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PROMOTING QUALITY AND PRODUCTIVITY IMPROVEMENT/ KAIZEN IN AFRICA

RESEARCH PROJECT – JAPANESE EXPERIENCES OF INDUSTRIAL DEVELOPMENT AND DEVELOPMENT COOPERATION: ANALYSIS OF TRANSLATIVE ADAPTATION PROCESSES [VOL. 2]

Edited by : Kimiaki Jin and Izumi Ohno

Promoting Quality and Productivity Improvement/*Kaizen* in Africa

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FOREWORD

Industrial development is a key driver of structural transformation in developing countries. It generates sustained incomes, creates productive and decent jobs, and promotes knowledge spillover and technological innovation. As the twenty-first century advances, the landscape of industrial development has become more complex. The recent decades have seen the expansion of global production networks, alongside the advancement of information and communication technology (ICT) and the digital revolution. There is a drive toward realizing inclusive and sustainable industrial development as embraced in the Sustainable Development Goals (SDGs). The COVID-19 crisis also confirms the important role that industry plays in enhancing economic and social resilience and "building back better" the post-pandemic era.

While these megatrends may broaden opportunities for industrial catch-up, developing countries today face significant challenges because more sophisticated capabilities for learning foreign knowledge and technologies are required in an interconnected world. Now, more than ever, we need to pay attention to the practical aspects of industrial development. Nevertheless, there are few studies that analyze the process of learning, and selectively adopting and adapting foreign technologies and knowledge, tailored to country-specific situations while taking account of the current global environment. More concrete analyses are needed on such aspects of industrial development to serve as useful references for policymakers, practitioners, and researchers in developing countries.

In this regard, Japan is positioned to make useful intellectual contributions. Japanese catch-up experiences since the Meiji modernization and during post-war economic development were characterized by learning and internalizing Western technologies and knowledge, which entailed efforts to adapt them into Japan's own culture and system. We call this process "translative adaptation." Moreover, the Japanese approach to industrial development has a unique feature of placing a focus on components of the real sector such as human resources, technologies, and firms. These experiences and perspectives have been reflected in Japanese industrial development cooperation, which has been extended to various regions including Asia, Latin America, and Africa.

Against this background, the Japan International Cooperation Agency

(JICA) Ogata Sadako Research Institute for Peace and Development (JICA Ogata Research Institute) has launched a research project entitled "Japanese Experiences of Industrial Development and Development Cooperation: Analysis of Translative Adaptation Processes". It aims at identifying the characteristics of Japanese experiences of industrial development and development cooperation, while drawing implications for facilitating translative adaptation in developing countries. The research project focuses on three key areas: (i) industrial policy, (ii) quality and productivity improvement (QPI), and (iii) skill development. These are the areas where Japan has an accumulation of expertise through its own experiences in industrialization and development cooperation. Three thematic books are produced as interim results of this research project.

Among the three thematic books, this volume focuses on QPI, *Kaizen* in particular. *Kaizen* is the Japanese approach to the continuous improvement of quality and productivity, based on a participatory process involving the entire workforce from the top management to middle managers and workers. JICA has been implementing various *Kaizen* projects in Africa since 2006. More recently, it is promoting the Africa Kaizen Initiative (AKI) in collaboration with the African Union Development Agency - the New Partnership for Africa's Development (AUDA-NEPAD) and the Pan-African Productivity Association (PAPA). Therefore, this volume attempts to address how *Kaizen* promotion through development cooperation can effectively support a process of translative adaptation by partner countries and contribute to technology transfer for QPI/*Kaizen* in Africa.

As this research project continues to evolve, we fully recognize that there remains room for further deepening its analysis. Nevertheless, we hope that the analyses of this volume will serve as useful references for policymakers, practitioners, and researchers in developing countries as well as the international community.

Tokyo, Japan

Akio Takahara
Executive Director,
JICA Ogata Sadako Research Institute
for Peace and Development

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CHAPTER

1

Overview: Technology Transfer for Quality and Productivity Improvement in Africa and Its Implications for Translative Adaptation

Kimiaki Jin and Izumi Ohno

1. Introduction

The quality of products and services is an essential factor for determining the strength of business and industry, and for creating customer satisfaction and trust. Higher productivity in business brings advantages for firms in terms of improved efficiency and competitiveness in their target markets. Therefore, quality and productivity improvement (QPI) is crucial to support the development of industries and services and to ensure their success in the modern economy. This is in particular an indispensable step in transforming the African economy and realizing its potential so that African industries can compete in international markets and global value chains. There are many knowledge sets and methodologies that can contribute to QPI, including *Kaizen*, which is a set of Japanese knowledge used to promote QPI based on a bottom-up[1] participatory approach. Japan introduced QPI methodologies from the United States (US) in the 1950s and developed them into the Japanese way of production management, called *Kaizen*. This was first used in the Japanese manufacturing industry, but now is recognized worldwide (JICA 2018, 1-4, 1-5, also see Section 3.1 for the definition of *Kaizen*).

The Japan International Cooperation Agency (JICA) has been promoting *Kaizen* through its development cooperation in several African countries. In the late 2000s and early 2010s, JICA significantly expanded its support of *Kaizen* promotion in Africa because its success in selected countries had stimulated the aspirations of African governments for their economic transformation. A strong push by the government of Japan to consider

[1] Although the 'bottom-up' approach is often explained as one of the key characteristics of *Kaizen*, it is reinforced by a 'top-down' approach where the top management of company presents vision, strategy, and clear commitment to QPI and customer satisfaction.

the brand value of Japanese official development assistance (ODA) has also contributed to the promotion of JICA-supported *Kaizen* projects in Africa. While these projects were initially started based on bilateral agreements between Japan and African governments, more countries are now integrated under the multilateral framework of the Africa Kaizen Initiative (AKI) in collaboration with the African Union Development Agency - the New Partnership for Africa's Development (AUDA-NEPAD) and the Pan-African Productivity Association (PAPA)[2] (see Section 2.2 for details).

There are several publications and other research outputs on *Kaizen* promotion in Africa (Otsuka et al. 2018; Hosono et al. 2020; Shimada and Sonobe 2021). They all show encouraging results of QPI at the micro level. Nevertheless, we need to make sure that the impact of *Kaizen* can create sustainable changes in these countries and, together with other industrial policy measures, can contribute to substantive macro-level economic transformation in Africa. Information sharing and comparisons among African countries under the framework of AKI can promote mutual learning for better QPI activities. Currently, Africa faces tremendous challenges such as a slowdown in economic growth, rapidly changing environments through digital transformation, and the impact of the Coronavirus pandemic in 2019-21 (COVID-19). To accept and overcome these challenges, it is important to discuss how *Kaizen* can contribute to the capacity development of workers and managers of business entities and other people who are engaged in *Kaizen* activities in Africa.

As explained, *Kaizen* is the Japanese way of QPI, extensively used in the manufacturing industry. When Japan supports *Kaizen* promotion in various countries including Africa, it is particularly important to respect partner countries' initiatives to modify and customize the original Japanese model into their own models—just as Japan learnt from the US in the 1950s. In this regard, a key role of *Kaizen* promotion through development cooperation should be to support a process of translative adaptation by partner countries, by respecting the views and ownership of the insiders and their customization process of technology transfer. We

[2] PAPA has been collaborating on productivity improvement with the Asian Productivity Organization (APO) since 2005 and the Japan Productivity Center (JPC) since 2006. However, the analysis of this volume focuses on AKI activities and does not cover the activities of PAPA before its launch in 2017. As AKI has gradually become a platform for promoting *Kaizen*/QPI in Africa, PAPA member countries are also joining AKI activities.

argue translative adaptation can be a key success factor of sustainable and substantive *Kaizen* promotion in Africa (see Section 3.3 for details).

This overview chapter is structured as follows. Section 2 explains how Japan established *Kaizen* by learning from the US and how Singapore learned *Kaizen* from Japan and tailored it to its own system, to provide concrete examples of the translative adaptation process and its related analytical framework (building on Chapter 2) as the background for the remaining chapters. It then shows the outline of AKI that started as a cluster of JICA's eight development cooperation projects but now is developing into a broader initiative involving more than ten countries in total, including several member countries of PAPA in Africa. Section 3 discusses the definition and characteristics of *Kaizen* as an evolving the concept of 'continuous improvement,' and then presents the concept of translative adaptation or customization as an underlining key perspective of cases studies on AKI. It also touches upon a research-practice nexus on which our research project places high importance. Section 4 introduces key messages drawn from case studies conducted in the other chapters, such as a comparison of seven[3] AKI countries (Chapter 3), a comparison between Tunisia and Ethiopia (Chapter 4), a review of the Africa Kaizen Award (AKA) and the Africa Kaizen Annual Conference (AKAC) (Chapter 5), a discussion on innovation and *Kaizen* in Africa, the broader implications of *Kaizen* in the current context of technology development (Chapter 6), and the implications of non-cognitive skill development through *Kaizen* practices (Chapter 7). Lastly, a concluding section follows.

2. QPI/*Kaizen* Cooperation in Africa

2.1. Kaizen promotion in Japan and Singapore

Providing the background and foundation of QPI/*Kaizen* promotion in Africa, Chapter 2 of this volume written by Ohno and Mekonen illustrates the history of the national movement for QPI in Japan and Singapore. These two countries learned QPI technologies from abroad and organized national movements for QPI that helped the industry and business of each nation to be productive and competitive in international markets in the late 20th century. Although they took different approaches to designing and implementing their own models of national movements for QPI, two countries successfully learned management technologies to improve

[3] Cameroon is not included.

quality and productivity from abroad, customized them in their own context, and diffused them at the national level by promoting national movements. Ohno and Mekonen point out that a national movement does not consist of just one or two projects that last only for a few years, or time-bound, foreign-assisted development projects. It must be a national project including a comprehensive program package with many components that require continued effort, often for a decade or more. Japan and Singapore learned and customized foreign models, created the necessary institutional mechanisms, and organized a series of nationwide activities for igniting a mindset change in their people although the two countries took different approaches to designing and implementing national movements for QPI. These can be regarded as good examples of the translative adaptation of foreign management technologies to respective domestic situations.

Japan's productivity movement and the Quality Control (QC) method were promoted by the business community, although public policy also played a supportive role. Three non-profit, private organizations spearheaded the initiative of QPI in Japan during post World War II reconstruction and the period of high economic growth; the Japan Management Association (JMA), the Union of Japanese Scientists and Engineers (JUSE), and the Japan Productivity Center (JPC). These organizations, in collaboration with private companies and public bodies, dispatched study missions to the US and Europe, organized training and seminars, published newsletters and learning materials, and created awards. Collaboration and close interactions among academia, industry, and government have been a key feature throughout the process of local learning and translative adaptation in the Japanese quality and productivity movement. Manufacturing companies and academia developed and improved new QC tools, overhauled their own production systems, and improved the quality of their products to be competitive in the international market. As a result, together with other complementary measures taken by the government, Japanese industry performed magnificently in the 1960s-70s and the country became one of the leading industrial economies in the world.

Singapore's productivity movement was led by the government and introduced to both public and private sectors as a conscious policy effort to change the mindsets of broader segments of the society. Since middle of the 1960s, national productivity organizations in Singapore have evolved according to the stages of development and the needs of the Singaporean

economy. The Singaporean government launched its nationwide Productivity Movement in 1981, under strong initiative by the then-Prime Minister Lee Kuan Yew. Prime Minister Lee lamented the poor work ethics of Singaporean workers and requested the Japanese government to transfer its know-how in quality and productivity improvement. Singapore was the first country that JICA provided with comprehensive technical cooperation called the 'Productivity Development Project (PDP)' to transfer Japan's know-how in quality and productivity improvement, from 1983 to 1990. Singapore introduced the Productivity Movement to both the business and public sectors, aimed at broader impacts on popular mindset change. To implement the Productivity Movement, the Singaporean government created a centralized oversight and coordination mechanism and reinforced the existing national productivity organization to perform such operational functions as public campaigns, training, consulting, research, measurement, and industrial relations.

