr></table><p>Note:</p><ul style="list-style-type: none">- If a consultant is the trainee of training, no points is given.	Seminar	Excellent	Good	Not good	1-5 days	3 points/time	2 points/time	1 points/time	6 days and the above	5 points/time	3 points/time	2 points/time	
Seminar	Excellent	Good	Not good												
1-5 days	3 points/time	2 points/time	1 points/time												
6 days and the above	5 points/time	3 points/time	2 points/time												

<Internal contribution>												
3	Accumulation of good practices in Kaizen consultation	<ul style="list-style-type: none">Evaluation by the number of educational materials, innovative Kaizen ideas and consulting methods, and its value. “Best Practice Committee” is to be formed in EKI, inviting one member from each directorate. The members will evaluate the value of these items (how much is it taken as EKI institutional property). The points are given based on the table below. <table><tr><td>Level of value</td><td>High</td><td>Middle</td><td>Low</td></tr><tr><td>Point per item</td><td>5</td><td>3</td><td>1</td></tr></table> <p>Note:</p> <ul style="list-style-type: none">- The materials include training materials customized for specific directorate/sector, materials on one Kaizen management theme in depth, materials on Kaizen management and inherent technologies- Multiple materials prepared for one theme is considered to be one material.	Level of value	High	Middle	Low	Point per item	5	3	1		
Level of value	High	Middle	Low									
Point per item	5	3	1									
4	4. Human resource development (e.g. coaching subordinates and sharing knowledge and skills)	<ul style="list-style-type: none">Evaluated by his/her supervisors in terms of degree of coaching subordinates or any actions/behaviors that enhance the knowledge or skills of colleagues. <table><tr><td>Description</td><td>Excellent</td><td>Good</td><td>Not good</td></tr><tr><td>Point</td><td>5</td><td>3</td><td>1</td></tr></table>	Description	Excellent	Good	Not good	Point	5	3	1		
Description	Excellent	Good	Not good									
Point	5	3	1									
Total Score:												

Simulation of five consultants

Component	Evaluated person		→	C1	C2	C3	C4	C5	Remarks
	Level of grade			Lead	Senior	Consultant	Assistant	Junior	
	Certificate			IC	BC	BC	5S master	5S leader	
	Criteria	Evaluator							
(a) Attitude	1	Director		4	4	2	3	3	Use Table 1 of the summary table.
		Self		4	3	3	3	4	
		Av.		4	3.5	2.5	3	3.5	
	2	Director		5	4	3	4	3	
		Self		4	3	3	4	4	
		Av.		4.5	3.5	3	4	3.5	
	3	Director		4	4	3	2	2	
		Self		3	3	3	3	3	
		Av.		3.5	3.5	3	2.5	2.5	
	4	Director		3	3	3	3	3	
		Self		3	4	4	3	4	
		Av.		3	3.5	3.5	3	3.5	
	5	Director		3	3	3	3	3	
		Self		3	4	3	4	4	
		Av.		3	3.5	3	3.5	3.5	
	6	Director		3	4	3	2	3	
		Self		3	3	3	3	4	
		Av.		3	3.5	3	2.5	3.5	
(a) Attitude	Subtotal of Av.			21	21	18	18.5	20	Use Table 2 of the summary table.
				70%	70%	60%	62%	67%	
(b) Competency		1	Director	3	4	3	3	3	
Self			4	4	3	4	3		
Colleague			3	4	3	3	2		
Av.			3.3	4.0	3.0	3.3	2.7		
2		Director	4	4	3	4	3		
		Self	4	4	3	4	3		
		Colleague	4	3	3	3	2		
		Av.	4.0	3.7	3.0	3.7	2.7		
3		Director	5	4	4	2	3		
		Self	4	4	4	4	3		
		Colleague	4	3	3	2	2		
		Av.	4.3	3.7	3.7	2.7	2.7		
4		Director	3	3	3	3	3		
		Self	4	4	3	3	3		
		Colleague	3	4	3	3	2		
		Av.	3.3	3.7	3.0	3.0	2.7		
5 (CARS)		Director	6	4	6	2	2	Use Table 3 of the summary table.	
6 (Acadm)		Director	5	5	5				
(b) Competency	Subtotal of Comp.			26.0	24.0	23.7	14.7	12.7	Use Table 4. Use Table 5. Use Table 6. Use Table 7. Use Table 8.
				74%	69%	68%	42%	36%	
(c) Performance	1 (1)	Director	8	8	5	5	4		
	1 (2)	Client	4.3	4.0	3.4	3.4	3.7		
	2	Dir/ Client	8	5	2	0	0		
	3	Director/ Committee	5	3	3	0	0		
	4	Director	3	5	5	3	3		
(c) Performance	Subtotal of comp.			28.3	25.0	18.4	11.4	10.7	
				94%	83%	61%	38%	36%	
Total for Purpose 2				28.3	26.1	20.9	15.2	15.4	