The above brief history illustrates how these two countries have customized the technologies and know-hows learned from abroad and internalized them into own industrial systems. They showed strong aspirations to digest foreign technologies and utilize them in an effective manner within their capacity. They also confirm the importance of leadership—especially, the top national leader in the case of Singapore, and business leaders in the case of Japan—in initiating a national movement for QPI and establishing institutional mechanisms for facilitating translative adaptation. These experiences also suggest that the degree of private sector dynamism matters (Ohno 2011). Where a dynamic private sector exists (as in the case of Japan), it can take a lead in initiating, scaling-up, and sustaining a productivity movement, and the government can play a supportive role. However, if the private sector is weak as in the case of many developing countries (and in the case of Singapore at that time), the government's role becomes even more important in the introduction, adaptation, and development of the productivity movement accompanied by grassroot participation.

Despite such differences, there are certain general lessons to be learnt as well as common methods and instruments for success. The experiences of Japan and Singapore suggest that the six factors are critical for designing and implementing a national movement that can successfully transform the mindset of the people. They are: (i) national commitment to a quality and productivity movement; (ii) an institutional infrastructure for quality

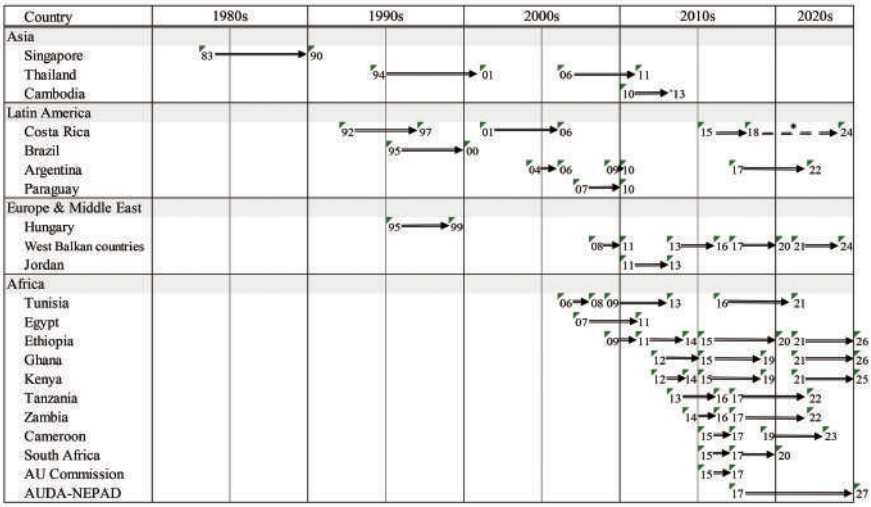
and productivity movement; (iii) grass-roots awareness raising and participation; (iv) standardized training and consulting programs; (v) industry-academia-government partnership for quality and productivity movement; and (vi) the development of private sector capability to sustain quality and productivity improvement. These factors can be valuable when we examine the process of *Kaizen* movements in African countries and are referred to in case studies of African countries in some other chapters of this volume.

Chapter 2 also presents the three-staged process of technology transfer comprised of learning, adaptation, and diffusion, to provide an analytical framework for understanding the process of translative adaptation that is explained in Section 3 of this overview. This three-staged process of technology transfer is a basic principle of our interpretation of how translative adaptation takes place within local society.

2.2. Kaizen promotion in Africa

The African economy stagnated from the 1980s to mid-1990s. This was, as Hirano (2002) said an 'economy without growth,' and many countries faced the challenge of shrinking Gross Domestic Product (GDP) per capita due to higher population growth than economic growth. Under such circumstances, the main focus of development cooperation with Africa by the Development Assistance Committee (DAC) members of the Organisation for Economic Co-operation and Development (OECD) was on the social sector such as basic education and health under the framework of the Millennium Development Goals (MDGs) adopted by the General Assembly of the United Nations (UN) in 2000. Until the early 2000s, major OECD countries were not interested in supporting industrial development in Africa.

From the early 2000s, the economies of African countries started to record significant growth. The average annual GDP growth of sub-Saharan Africa reached 5.2 per cent during the period of 2000-10 (World Bank 2020). The fourth Tokyo International Conference on African Development (TICAD IV) was held in 2008 under the theme of 'Boosting Economic Growth,' and included accelerated industrial development as one of the major focused areas (MoFA 2008). Economic transformation in Africa has become a key issue in the 2010s, and the African Development Bank (AfDB) has highlighted the structural transformation of economy as shown in its



* JICA supports Dominican Rep., El Salvador, Nicaragua, Guatemala, and Honduras in collaboration with Costa Rica.

Source: Jin (2018), modified and updated by the authors.

Figure 1.1. Countries/Organizations and Periods of Major JICA Projects on Quality and Productivity Improvement (QPI) as of June 2021

Annual Report in 2012 (AfDB 2012).

Leading such a new ODA trend in industrial development in Africa, JICA started its development cooperation projects in the field of QPI/*Kaizen* in the middle of 2000s. As shown in Figure 1.1, the first QPI project in Tunisia started in 2006, the second and third projects followed in Egypt in 2007 and Ethiopia in 2009, respectively.[4] JICA-supported QPI/*Kaizen* projects further increased in additional six countries and two international organizations in the African continent. At the occasion of TICAD VI in 2016, the Japanese government announced to cooperate with the then New Partnership for Africa's Development (NEPAD) Planning and Coordinating Agency (currently, the AUDA-NEPAD) to spread *Kaizen* throughout Africa (MoFA 2016).

[4] JICA dispatched four short-term senior volunteers to Zambia in 2008 who triggered *Kaizen* promotion in the country although their dispatch is not categorized as a project in JICA's record (JICA et al. 2016).

Table 1.1. List of Organizations Involved in AKI as Potential Nominators of AKA

Country	Institute	Remarks
Botswana	■ Botswana National Productivity Center	PAPA member
Burkina Faso	■ Burkina Association for Quality Management (ABMAQ)	PAPA member
Cameroon	■ Division of Study, Project and Planning, Ministry of SME, Social Economy and Handicraft (MINPMEESA)	JICA project
Egypt	■ Kaizen Center, Ministry of Industry and Trade	JICA project
Ethiopia	■ Ethiopian Kaizen Institute (EKI)	JICA project
Ghana	■ National Board for Small Scale Industries (NBSSI)	JICA project
	■ Management Development and Productivity Institute	PAPA member
Kenya	■ Kenya Institute of Business Training (KIBT)	JICA project
	■ National Productivity and Competitiveness Center	PAPA member
Malawi	■ Technical, Entrepreneurial and Vocational Education and Training Authority (TEVETA)	PAPA member
Mauritius	■ National Productivity and Competitiveness Council (NPCC)	PAPA member
Namibia	■ Productivity Promotion Unit, Ministry of Labour, Industrial Relations and Employment Creation	PAPA member
Nigeria	■ National Productivity Center of Nigeria	PAPA member
South Africa	■ Automotive Industry Development Center (AIDC)	JICA project
	■ Productivity South Africa (PSA)	PAPA member
Tanzania	■ Tanzania Kaizen Unit, Ministry of Industry, Trade & Investment	JICA project
	■ National Institute for Productivity	PAPA member
Tunisia	■ Management Unit of the National Program of Quality and Productivity Promotion (UGPQP)	JICA project
Zambia	■ Kaizen Institute of Zambia (KIZ)	JICA project
	■ National Productivity Development Department (NPDD)	PAPA member
Zimbabwe	■ Zimbabwe National Productivity Institute (ZNPI)	PAPA member

In 2017, JICA and the current AUDA-NEPAD signed the letter of agreement on AKI, which is a ten-year joint initiative to promote *Kaizen* in Africa. AKI has four pillars of activities, namely: (i) advocating *Kaizen* at the policy level; (ii) creating and strengthening the functions of the center of excellence (COE) for *Kaizen*; (iii) standardizing *Kaizen* in Africa; and (iv) networking with *Kaizen* promotion institutions around the world. While this initiative was started as a coordination framework for AUDA-NEPAD

and JICA's *Kaizen* projects in eight countries,[5] it has gradually expanded to involve all the member countries of PAPA. As of 2021, 21 organizations in 16 countries are fully or partially engaged with AKI (see Table 1.1). QPI/*Kaizen* has become a brand of Japanese cooperation in industrial development in Africa, and AKI aims to create momentum to promote *Kaizen* among policy makers in Africa and to promote the mutual learning of good practices among African countries.

In this way, *Kaizen* promotion has gained momentum, and the structural transformation of the African economy from an agrarian-based to industry- and technology-based one has high priority (AU 2014). However, the African economy has again been slowing down (from the late 2010s), and the average per capita GDP growth in US dollars in sub-Saharan Africa has become negative since 2016 (World Bank 2020). Furthermore, the COVID-19 pandemic that broke out in early 2020 is affecting economic activities and the movement of people, including the tourism industry that is one of major business activities in Africa. Therefore, economic competitiveness has become a critical and challenging issue again. Efforts towards QPI are becoming even more important in the current context of structural transformation in Africa. The next section will review the major features of QPI/*Kaizen*, their historical evolution, and our ongoing efforts to promote *Kaizen* in Africa.

3. Cross Cutting Issues in This Volume

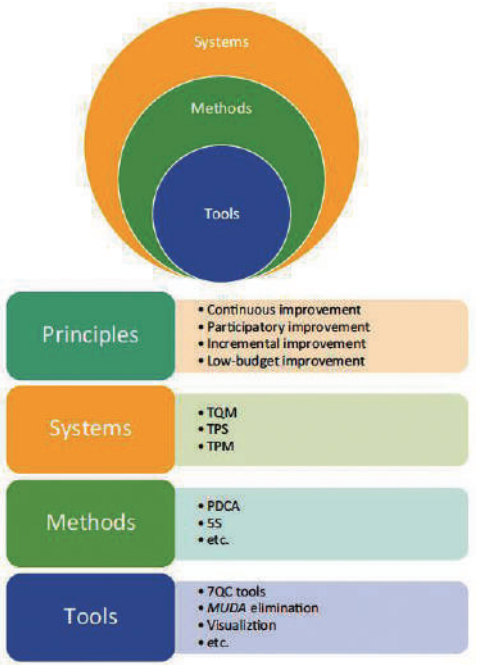
3.1. The definition of Kaizen

Kaizen in Japanese is a general term that means improvement. However, *Kaizen* as a technical term in management is a comprehensive knowledge structure of QPI and has become an English term.[6] Regarding the latter, the major characteristics of the structure are continuous, participatory, incremental, and less resource-oriented but knowledge-driven features. Although there are various definitions of *Kaizen* based on the context and activities of its implementation, the following are some of these that are often referred to in JICA's cooperation projects.

Sonobe (2018) defines *Kaizen* in the context of its promotion in Africa.

[5] Egypt (MoIT) has participated in AKI activities since 2020 as the 9th country.

[6] The Oxford Dictionary of English (2003) indicates that *Kaizen* is 'a Japanese business philosophy of continuous improvement of working practices, personal efficiency, etc.'



Source: Sonobe (2018).

Figure 1.2. *Kaizen* Tools, Methods, Systems, and Principles

Based on discussions with *Kaizen* experts working for JICA projects, he regards it as the management philosophy and know-how that brings about continuous, participatory, incremental, and low-budget improvements in quality, productivity, cost, delivery, safety, morale, and environment (or QPCDSME). It is also a collection of ideas and insights that many managers and workers from firms in the manufacturing and service sectors have created and refined through observations and experiments carried out over several decades in Japan and other parts of the world (p. 4). He further adds that *Kaizen* contains a variety of knowledge at different levels that are called systems, methods, and tools as illustrated in Figure 1.2 (Sonobe 2018).

There are many concrete *Kaizen* tools and methodologies to improve quality and productivity in workplace. 5S (sort, set in order, shine, standardize, and sustain) is the most fundamental one for the purpose of improving the work environment to make it more efficient. *Muda* elimination is an activity to identify and eliminate actions and processes that do not produce

any additional value. Standardization of the production process can lead to an optimum operation plan that consists of the required manpower, the skill levels of workers and the cycle time of each step, which works as a benchmark to identify problems and points to be improved. Seven QC tools are the control chart, Pareto chart, cause and effect diagram, check sheet, histogram, stratification, and scatter diagram, all of which are used to sort out data, analyze current problems, and identify countermeasures. A QC story is a standardized procedure for problem-solving or task-achieving. QC circle is a unit of small group activities organized at the workplace to improve work on the production floor. Total Quality Management (TQM) is a comprehensive system that includes ideas, tools, mechanisms to maintain and improve quality in general at companies, and Total Productive Maintenance (TPM) is a system to maintain the health and efficiency of machines used in operations.

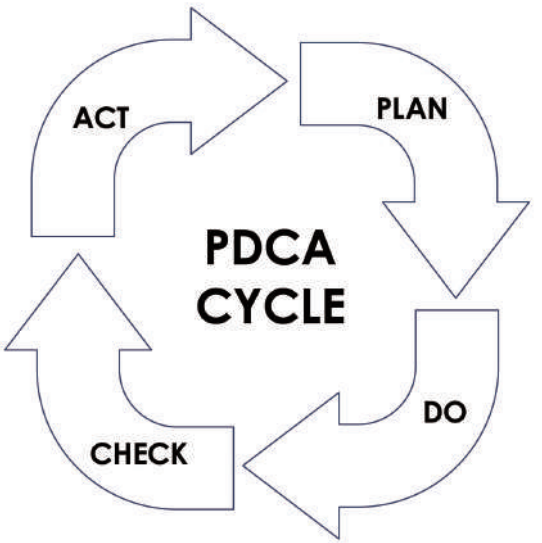
JICA's *Kaizen Handbook* (2018) states that people have different views and perspectives on the understanding and scope of *Kaizen*. The handbook directs that the core value of *Kaizen* is found in creating the attitudes shared among all members of an organization who consistently pursue advanced levels of quality and productivity, not just in applying its management methods (p.1-1). Imai (2012), in his popular publication *Gemba Kaizen* (second edition), contrasts *Kaizen* and innovation and states that *Kaizen* is often undramatic and subtle, based on commonsense and low-cost approaches, ensures incremental progress that pays off in the long run and is a low-risk approach. According to him, managers can always go back to the old ways without incurring large costs. On the other hand, innovation brings a major change in the wake of technological breakthroughs and the latest management concept or production techniques. It is dramatic, a real-attention getter but one-shot and its results are often problematic (p. 2). Such a contrast between *Kaizen* and innovation is a typically observed perception. However, in Chapter 6, Takeuchi comprehensively discusses the relation between *Kaizen* and innovation in the context of business in Africa and suggests that *Kaizen* and innovation are integral to each other. His analysis is consistent with other arguments made by JICA's *Kaizen Handbook* (2018, 1-9) and Sugimoto (2018, 73).

Garcia-Alcaraz et al. (2018) point out a cultural aspect of *Kaizen*, noting that the Japanese understand and accept that the world is changing and can always be improved. They stress that *Kaizen* is a still evolving term, leading to different meanings depending on the time and organizational

context where it has appeared (pp. 15-16). They further state that *Kaizen* is expanding to other domains, not only within the industrial sector, but including human resource training, healthcare, construction, and even in the public sector as a means to improve educational programs and administrative processes (pp. 29-30).

QPI can be regarded as a broader concept that includes *Kaizen* as a part of its methodology. However, as explained above, *Kaizen*, as a technical term,[7] consists of several critical issues that are not covered in the concept of QPI. They are: (i) creating the attitude shared among all members of an organization who consistently pursue advanced levels of quality and productivity; and (ii) seeing *Kaizen* as an evolving term, leading to different meanings depending on the time and organizational context. One interesting point to be noted in this volume is the relationship between QPI and human resource development (HRD). In the narrow concept of QPI, HRD is one of the inputs or processes to achieve a better quality of products/services, hence customer satisfaction. However, in the concept of *Kaizen*, HRD is one of the valuable outputs of the activities because workers can develop their own skills and knowhow through *Kaizen* activities. This is one of its important objectives because a company exists not only to meet the needs of customers and shareholders but also for creating benefits for its workers and members. This may be a fundamental difference between Western-type business management theory that is based on linear thinking of cause-and-effect to achieve an objective and *Kaizen*-type management that values HRD as an important output while using it as an input as part of *Kaizen*'s continuous cyclical process (such as the PDCA cycle, see Figure 1.3) of improvement. Recently, the discussion on the multiple purposes of a company, including human dimensions (e.g., the rights of workers), is gaining momentum in Western business forums. For example, there is increasing awareness of 'stakeholder capitalism' which considers the need of various stakeholders such as employees, suppliers, and customers, in contrast with the orthodox 'shareholder capitalism' which only focuses on profit maximization of companies (Hosono 2020). In this context, we reiterate that HRD is regarded as both output and input of *Kaizen* activities under the assessment process of AKA.

[7] There are various interpretations of *Kaizen* even as a technical term. In JICA, *Kaizen* is used as a set of methodologies and tools. In the Toyota Motor Company, *Kaizen* means activities designed to upgrade the level of management (Sakai 2016). This is because *Kaizen* is a general term that is commonly used in Japanese companies.



Source: Authors.

Figure 1.3. PDCA Cycle

Kaizen is often called a Japanese business philosophy (Sonobe 2018). While the word 'philosophy' creates a mysterious and vague image that may be difficult to learn and less universal, we argue that placing high value on HRD and the continuous nature of practices is an essential element of *Kaizen* philosophy. We would like to make *Kaizen* scientific and pragmatic by disaggregating it into various concept and methods.

3.2. Evolution of Kaizen concept and practices

Kaizen is an evolving term, and this is consistent with the above-mentioned characteristics of its continuous and cyclical process. In fact, there are many concrete cases that explain the evolution of *Kaizen* concept. Chapter 2 shows that development of *Kaizen* was started in the Japanese private sector to learn foreign management technologies (mainly from the US). It is well known that the American method of statistical QC was the base of a Japanese-style Quality Control Circle (QCC). However, QC methodologies have been modified and adjusted to the conditions of the Japanese workplace and skill levels of workers. Seven QC tools, including an Ishikawa diagram, were developed; the activities of QCC expanded to the national level; and these were networked with regional branch offices

and magazines and newsletters. Toyota Motor Co. developed its own production systems that are well known as *Kanban* and Just-in-Time (JIT) systems, collectively known as the Toyota Production System (TPS).

Another case is that of Total Quality Management (TQM), which has been practiced in Japan and conventionally called Total Quality Control (TQC). This originated from Statistical Quality Control (SQC) learned from the US, as explained in Chapter 2. However, control in English originally implies comparison with a standard, and does not necessarily mean the establishment of a standard or plan. Because TQC deals with all aspects of business operations, it has become increasingly clear that the phrase 'quality management' is a more accurate word to convey the meaning of the activities covered under TQC. As such, Japanese TQC has come to be commonly called TQM in Western countries. JUSE which is the primary organization for the promotion of TQC in Japan declared the change of the phrase from TQC to TQM in 1996 (Kikuchi and Suzuki 2018). Although *Kaizen* is generally regarded as a bottom-up approach, it is well known that the role and commitment of the top leaders of a company is a prerequisite for *Kaizen* activities. That is because the bottom-up approach has certain limitations for total optimization (see Sugimoto (2018, 96) for total optimization) if no support is given from the top leaders who have company-wide perspectives. Combination of bottom-up and top-down approaches is an essence of TQM as well as *Kaizen*.

Six Sigma is a problem-solving method developed by Motorola, Inc. of the US in the early 1980s. It is said that this method was invented with reference to Japan's QC circle activities, factory floor *Kaizen* activities, TQC, TQM, and TPS (Kikuchi and Suzuki 2018). General Electric (GE) introduced Six Sigma to successfully carry out its wide-ranging quality upgrade program. Six Sigma was introduced not only in the manufacturing departments but also in the non-production business departments throughout the company. What was emphasized during its application process was the clear definition of who their customers were and what the focused problems and issues for improvement were (Harry and Schroeder 2000).

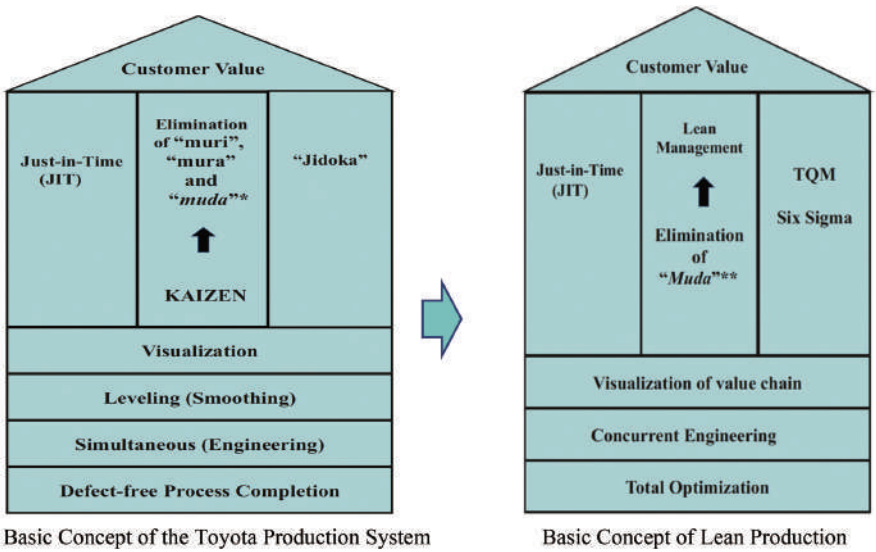
The Lean Production System (or 'Lean') was developed in the US as a method for thorough elimination of *muda* (waste) with reference to TPS in the middle of the 1990s. It has since become widely known and used by not only American companies but also European ones. Although Lean is

said to hardly differ from TPS, some researchers claim that these systems differ in several respects. Kikuchi and Suzuki (2018) quote one of the explanations of the differences between TPS and Lean shown in Figure 1.4. They argue that there are 'Japanese style' *Kaizen* and 'Western style' *Kaizen* that include Six Sigma and Lean Production. Western-style *Kaizen* as defined by them can be understood as cases of translative adaptation and we emphasize its importance in Section 3.

Apart from the evolution of *Kaizen*, there is a certain level of condemnation regarding the inhumanity of the Lean Production System. Stewart (2014) mentions that there are a number of criticisms showing that Lean is implicitly responsible for increasing levels of stress in society. He concludes that Lean firms and Lean work strategies are concerned with taking labor out of production by increasing labor and other efficiencies, at the expense of a firm's own staff here and its competitors in response to the impact of neoliberalism in the firm's external economy. Such criticism of the Toyota Production System has arisen periodically,[8] but given the evolution of *Kaizen* over the years, the criticisms of TPS are not reviewed. The latest argument focuses on the question of whether JIT is still effective or not under COVID-19 pandemic conditions that may hinder timely transportation of goods. We have to see cases in different locations and conditions to determine this.

Improved productivity through *Kaizen* generates surplus manpower on the production floors. This situation leads to the question of who should be removed. Sugimoto points out that a better way of labor saving after the application of *Kaizen* is to select excellent workers from the improved production floor and to assign them to more creative jobs (Sugimoto 2018, 100). This is how to improve productivity and expand the business based on *Kaizen* activities. However, its result may be influenced by labor-management relations in the company as well as shared norms in the labor market when Lean is introduced. In the situation where dynamic labor management including relatively easy lay-offs is common, the application of Lean may result in making the surplus workers redundant given their inferior workplace competence, which surely will kill off the initiative of *Kaizen* that depends on bottom-up participation. Our recent

[8] In the initial stage of development of TPS in the early 1970s, Kamata (1973) disclosed a story of automotive factory workers in Toyota. His report was based on his own experience as a seasonal worker in the factory and presents a vivid reality of working conditions in the 1970s.



Source: Kikuchi and Suzuki (2018).