(a) (b) (c)
 Junior/Associate Consultant: 40% 50% 10%
 Consultant: 30% 50% 20%
 Senior/Lead Consultant: 20% 60% 30%

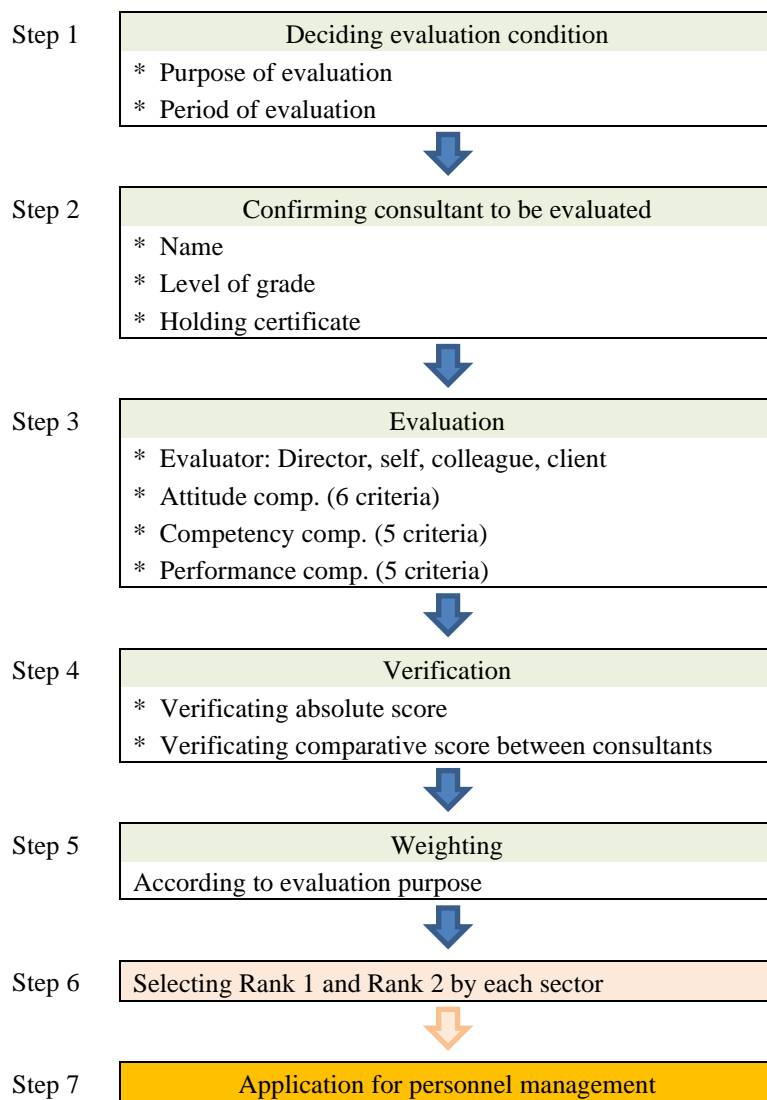


Fig Consultant Evaluation flow