Figure 1.4. Comparison of the Toyota Production System (TPS) and Lean Production

research (JICA and JIN Corporation 2021) suggests that in the case of Africa, most business managers are conscious about the job security of their workers and that layoff is not an easy option due to restrictive labor laws. So, criticism of *Kaizen* as an exploitive system may not be warranted.

We all know that human beings are not machines. Hence, when an analytical and scientific approach is introduced, the human elements as shared vision and participation should be also strengthened. Otherwise, there is a risk that the stringent application of mechanical and scientific tools may lead to an exploitative system. In the end, a participatory and bottom-up approach relies on the consent and support of workers on the floor where we face problems. Therefore, HRD is essential. It is often said that any methodologies and tools can be modified according to the circumstance and environment of their recipients if they are transferred to foreign countries and societies. However, we need to understand the varying degree of sensitivity of methodologies and tools. Obviously, a participatory system is more sensitive to differences in culture and environment than a top-down system when it is introduced to another country. In addition, a voluntary participatory approach can give

opportunities and choices to the workers who want to change the status quo and improve their own work.

3.3. Customization and translative adaptation[9]

Apart from the historical evolution of QPI/*Kaizen* methodologies in Japan and the US, Mekonen (2018) who is a co-author of Chapter 2 and the author of Chapter 3, and Jin (2018, 2020) argue the importance of customizing *Kaizen* practices in the African context while applying standardized methodologies for *Kaizen*. The arguments are derived from practical experiences of Mekonen and Jin through *Kaizen* promotion in Ethiopia from 2009 to now. Mekonen was a head of the *Kaizen* unit of the Ministry of Industry and Trade when JICA's project started in 2009 and served as the first Director General of the Ethiopian Kaizen Institute (EKI) from 2011 to 2016 when that *Kaizen* unit was elevated to EKI. Through actual working experience, Mekonen strongly advocates the importance of customizing *Kaizen* methodologies taught by JICA experts for Ethiopian situations.

The concept of customization includes flexible application of *Kaizen* methods and activities to modify them based on the local reality that workers and managers face in respective shop floors (*Gemba*). For such flexibility, it is important to understand the working conditions, skills and capacity of workers, and their constraints at the micro level, as well as the characteristics and practicality of *Kaizen* methodologies on the other hand. To this end, it is fundamental to promote interactions between the insiders who are in a company and have detailed knowledge of operations and the outsiders such as JICA experts who can bring different views with technical knowledge about *Kaizen*. This is a process of knowledge co-creation advocated by Nonaka (Nonaka 1991; Nonaka and Toyama 2003).

Customization also implies the importance of ownership and responsibility for the recipient side of management technology transfer to accomplish learning, based on their own strategies, priorities and aspirations to achieve outputs. In the case of Ethiopia, the transfer of *Kaizen* was directly requested by the then Prime Minister of Ethiopia so that consecutive

[9] See also the Overview (Chapter 1) of Volume 1 (industrial policy) of this research project (Ohno et al. 2022) regarding discussions on the concept of translative adaptation and local learning.

JICA projects received strong support and resource allocation from the government. The achievement of the EKI in implementing projects and scaling-up nationwide encouraged the governments of Ethiopia and Japan to strongly support *Kaizen* promotion in the country. The Ethiopian side insisted the JICA project should work on the Kaizen Promotion Team (KPT), which is the Ethiopian customization of group activities as an intermediate of the QCC and multifunctional team. EKI also developed a strategy for promoting national movement that was named TIISO (Test, Institutionalize, Implement, Sustain, Ownership). The Ethiopian side initiated the scaling-up process of *Kaizen* application to state-owned enterprises and the public sector using their own budget because it was priority of the government despite being outside the scope of the JICA project. The project formulation and customization process observed in Ethiopia was a truly demand-driven process.

Customization in a broader sense means incorporating the issues related to the norms and culture of the society into our practices. For example, we have to consider the existing labor laws and bylaws, labor-management relations in a company, employment systems, and the motivation and skill level of workers from a broader societal perspective, when foreign experts want to introduce a new system to the company. A concrete example is how to operate QC circle, which is recognized as a volunteer-based after work activity in many companies in Japan. However, in many African countries, successful QC circles activities are operated within working hours (Uesu 2011) and recognized as tasks assigned by management (Mekonen 2018). Through the accumulation of such customization cases based on social norms, technology transfer between societies with different cultural backgrounds and their adaptation to new society can be promoted. These viewpoints are particularly important when the government formulates a policy and strategy for scaling-up *Kaizen* to the level of a national movement. Another important point is about the mindset change of workers in Ethiopia. In Ethiopia, national leaders especially Prime Minister Meles Zenawi and his successor, Prime Minister Hailemariam Desalegn keenly recognized a potential role for *Kaizen* in transforming people's mindset toward hard-work, teamwork, and creativity and stimulating private sector dynamism. This is why the Ethiopian government decided to promote *Kaizen* as part of its industrial policy and launched a national movement (Ohno 2018). The introduction of *Kaizen* initially focuses on factories, but later can been expanded to other entities including educational institutions and even kindergartens. In fact,

Mekonen (2018) and Jin (2018, 2020) report and argue the mindset change of people in Ethiopia brought by *Kaizen* practices. Mindsets of people is a highly cultural issue to be shared among the society as Jin notes in his Japanese article (2021).

While there are varieties of tools and methodologies under the umbrella of *Kaizen*, we can divide them into two types. One type consists of those technical tools/methods based on the utilization of scientific data and statistical calculation that are less influenced by cultural issues. Another type comprises social tools and methods such as group activities and incentive systems that are influenced by social and cultural issues. Because of its participatory nature, *Kaizen* incorporates sensitive tools and methods for accepting cultural differences or adjusting its practices—for example, by receiving inputs through suggestion systems and group works—into scientific data based analytical approaches (Jin 2018).

It is well known that the transfer of technologies and knowhow between countries and societies are influenced by natural and social environments. The history shows that the dissemination of agricultural technologies and the prevention of infectious diseases heavily depends on the natural environment, and hence the social factors in their area (Diamond 1997). Therefore, in the field of technology transfer in agriculture and natural resource management, knowledge of vegetation and soil possessed by the people on the recipient side serve as crucial inputs for the successful development of appropriate technologies. Participatory knowledge co-creation is vital and should be a functional feature for development cooperation in agriculture and natural resource management. Technology transfer in the field of education, public administration and even small- and medium- enterprise (SME) development is also affected by cultural and social factors because these fields are closely related to human behavior. Tools and methodologies that have limited cultural sensitivity may not be effective in technology transfer in these fields.

Regarding the transformation of knowledge and technologies through transfers between societies and nations, we consider it important to understand the process of 'translative adaptation' introduced by Maegawa (2000), a Japanese economic anthropologist. According to Maegawa, translative adaptation is about the adaptive acceptance of advanced systems and new cultures by developing countries in the process of modernization. It is a process under the influence of culture on

the recipient side. Maegawa explains the concept of translative adaptation as follows, in the context of interaction of various factors between Western society and traditional society:

> Factors brought from modern Western Civilization are not simply introduced to a local society as their original forms. Instead, people in the local society rather translate (reconceptualize) external structures of the factors (or events that express the structures) by using the existing internal structures of the local society. Namely, reactions of people in a traditional society are intermediated by such the internal structures. The marginalized traditional societies have been adjusting their cultural systems and factors to the foreign cultural systems and factors that are originated from global powers of capitalism. However, the societies do not entirely change their traditional ideas and values but do adapt and half-maintain their original ideas and values through translation (reconceptualization) of foreign cultural factors into own existing cultural structure. I shall call this process 'translative adaptation.' (p.35)

Although Maegawa explains translative adaptation as an economic anthropological phenomenon, it fits in the formation of *Kaizen* in Japan that are a product of the modification process of technologies brought from the US into its own cultural factors. Here, we would like to stress that development cooperation should duly recognize the importance of supporting translative adaptation within partner countries through the process of technology transfer. And note that, for translative adaptation, people who examine foreign technologies from the viewpoint of the inside value structure of the recipient side play an important role. This is because they have intimate knowledge of the local cultural systems and factors, which foreigners seldom have. Particularly in Africa, there is significant ethnic heterogeneity in society, which is different from the highly homogeneous society in Japan. In this way, translative adaptation highlights the importance of ownership on the recipient side.

Furthermore, technology transfer in the framework of development cooperation has the characteristics of the intentional transplantation of foreign technologies, which has tendency to be organized under the asymmetric power balance between 'donors' (outsider) and 'recipient'

(insider) of the technologies. The outsiders, in many cases, bring their own past success models so that they might have a clear sense of purpose and assertions. The insiders who have less knowledge and experience about the foreign models may feel a difficulty in proposing alternative models even if they foresee challenges based on their own contextualization and interpretation of the foreign models. Also, it is less likely that the outsiders would consider counter-proposals made by the insiders because there might be little evidence that guarantees their success.

Under such an asymmetrical relationship in technology transfer, the outsiders must be mindful of understanding values and the implications of translative adaptation and proactively accepting the views and propositions presented by insiders. Moreover, if the insiders and the outsiders can co-create new knowledge through their interactions, it may add dynamic and creative values and broaden the concept of translative adaptation. Thus, translative adaptation can not only be an economic anthropological phenomenon, but also a basic concept to be shared among practitioners who work on knowledge/technology transfer between nations or societies.

When the insiders practice translative adaptation of technology intentionally or unintentionally, such practices are similar to what Stiglitz advocates as local learning, that is a practice to learn knowledge from outside, to modify it based on the country-specific condition and to promote it (Stiglitz and Greenwald 2014). Local learning in this context is a process of reconceptualization of the obtained information through the value structure of users, which is indigenous learning practice. This process requires strong ownership over the process, as well as independence and self-directed initiative that someone shows by acts based on their own will, judgement, and responsibility. Independence and self-directed initiatives are a part of the core capacity that consists of will and motivation in the context of capacity development theory (Jin 2020). The concept of core capacity and non-cognitive skills are discussed in Chapter 7.

Although customization and translative adaptation are not synonymous, we use both of them interchangeably in this volume because our argument over customization in *Kaizen* promotion is in the context of inter-national knowledge and technology transfer in development as well as development cooperation (see Jin 2018, 36-39). In this argument,

knowledge is always linked with the culture and environment from which it comes. And knowledge is deliberately interpreted to be applicable to the social values and environment that it goes to.

The question is how we can ensure effective translative adaptation in the development process instead of the mechanical application of technology that comes from outside of the society. We argue that both the recipients and suppliers of knowledge should be cognizant of the value of translative adaptation and pay significant attention to the value structure and institutions of the recipient side. Moreover, the recipient side needs to play a proactive role in adaptation and the supplier side needs to create an enabling environment for it.

3.4. Knowledge co-creation by enhancing the practice-research nexus

The research topics of this volume are closely linked with the ongoing projects of Japanese development cooperation for *Kaizen* promotion in Africa, especially the Africa Kaizen Initiative (AKI). Some of the authors are directly involved in the initiative and struggling how to implement technology transfer in an effective manner. Chapters 3 and 4 are written by practitioners who are directly engaged in JICA-supported *Kaizen* projects as well as AKI as *Kaizen* experts. Chapters 6 and 7 are written by practitioners who have worked extensively on technology transfer in Africa. These practitioners have rich tacit knowledge of *Kaizen* promotion and technology transfer through their own experience. The compilation of the volume is an effort to convert their tacit knowledge into explicit knowledge as Nonaka (1991) advocates. These efforts involve the wider stakeholders of AKI through questionnaire surveys, meetings, and discussions as an interactive process. The responses received from these stakeholders reflect reality on the ground, giving important insights into local incentive systems and organizational culture. This makes our research project powerful and practical. In addition, the researchers, and academics who wrote Chapters 2 and 5 also play key roles in *Kaizen* promotion and the broader activities of industrial development based on their academic background and practical experience.

Our research project aimed to stimulate knowledge co-creation through two types of interactions between people who have different perceptions. The first type is the interaction between the insider communities of

Africa and the outsider communities of Africa as we discussed in the context of translative adaptation. The second is the interaction between researchers and practitioners, which can promote action-research type knowledge creation and intervention on the ground. Action research aims to contribute to intervention in the field through discussion, data collection and feedback of research findings to the practitioners in the ongoing activities, which is different from conventional field research that does not aim to create change in the field (Minoura 2009). We aim to provide feedback on our research outputs to the stakeholders of AKI and will collect further responses from them to refine our findings. This approach is based on our desire to strengthen the nexus between research and practice, which always has room for further improvement or *Kaizen* as continuous efforts are made.

Moreover, when we conduct projects as practitioners, there are many issues that we do not have an answer for in advance. Even for the customization/translative adaptation process of *Kaizen*, in many cases, the right foci and points of adjustment that should be made are not known before its actual application on the ground. There is always a risk of failure as well as the potential of improvement to be better. Therefore, trial and error is an effective process. The authors of this report have tried to address the ongoing challenges faced by practitioners, for which no readymade technical solutions have been found. Therefore, while the outputs of our research may not be shaped as fine academic work, the authors of the volume have focused on real concrete problems that are considered important to achieve successful results on the ground. And useful analysis demands an intensive practical process of examination at *Gemba* in addition to desktop research.

In this regard, Schon (1987) writes the following insightful and suggestive description:

> In the varied topography of professional practice, there is a high, hard ground overlooking a swamp. On the high ground, manageable problems lend themselves to solution through the application or research-based theory and technique. In the swampy lowland, messy, confusing problems defy technical solution. The irony of this situation is that the problems of the high ground tend to be relatively unimportant to individuals or society at large, however

> great their technical interest may be, while in the swamp lie the problems of greatest human concern. The practitioner must choose. Shall he remain on the high ground where he can solve relatively unimportant problems according to prevailing standards of rigor, or shall he descend to the swamp of important problems and non-rigorous inquiry? (p. 3)

Although he describes professional practitioners, the comment is applicable to the relationship between researchers and practitioners. Actual practices on the ground involve various problems that are changing day by day whether academics like it or not. So, practitioners are more interested in getting something useful for their ongoing activities, such as supportive evidence or constructive suggestions for the practical solution of various problems that they are facing, rather than interventions that make their practices more complicated or diverted. On the other hand, researchers may want to present concrete and reliable evidence that can be obtained from a manageable and promising research framework. Because there is a potential gap between what practitioners want from research activities and what academics want to create as academic outputs, the linkage between research and practice remains as a challenging issue. However, as we advocate the importance of industry-academia-government partnership in Chapters 2, 3, and 4, it is valuable to demonstrate a concrete case of collaboration between researchers and practitioners in our research activities.

Chapters 3, 4, and 5 of this volume are derived from the information and discussion on AKI activities. To make our action research effective, our current outputs as compiled in this volume need to be reexamined as practice and used as inputs for the implementation of QPI/*Kaizen* activities and AKI. The Africa Kaizen Annual Conference and the working group activities of for the AKI action plan are opportunities to interactively examine the findings and also collect feedbacks from broader practitioners, which is useful practices for both researchers and practitioners. As *Kaizen* is a continuous and cyclical process, our action research needs to go through a cyclical process while sharing outputs to the public.

4. Structure of This Volume

Based on review of the Japanese and Singaporean experiences of

introducing and promoting QPI movements in Chapter 2, the following chapters present various approaches of research that contribute to the upgrading of ongoing activities of the project and our initiative.

In Chapter 3, Mekonen analyzes the implementation modalities of bilateral cooperation projects for *Kaizen* promotion in seven partner countries that participate in AKI. He examines a wide range of issues that include expenditures, institutions, strategies, relations with the AKI that is an umbrella framework of cooperation between Japan and African organizations, the detailed practices of *Kaizen* consultants at the firm level, and how each country customizes *Kaizen* practices. His analytical framework is developed through his rich experience as a key promoter of *Kaizen* movement in Ethiopia and an expert who has been contributing to the implementation of AKI. Based on intensive review of project reports and questionnaire surveys addressed to the heads of *Kaizen* promoting institutes/units, Mekonen reports differences of approaches and progress of each of the JICA-supported cooperation projects in the seven countries. He presents eight recommendations to the institutions/units responsible for *Kaizen* promotion in the respective countries in Africa. These are the need to: (i) consider both short-term and long-term costs and benefits; (ii) secure tangible contributions to national development under crafted roadmap; (iii) take advantage of the current institutional arrangement in each country; (iv) introduce a cost-sharing system with companies or fee-based consultation, (v) standardize *Kaizen* training and consultancy services; (vi) involve scholars/academics in project implementation; (vii) customize and utilize team/circle activities of *Kaizen*; and (viii) prepare executive briefing notes for policy makers. These recommendations are presented from the viewpoint of an African expert, an insider at the continent level but an outsider at the country level and also have commonality with the six factors articulated in Chapter 2. It is important to mention that some of these recommendations have been already incorporated into the AKI process as activities of the working group.

In Chapter 4, Kikuchi compares institutions and activities of QPI promotion in Tunisia and Ethiopia. He was a consultant who worked for JICA-supported *Kaizen* projects in both countries at different times. Three pillars of his analytical framework are also developed through his working experience as well as a series of his academic achievements, and these are: (i) clarification of the vision, policy, and strategy; (ii) establishment of the mechanism, organization, and system; and (iii)

development and accumulation of capacity as the subject matters for comparison. Based on a comparative analysis of two countries including similarities and differences of their approaches to *Kaizen* promotion, he identifies that the institutional setting in Tunisia is a collaborative type based on the networks of several technical centers and that in Ethiopia is an independent type centered by strong core institute, EKI. He argues that, although Tunisia has not established a full-fledged core institution equivalent to Ethiopia's EKI, the country may be in a better position to master advanced *Kaizen* technologies as the next step. That is because UGPQP, a core institution of *Kaizen* promotion in Tunisia, can mobilize knowledge on inherent technologies of each sub-sector of industry from collaborative centers. In contrast, EKI may face challenges in the learning and dissemination of advanced *Kaizen* because of its weak collaboration with industrial development institutions that have knowhow of inherent technologies in the country.

In Chapter 5, Faull analyzes a process of the Africa Kaizen Award (AKA) and modality of the Africa Kaizen Annual Conference (AKAC) in 2019. The AKA was established in 2019 as the first trial of cross continental award for *Kaizen* practitioners. Faull is a member of the examination committee of the award and has been deeply engaged in the selection process of awardees as a practitioner. As a researcher, he reviews the award process and keeps valuable records for practitioners to learn from the process. He also analyzes the evaluation criteria of the award through comparison with the criteria of similar awards in the world. He further analyzes the result of questionnaire surveys addressed to the nominators and nominees of the award by demonstrating numerical methods of data processing although the sample number is small. His framework of analysis gives valuable advice to the practitioners of the award on how to improve awarding system. He presents several recommendations that include: (i) rearrangement of the evaluation process of AKA and redesign of the sessions of AKAC so as to accommodate participants, namely nominators and nominees who have different interests; (ii) periodic review of the evaluation criteria of AKA and sharing knowledge and information with and learning from the Global Excellence Model Council; and (iii) follow up activities to visit the awardees and nominators to promote awareness and adoption of *Kaizen* as well as to boost the prestige of the award winner. He further commented on the importance of translative adaptation and urges national industry associations and government departments in Africa to make concrete and resolute efforts to adapt *Kaizen* to their own country

context.

Chapter 6 by Takeuchi is the output of the theoretical consideration of the relationship between innovations and *Kaizen* and the opportunities of innovation in Africa. While *Kaizen* has been promoted in Africa, there is an argument that innovation is more important than *Kaizen* in economic development. The author of this chapter is an IT specialist working for Africa. He sorts out various concepts of innovation, such as radical/incremental, disruptive/sustaining, and product/process/service/business model innovations and *Kaizen* approaches. He argues that: (i) disruptive innovation involves incremental innovation within itself, and *Kaizen* contributes to this incremental innovation process during the period of business development; and (ii) the first step of innovation is to discover worthy problems and this ability can be cultivated by acquiring the philosophy of *Kaizen*. He further argues, based on the case of M-PESA, a disruptive innovation in the money transfer system in Kenya by using airtime transfer systems on mobile phones, that Africa has more business opportunities than in developed countries because there is enormous room for innovative solutions due to a lack of public and private services.

Chapter 7 by Jin focuses on the features of human development in *Kaizen* activities. Jin argues that, through *Kaizen* activities that include groupwork, voluntary participation, and suggestions of own ideas, workers can develop own non-cognitive skills such as communication skills, teamwork, empathy, and motivations. The groupwork in a team consists of members who share similar mindset to realize improvement can also foster perseverance of the members and 'yes, we can' type way of thinking. And such non-cognitive skills are increasingly important in the current development of digital technologies because the tasks that cannot be replaced easily by digital technologies are related to non-cognitive skills. Although *Kaizen* in English is used as a technical term for QPI in manufacturing industry, *Kaizen* mindset implies much broader sense that encourages and stimulates any efforts towards improvement, as the original meaning of Japanese word suggests. With the word of *Kaizen*, people can try many things to realize change for better. Therefore, if a company or organization can create *Kaizen* mindset-type culture with continuous efforts, the organization can become more resilient and adaptable to change. And continuity may ensure that the organization keep adaptability while adapting to new situation in the current changing business environment.

5. Conclusion

Knowledge is always linked with the culture and environment from which it originates. *Kaizen* methodologies and tools are also influenced by the work ethics and labor-management relations where they are born. Therefore, *Kaizen* technologies need to be customized for sustainable utilization at the place where they are applied. We call this process translative adaptation because international knowledge transfer under the framework of overseas development cooperation is often influenced by cultural differences. The asymmetric power balance between the provider and the recipient of knowledge is the point of contention. In the context of development cooperation, the outsiders are the ones who need to understand the values and implications of translative adaptation and proactively accept the views and propositions presented by the insiders.

Kaizen promotion in the countries under the framework of AKI shows a variety of progresses and achievements, although one of the four pillars of AKI is standardizing *Kaizen* in Africa. There are significant differences, especially in institutional arrangements, which may show different types of pros and cons depending on the stage of development and the level of skills in each recipient country. It is recommended to take advantage of current arrangements because these differences are concrete cases that may give a foundation to translative adaptation processes in each country. However, it is also important to share information and promote mutual learning among African countries that can accelerate translative adaptation at the continental level, or we may say, the Africanization of *Kaizen*. We can learn from experiences in each country, select those that are applicable to neighboring countries or regions, and make them standard models within the African environment. This is a step toward standardization. At the same time, standardization serves the objective of *Kaizen* promotion at the company and the national levels—only when there exist committed leaders in the private and public sectors. We would like to recall that in both Japan and Singapore clear and senior leadership was evident. This was also true in Ethiopia under the then Prime Minister. Leadership at the national and the company levels will be also necessary for effective translative adaptation, although this may not be sufficient.

Philosophy is a theory or attitude that acts as a guiding principle for behavior. What is a guiding principle of *Kaizen* as a business philosophy if there is any? Here, our answer is that it is a human-centered approach

that places higher values on benefit sharing with workers and a cyclical approach rather than profit maximization of shareholders. When we talk about Africanization of *Kaizen*, principles that are shared among African business-people can be reflected in *Kaizen* as the human aspect of 'Afrikaizen' or whatever we call it. Some of the possible entry points for 'Afrikaizen' may be found in the incentive mechanisms that make *Kaizen* promotion effective in African work ethics, the tools that fit with the practices of female entrepreneurs in African SMEs, as well as the utilization of digital technologies adoptable in Africa.

The landscape of business and job opportunities is rapidly changing due to technology development and COVID-19. Under such evolving environment, continuity of *Kaizen* is particularly important. While the importance of translative adaptation cannot be overemphasized, we should also recall the words of an American organizational theorist that 'adaptation can preclude adaptability' (Weick 1979). Under the current changing situation, we need to keep adaptability while adapting to new situation, which seems to be a trade-off. However, continuity of *Kaizen* is the answer to maintaining adaptability while adapting, which becomes more and more important in the current world. And how we can stimulate our own adaptability critically depends on our own mindset because we have to choose our way under a balance of perpetuation of the status quo and the force for change.

As we have reviewed in this chapter, QPI/*Kaizen* promotion in Africa has so far made significant progress. But, there remain challenges how it can contribute to the creation of tangible impacts on the macroeconomy and their sustainability in Africa, together with other policy measures. This is an ongoing process that we do not have a ready-made answer on how to proceed. Therefore, it is a knowledge co-creation process in Africa through interactive communication between the insiders and the outsiders who have different views and contexts. And the nexus between practice and research also accelerates the process. We live in a changing society which is experiencing accelerated globalization and technology revolution. And the COVID-19 pandemic adds further unforeseeable factors. However, *Kaizen*-type continuous improvement and its mindset to make things better may help us adapt our own business to the changing environment.

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CHAPTER

2

National Movements for Quality and Productivity Improvement in Japan and Singapore: From a Perspective of Translative Adaptation[1]

Izumi Ohno and Getahun Tadesse Mekonen

1. Introduction

This chapter focuses on the experiences of national movements for quality and productivity improvement in Japan and Singapore. These are two countries that successfully learned management technologies to improve quality and productivity from abroad, with customization, and diffused them at the national level by elevating them as a national movement (Ohno 2011; Yanagihara et al. 2018). The chapter conducts case studies of the two countries and analyzes key factors for success, to provide concrete information to today's developing countries which are keen to learn and develop home-grown national mechanisms for quality and productivity improvement.

1.1. What is national movement and why necessary?

National movements are nationwide engagement to involve the entire population for a decade or more, to transform the popular mindset toward hard work, teamwork, and creativity (Ohno 2011). In the 1950s, Japan launched a *Kaizen* movement for quality and productivity improvement, as a collaborative effort among the private sector, government, and academia. A rural life improvement (*seikatsu-kaizen*) movement was also implemented by the government with dedicated livelihood extension workers (women) playing a key role (Sato 2003). In the 1970s, Korea launched the *Saemaul* Movement which transformed Korean villages significantly. In the 1980s, Singapore engaged in the Productivity Movement during which even taxi drivers talked about productivity.

[1] This chapter is based on the authors' published papers (Ohno 2011; Ohno and Kitaw 2011) with additional research and updated information. It also relies on the work by Kikuchi (2011), Woon and Loo (2017), and Yanagihara, Kuroda, and Kikuchi (2018).

Subsequently, these countries became more productive and competitive.

A national movement does not consist of just one or two projects that last for a few years, or time-bound, foreign-assisted development projects. It must be a national project including a comprehensive program package with many components that require continued effort often for a decade or more. To be successful, these movements require a self-sustaining system of principles, implementing mechanisms, and necessary resources backed by strong passion and deep commitment, involving everyone from top to bottom (VEPR and GRIPS Development Forum 2021). How these mechanisms should be best arranged depends on the nature of politics, administrative capacity, private dynamism, social structure, popular mindset, and other unique features of each country.

Particularly, the movement for quality and productivity improvement requires a national effort of many public and private stakeholders to attain economic and social progress, involving the active participation of business, industry, workers, government, academia, community groups, and other interested parties (Prokopenko 1999). In this sense, it is worth analyzing the experiences of Japan and Singapore because they are outstanding examples of successful home-grown national movements. The two countries learned and customized foreign models, created the necessary institutional mechanisms, and organized a series of nationwide activities for igniting mindset change of their people.

Japan imported the productivity movement and the quality control (QC) method from the United States (US) and Europe during the post-World War II (WW2) era. Japan quickly assimilated and developed this as its own management practice method. Compared with the original US model, the adapted method emphasized process orientation, worker participation, and hands-on pragmatism. This method, which came to be known as *Kaizen*,[2] spread rapidly among Japanese companies, large and small, to

[2] *Kaizen* means 'continuous improvement' involving the entire workforce from the top management to middle managers and workers (Ohno et al. 2009). More specifically, *Kaizen* is an umbrella concept for a large number of Japanese business practices, such as 5S, suggestion system, Quality Control Circle (QCC), Total Quality Management (TQM), the Toyota Production System, the Just-in-Time System, the *Kanban* System, etc. Masaaki Imai argues that *Kaizen* is a unifying thread running through the philosophy, the systems and the problem-solving tools developed in Japan during the 1950-80s (Imai 1986, xxxii). These three major components define *Kaizen* as a full-fledged management philosophy.

form a core of the Japanese monozukuri (making things) spirit. Masaaki Imai (1986) argues that *Kaizen* is not just a management technique but a philosophy outlining how a person should conduct his or her life. *Kaizen* shows how management and workers can change their mindsets together to improve their productivity (see Chapter 1 for the definition of *Kaizen* in this volume). Based on its own experiences, Japan assists in introducing *Kaizen* in many developing countries through private channels such as intra-company technology transfer and support for local suppliers, as well as through public channels such as official development assistance (ODA) and guidance provided by various public organizations. By now, *Kaizen* assistance has become one of the standard menu items of Japanese industrial support in developing countries. The Japan International Cooperation Agency (JICA) supports *Kaizen* projects in various countries and regions including Asia, Africa, and Latin America.

The Singaporean government launched its nationwide Productivity Movement in 1981, under strong initiative by the then-Prime Minister Lee Kuan Yew. Prime Minister Lee lamented the poor work ethics of the Singaporean workers and requested the Japanese government to transfer its know-how in quality and productivity improvement. JICA ran its first comprehensive technical cooperation project in Singapore from 1983 to 1990. Singapore learned the Japanese model and established its own institutional mechanism for the Productivity Movement. The productivity campaign was promoted not only in the business, but also in the public sector, linked with a civil service reform program. Based on this experience, Singapore came to offer technical cooperation for productivity improvement in developing countries, including the neighboring Association of South-East Asian Nations (ASEAN) countries and some African countries.

1.2. A key perspective: Translative adaptation and local learning

Learning from abroad, Japan and Singapore took different approaches to designing and implementing their own models of national movements for quality and productivity improvement. Japan's productivity movement and the QC method were driven by the business community, although public policy also played a supportive role. In contrast, Singapore's productivity movement was led by the government and introduced to both public and private sectors as a conscious policy effort to change the mindsets of broader segments of the society.

These experiences suggest the importance of 'translative adaptation' by latecomer countries when absorbing advanced knowledge and technologies (both soft and hard) in their catch-up processes. Translative adaptation is the terminology used by Japanese economic anthropologist, Keiji Maegawa (1998), referring to the process of systemic merger and the resultant dynamic interaction between a dominant foreign system and a local society. When interaction between foreign and local systems takes place, the local society does not simply accept foreign elements in their original forms. They rather reinterpret and adjust foreign elements to fit their own system and value structure (see Chapter 1 for details). Viewed from a developmental perspective, translative adaptation can be understood as a catch-up process by latecomer countries—namely, acquiring foreign knowledge and technologies (often via foreign direct investment and aid), adapting them to country-specific circumstances, and scaling up and eventually institutionalizing them. Translative adaptation emphasizes indigenous perspectives and 'local learning,' to which Joseph Stiglitz attaches high importance. Emphasizing that knowledge is the most important source of growth, Stiglitz argues that for latecomers' catching-up process, the acquisition and diffusion of knowledge must take place locally and adapt to local differences in culture and economic practice (Stiglitz and Greenwald 2014).

However, not all countries are adept at this learning process. There are countries that face challenges sustaining such momentum, especially after the completion of donor support (JICA and GRIPS Development Forum 2011). Therefore, it is useful to analyze how national movements for quality and productivity improvement were initiated and implemented in Japan and Singapore and to extract key factors for success so that those countries interested in introducing and diffusing *Kaizen* can have practical referential information.

An increasing number of recent empirical studies confirm the tangible results of *Kaizen* implementation on firm performance under JICA-supported projects in developing countries (Shimada and Sonobe 2018; Otsuka et al. 2018). Once positive results are confirmed, the next task for the governments (in case of ODA-supported projects) is to institutionalize approaches and create sustainable mechanisms for scaling up pilot projects and diffusing *Kaizen* practices more broadly. Here, a key question is *how* to design and build such mechanisms suitable for country-specific circumstances, rather than *what* should be done.

This chapter attempts to address such question of *how*, with special attention to the process of translative adaptation and local learning. Following this introductory section, the second and third sections introduce the Japanese and Singaporean experiences with national movements for quality and productivity improvement. Special attention will be given to the processes of how the two countries learned foreign models and developed locally owned practices and institutional mechanisms for diffusion. The final section discusses key factors for successful design and implementation of national movements based on their experiences and draw implications for today's developing countries.

2. Japan: The Experience of a Private Sector-Led National Movement

In Japan, national efforts to learn foreign production management technologies for industrial drive can be traced back to the prewar time when American Scientific Management methods were introduced in the early 1900s. Celebrated books such as *The Principles of Scientific Management* by F. W. Tailor (1911) and *Motion Study* by F. Gilbreth (1911) were translated into various forms, studied, and practiced enthusiastically among both academic and business circles. This was the time when Japan was striving to strengthen its national industrial capacity as well as military power. Based on decades of accumulated experiences, US-originated Scientific Management evolved into the Japanese Way of Efficiency (*Noritsu Do*), which pays greater attention to the human element (Tsutsui 2001).

Then, WW2 came to an end. Japan surrendered and completely lost its production capacity. Japan's national movement for quality and productivity improvement was driven by a sense of urgency for post-war economic recovery and industrial catch-up. The WW2 devastation made it difficult for both the government and business sectors to improve the quality and productivity for exporting processed products. At that time, 'Made-in-Japan' was perceived to mean 'low-price and low-quality,' and quality and productivity improvement was high on the national agenda. Japanese business and government leaders were eager to learn the QC methods developed in the US, as well as the harmonious labor-management relations promoted by the British Productivity Council at

that time.[3]

According to Sasaki (2004), there were three paths that postwar Japan introduced and diffused foreign management technologies to Japanese companies. The first path was through the General Headquarters (GHQ) of the Supreme Commander of Allied Powers (SCAP), which assumed responsibility for implementing policy in occupied Japan including economic democratization.[4] The US government and GHQ introduced American management methods, primarily through Japanese consulting organizations such as the Japan Management Association (JMA) and the Union of Japanese Scientists and Engineers (JUSE) (Sasaki 2004). The second path was the Japan Productivity Center (JPC), which was established in the 1950s, inspired by the productivity movement that had been promoted in Europe by the US as part of the Marshall Plan. The third path was direct technology transfer by individual Japanese companies since the 1950s. The following section will explain the first and second paths, focusing on the role of private organizations.

2.1. Leadership and the role of core organizations

In Japan, the private sector took the initiative to create the core organizations responsible for introducing, adapting, and disseminating methods for improving quality and productivity. According to Kikuchi (2011), three non-profit, private organizations spearheaded this initiative—JMA, JUSE, and JPC.

These three organizations have respectively different histories. JMA is the oldest among the three organizations (established in 1942), dating back to the wartime period (see Box 2.1). JMA used to be a quasi-governmental organization under the control of the Ministry of Commerce and Industry, but after the end of WW2, it became an independent private organization performing consulting activities. JMA contributed to driving the movement of '*noritsu*' in Japanese industry. A Japanese word, '*noritsu*' means to optimize efficiently the ability of people, the full capacity of equipment and technology, as well as the functionality of industrial

[3] Also, throughout the second half of the 1940s and 50s, the Japanese labor movement was ideologically leftist and radical, and there was an acute need to introduce cooperative labor-management relations in the economy (Prokopenko 1999; Shimada 2018).

[4] GHQ continued its mandate until the Treaty of San Francisco came into effect on April 28, 1952.

materials.[5] JUSE was created immediately after WW2 (in 1946), succeeding several technology associations which were established in the prewar and wartime periods.[6] JUSE contributed to quality improvement in Japan, with greater emphasis on the transfer and diffusion of production management technology from an industry-wide perspective. JPC was established in 1955, with the influence of the productivity movement in the US and Europe (see below). In this sense, the history of JPC is distinctive from JMA and JUSE, both of which had roots in the wartime period. JPC contributed to the development of productivity improvement movement from a macro-socioeconomic perspective. Table 2.1 summarizes the background for these private organizations.

Table 2.1. Core Organizations for Quality and Productivity Improvement

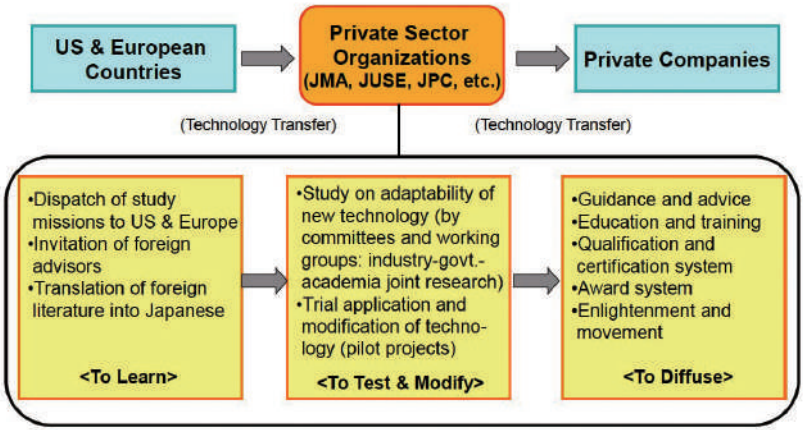
Japan Management Association (JMA)	• Established in 1942, as an incorporated association. • Emphasis on *noritsu* (efficiency) improvement, management innovation.
Union of Japanese Scientists and Engineers (JUSE)	• Established in 1946, as an incorporated foundation. • Emphasis on quality improvement ('Deming Prize,' QC Circle).
Japan Productivity Center (JPC)	• Established in 1955 as a public-interest foundation. • Emphasis on productivity improvement (leading Productivity Movement). Tripartite collaboration among govt., business, and labor unions.

Source: Elaborated by the author, based on Kikuchi (2011) and websites of JMA, JUSE, and JPC.

As shown in Figure 2.1, private organizations played active roles in three critical stages of technology transfer through learning, adaptation, and diffusion (Kikuchi 2011). Top management of all three organizations had a strong sense of mission and commitment to developing companies and industries to realize Japan's postwar economic recovery. Their strong leadership was critical to introducing knowledge and technology from the US and Europe, adapting them, and diffusing quality and productivity improvement movements nationwide (Kikuchi 2011; Ohno 2011; Yanagihara et al. 2018).

[5] See JMA homepage: https://www.jma.or.jp/en/about/group.html (accessed: August 10, 2020).

[6] JUSE succeeded the wartime Greater Japan Technology Association (Dai Nippon Gizyutukai). This association was established in 1944 through the merger of the Industrial Policy Society (founded in 1918), the Japanese Association of Technology (founded in 1935), and the All Japan United Society for Science and Technology (founded in 1940).



Source: Adapted from Kikuchi (2011).

Figure 2.1 The Role of Private Sector Organizations in the Introduction, Development, and Diffusion of Foreign Technologies

The history of the establishment of the JPC exemplifies the strong commitment of visionary leaders of such private organizations. By the early 1950s, Europe was rapidly recovering from the devastation of WW2 with US assistance (Marshall Plan) and embarking on a productivity movement based on collaboration between employers and workers. In 1951, Kohei Goshi (who later became the first chairman of the JPC), visited Europe as a member of a Keizai Dōyūkai (Japan Association of Corporate Executives)[7] mission. He was convinced of the need for a productivity movement in Japan and thought that this issue must be broadly shared with the entire business sector. Upon his return, Mr. Goshi invited major business organizations (e.g., the Japan Federation of Economic Organization (Keidanren), the Japan Federation of Employers' Association (Nikkeiren), and the Japanese Chamber of Commerce) to collaborate for the establishment of the JPC.

The Japanese government had also recognized the need for productivity improvement. In 1954, the Cabinet adopted a policy for productivity improvement. The Enterprise Bureau of the Ministry of International

[7] Keizai Dōyūkai is a private, non-profit, non-partisan organization that was formed in 1946 by 83 far-sighted business leaders united by a common desire to contribute to the reconstruction of the Japanese economy. Now, its membership comprises approximately 1,400 top executives of some 900 large corporations.

Trade and Industry (MITI) planned to set up a productivity organization. However, business leaders insisted that the JPC be created as a private organization. Finally, the JPC was established in 1955, funded by both public and private sectors, on the premise that the government would not intervene into the JPC spending policies and personnel affairs. A government-business coordination committee was established in 1955, attended by vice ministers of various ministries and the JPC-selected private sector members. The coordination committee was chaired by a private sector representative.

Box 2.1. Prewar History of *Noritsu* Movement and Establishment of JMA

Even before JMA's creation in 1942, various activities on "*noritsu* (efficiency)" improvement had already taken place, promoted by nearly a dozen Japanese experts who were inspired by American Scientific Management methods such as Taylor's time study (1911) and Gilbreth's motion study (1911). Among the various experts, Mr. Yoichi Ueno, a scholar in management science and industrial psychology and founder of SANNO Institute of Management (established in 1925), and Mr. Toichiro Araki, a pioneer of professional business consultants in Japan, made invaluable contributions to diffusing theory and practices of American management technologies. Their dissemination of Scientific Management was not limited to the translation of American texts or the parroting of American mentors. For example, after returning from his US visit, Ueno keenly felt deficiencies of American practices which narrowly focused on the material side of the principles of Taylor's Scientific Management. He advocated a comprehensive set of principles for ordering human life as well as economic organizations as the Way of Efficiency (*Noritsu Do*).

By the 1920s, there were eight privately-run Efficiency Societies (*Noritsu Kyokai*) at the regional level (including Manchuria). In 1927, these regional bodies formed the National Association of Efficiency Societies, with Ueno and Araki serving as the first managing directors. Fifteen years later, the National Association of Efficiency developed into JMA through the merger with the Japan Industrial Association, a quasi-governmental organization. This merger, leading to the creation of JMA, was facilitated by the Ministry of Commerce and Industry.

Source: Tsutsui (2001) and Harada (2010).

2.1.1. Analysis of three-staged process of technology transfer and local learning

2.1.1.1. Learning stage. At the first stage of learning, many study missions were dispatched to the US and Europe. Also, foreign experts were invited for lectures. Mission reports and lecture notes were widely disseminated among the organization members. Foreign text books and materials were translated and distributed to companies and researchers, as well.

It is well known that JUSE actively learned the American method of statistical QC and developed it into a Japanese-style Quality Control Circle (QCC). In July 1950, Kenichi Koyanagi, Managing Director of JUSE, took the initiative to invite W. E. Deming, a renowned American expert on statistical process control, to deliver lectures on quality control.[8] Deming held a series of lectures and seminars, teaching basic principles of statistical QC to executives, managers, and engineers of Japanese industries. His transcript of the eight-day course on QC was compiled from stenographic records and distributed for a fee. The lectures inspired many participants, and JUSE immediately established 'the Deming Prize' in 1951, with the aim of rewarding Japanese companies for major advances in quality improvement. The awards ceremony is broadcast every year in Japan on national television. In 1954, J. M. Juran, another American expert was invited to give lectures on managing for quality. He also met with executives from ten manufacturing companies. Juran emphasized the importance of quality control in the context of overall management and taught at training courses for Japanese top and middle management. This provided the basis of Company-wide Quality Control (CWQC), which JUSE started to introduce from the latter part of the 1950s.

During 1955–61, JPC received support from the US government on various activities, such as sending study missions, inviting experts, collecting materials and information, and making movies about technologies.[9] Figure

[8] Deming was invited to Japan by the Economic and Science Section of the GHQ to advise the study on Japanese population census. Immediately after learning about Deming's visit to Japan, JUSE took initiative to ask him to deliver lectures on quality control. As a result, the eight-day course materialized (Sasaki 2004).

[9] The US support to Japan's postwar economic recovery was driven by a strategic objective of keeping Japan within the Western camp against Communism at the time of Cold War. Therefore, for the US, it was important to prevent the radicalization of the Japanese labor movement (Shimada 2018).

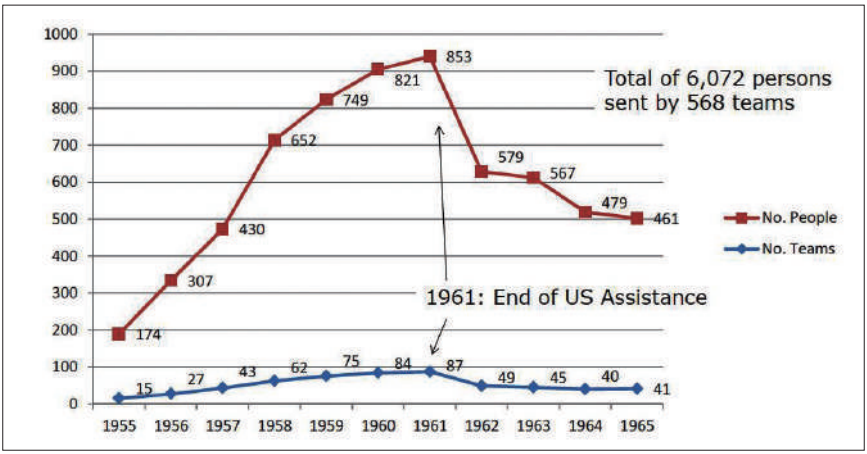
2.2 shows the trend of overseas missions organized by JPC. The number of missions and participants increased steadily. Normally, industry, the government, academia, and labor unions formed a team and visited overseas together. Also, missions by specialized group (such as top-management, industry-specific groups, small-and medium-enterprises (SMEs), and labor unions) were dispatched. It is important to note that SMEs participated actively in this endeavor.[10] Upon return, mission briefings were intensively organized to share the findings with those who did not go overseas. One-hundred seventy volumes of Productivity Reports (1956-66) were published, based on such mission findings. It should be noted that even after US support ended in 1961, study missions continued, with more than 40 missions dispatched annually until 1965 (funded by JPC and participating companies). The total number of study missions and the participants amounted to 568 and 6,072 respectively (JPC-SED 2005). Participants came from key industries, which became drivers of Japanese high-economic growth in the subsequent years (Yanagihara et al. 2018).

According to the questionnaire surveys conducted by the JPC,[11] the business sector participants found it useful to learn about two issues in particular: (i) ways of thinking of advanced market economies (such as rational thinking, democracy, and pioneer spirits); and (ii) concrete methods of management (such as marketing, industrial engineering (IE), executive committees, performance-based salaries and wages, methodology for standardization, simplification, and specialization). For policymakers (in particular, MITI officials), the missions gave opportunities to keenly recognize productivity gaps (i.e., how far Japanese productivity was behind the levels of the US and Europe), specific goals that Japan should establish to catch up, and concrete measures to realize them (Yanagihara et al. 2018).

These examples show eagerness and strong ownership of the Japanese private sector, policy makers, and academia to acquire foreign knowledge and technologies during the pre-war and post-war periods for industrial catch-up. During wartime, Japan had limited access to external resources

[10] SME Agency was established under MITI in 1948. A visiting consulting system was also established in 1952.

[11] The questionnaire survey targeted at the members of 510 missions dispatched by JPC during 1955-62 (excluding those related to the agriculture and fishery sector). For each mission, two participants were randomly selected (Yanagihara et al. 2018).



Source: Japan Productivity Center (2005).

Figure 2.2. Trend of Study Missions Abroad by JPC (1955-65)

including foreign technologies (Rice 1979), and the government and the military promoted economic mobilization and rationalization, especially in iron and steel, and munitions (e.g. aircraft and shipbuilding) industries. Efficiency improvement in these industries became a high priority, and it was within this context that JMA and the predecessor of JUSE were asked to support these industries (Harada 2010; Cole 1989).

2.1.1.2. Adaptation stage. At the second stage (adaptation/ internalization), various committees and working groups were established, comprised of experts and researchers from industry, government, and academia, to study the adaptability of foreign technologies and make necessary adjustments. They participated in these committees and study groups and conducted industry-government-academia joint discussions and research. In some cases, pilot projects were implemented at manufacturing sites to verify their adaptability and validity (Kikuchi 2011, 27). So, the private organizations did not simply diffuse Western technologies in their original forms; foreign technologies were adapted to the Japanese context through self-study.

The QC movement initiated by JUSE is a good example of how the US-originated concept and techniques of statistical QC mentioned above have been adapted and disseminated nationwide. A QC Circle is a small group consisting of several members (normally more than 3 and up to

10) working in the same place.[12] In Japan, supervisors act as team leaders. They identify causes of defective products and possibilities for improving products or production methods. The initial goals of QC Circle activities were to enhance management skills and leadership of supervisors and frontline workers, encourage all employers to participate in improvement activities, and implement company-wide QC Circle activities to achieve corporate goals and policies.

JUSE brought together leaders and experts from all of Japan's major industries and academia so that they could share their best practices. As a member of JUSE, Kaoru Ishikawa (Emeritus Professor of the University of Tokyo and Dean of the Musashi Institute of Technology) took initiative to introduce QC Circle activities in 1962 and actively promoted quality management technology in companies. He organized committees for research, development, and planning and served as the editorial committee chair of various magazines such as the 'Statistical Quality Control' and 'Gemba and QC Circle' (which was later renamed as FQC Magazine). From the early stages, Ishikawa recognized the need to disseminate Quality Control to front-line workers in the workplace. This was based on his belief that '[J]apanese workers are the best in the world with a superior level of educational standard and that [j]ust following the guidelines and manuals would make such people sick.' So, he suggested that we rather take advantage of their knowledge (JUSE 2015, 257). He listened to the voices of foremen and understood their keen interest in learning quality management. After conducting deliberate discussions with the sub-committee and reviewing questionnaire surveys, he proposed Company-wide Quality Control (CWQC) involving front-line workers. This was quite different from the top-down approach that uses the ladder of office organization, often seen in the United States and in other countries.

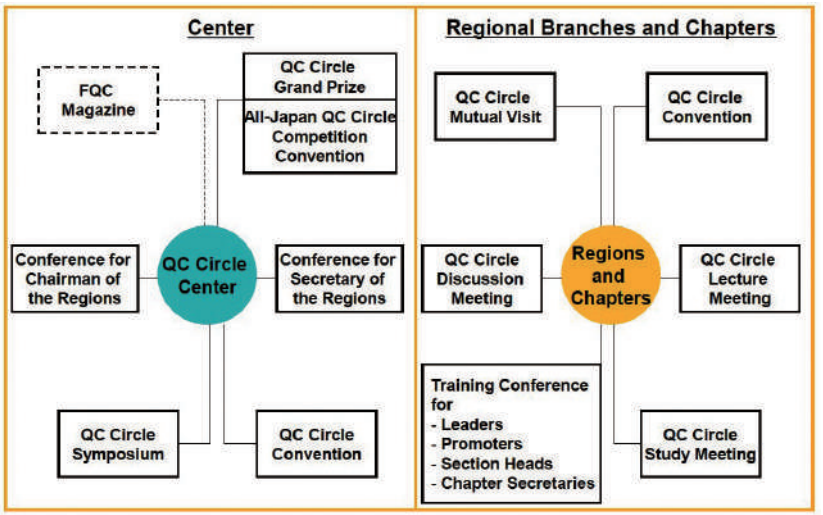
The following remarks by Ishikawa at his special lecture at the 7th Quality Control Convention in 1969 exemplify how JUSE's basic principles reflect the Japanese way to quality improvement based on human-centered approach.

[12] A QC Circle is defined by JUSE as '[a] small group of frontline operators who continually control and improve the quality of their work, products and services; they operate autonomously and utilize QC concepts, tools and techniques' (Hosono 2009).

> When we started Quality Control in Japan, 20 years ago, we intended to start it with the Japanese way, as the background was different from Japan to that of overseas. Quality Control in the U.S.A., is quality control for professionals with a strong aspect of that for, so-called, QC engineers. On the other hand, there was no such professionalism in Japan, which is considered as pros and cons. As we believed that Quality Control with total participation was suitable for Japan, we promoted Quality Control for Top Management and Quality Management at the workplace. Quality Control in the workplace is performed just as a part of Company-wide Quality Control. More specifically, there is Quality Control by Top Management, also by managers, and by staff members. As a part of the chain, the workplace must carry out QC Circle activities in a responsible way. (JUSE 2015, 257)

To promote the QC Circle (QCC) movement, JUSE created nationwide networks at the central and regional and prefectural levels (see Figure 2.3). At the central level, in 1962, the QCC Center was established as a national registration system. Educational materials were developed and distributed through journals and field quality centers (FQC), providing a common framework for workers from different companies. FQC Magazine was a popular journal which started in 1962 as a quarterly publication and became a monthly in 1965. It contained information on case studies of QC Circles and served as an important channel of information sharing on QC Circle activities. Its price was set low (almost the same as the price of a pack of cigarettes) so that ordinary workers could afford it. One can call it as 'democratization of statistical methods' (Cole 1989, 278). In 1963, QCC Conventions began, at which diverse companies and circle members presented their problem-solving successes. Local chapters and regional branches of the QCC Center were also created.

Grass-root, local networks were at the heart of JUSE's QC Circle activities. There are nine regional branches (*shibu*) of the QC Circle Center (including the last, Okinawa branch established in 1984). According to the existing literature, regional branches had representatives from 10 companies on their management boards, who provided free service to their regional branch in planning, organizing, and implementing various events (Cole 1989). As such, there existed the private sector's voluntary support to



Source: Cole (1989), Figure 6, p. 283.

Figure 2.3. Central and Local Level Networks of Japanese QC Circle Activities (JUSE)

the functioning of the institutional infrastructure of QC Circles at the local level. In addition, local chapters (*chiku*) were established, largely coinciding with the prefecture level. It was at this chapter level of the QCC Center that much of the normal learning about circles and quality control took place. Each chapter has a senior executive from one of the member companies as its chairman, a board of counselors, and a coordinator who is often a university professor (Cole 1989). Chapter activities included running QCC Conventions (held throughout the country) and arranging for factory tour exchanges and various study meetings. The membership unit of the QCC Center was the local factories of national corporations. Large numbers of workers, including shop and office floor workers, were involved in these local-level activities. Through chapter activities, a feeling of solidarity and mutual development has been forged among workers across their companies. QCC activity was promoted by broadcasting training programs on radio/TV and publishing journals. In this way, JUSE successfully created mass organizations and networks for QCC movement (Cole 1989).[13]

[13] Cole (1989) discusses the details of grass-root activities planned and implemented by regional branches and local chapters. These activities involved not only experts, but also shop and office floor workers, and provided opportunities for sharing experiences and information across companies at particular localities.

In this way, the QCC activities initially introduced at the workshop level were developed into the nationwide QCC movement by the 1960s. The basic principles of QC Circle activities are respect for humanity and contribution to the improvement of company.[14]

Similarly, JPC established seven Regional Productivity Centers during 1956-60. While these Regional Productivity Centers were financially independent of JPC, seven chairpersons sit on the JPC Board and frequent liaison meetings were held to ensure coordination and cooperation. In parallel, Productivity Councils were set up at major cities.

To adapt and promote foreign technologies in the Japanese context, JPC created the Productivity Research Institute in 1956. The research institute published productivity statistics and conducted productivity-related research and surveys. Such research included studies on how to support productivity improvement of SMEs, which led to the formulation and dissemination of a 'cost-accounting' system for the use of SMEs. Training programs for SME management consultants were initiated. JPC also established four specialized organizations—Japan Marketing Association, Japan Institute of Industrial Engineering (IE) Association, Japan Consumers' Association, and Japan Packaging Institute—to study the validity and adaptability of new technologies and methods learned through overseas missions and explore possible ways of diffusion in Japan (Yanagihara et al. 2018). The membership of these organizations includes both the private sector and academia.

Through the above-mentioned processes, JPC has developed the following three guiding principles as the basic productivity philosophy: (i) In the long-run, improvement in productivity should increase employment; (ii) Labor and management must cooperate on an equal footing; and (iii) The benefits of improved productivity should be distributed fairly among management, labor, and consumers. In sum, JPC customized American technologies, management systems, and labor-management relations for the Japanese by blending them with a 'human-oriented management concept.' There was no reference to 'rationalization' of the workforce in its guiding principles. Such philosophy has also been reflected in the tripartite governing structure of the JPC Board, which includes representatives of industry, unions, and academia.

[14] JUSE homepage: https://www.juse.or.jp/english/qc/ (accessed on March 10, 2021).

JMA also attaches paramount importance to the ability of people with virtual unlimited potential.[15] Such value has been inherited by the Way of Efficiency (*Noritsu Do*) advocated by Ueno and others, as explained previously. In this sense, Noritsu is the Japanese adaptation of the scientific management method developed in the US. During the wartime, JMA was a quasi-governmental body under the control of the Ministry of Commerce and Industry. But, after the end of the WW2, GHQ advised the Japanese government to withdraw all government funding. So, JMA decided to move toward an independent private organization performing consulting activities. JMA began to provide guidance to key industries designated by GHQ/SCP on a fee-basis—such as railways, communications equipment, mining—to increase production and process management. Such consulting activities were conducted with the knowledge and human resources accumulated prior to WW2 (Sasaki 2004). JMA is also known for adapting Western maintenance management into Japanese-style Total Productive Maintenance (TPM). In 1961, a Plant Maintenance Committee was established within JMA, which subsequently developed into the Japan Institute for Plant Maintenance (JIPM) in 1981.[16] After in-depth research, JIPM proposed the concept of TPM, which is about plant maintenance with total participation. It focuses on equipment and people, and a maintenance technique that improves productivity to achieve zero losses and reinforces production foundations.[17]

2.1.1.3. Diffusion stage. At the third stage (scaling-up), various measures were mobilized for diffusing quality and productivity improvement technologies in companies and developing the private sector capability for providing consultancy on practical productivity improvement methods and techniques. All three private organizations were actively engaged in implementing the following activities (Kikuchi 2011; Yanagihara et al. 2018):

- Consulting services for guidance and advice
- Education and training programs for companies to teach technical skills and methods
- Qualification and certification system

[15] See JMA homepage: https://www.jma.or.jp/en/about/pdf/pdf-pamph-en.pdf (accessed on August 10, 2020).

[16] JIPM was established in 1981 through the reorganization of the Japan Institute of Plant Engineers (JIPE), which was created in 1969 as spin off from JMA 1961.

[17] JIPM homepage: https://jipmglobal.com/about (accessed on August 10, 2020).

- Award system
- Nationwide campaign through award ceremonies, conventions, and seminars
- Newsletters and publications

Consulting services are a practical and effective form of technology transfer and diffusion. These services enable companies to acquire new technology by solving specific problems and provide on-the-job training (OJT) opportunities. Especially, JMA has been known for its emphasis on consulting services since its creation in 1942. JMA established a policy of fiscal independence from the Japanese government and began to charge fees for membership and research consulting to fund its activities (Sasaki 2004). JMA conducted its first fee-based factory analysis in January 1946. Factory analyses increased from 35 in 1946 to 44 in 1947 and 73 in 1948. Within JMA, a program to educate and certify consultants was also implemented. The number of consultants increased from 12 in 1946 to 55 in 1950 (Sasaki 2004). Subsequently, JMA established JMA Consultants Inc. (JMAC) in 1980 by converting its consulting division into an independent company. Dating back to the 1940s, JMAC is the oldest consulting firm in Japan. JMA's consulting approach includes tailor-made services and team work with clients and focuses on three changes: process change, mind change, and culture change. JMA has other independent affiliated organizations and works in collaboration with all JMA group organizations to provide companies and organizations with various support services for management innovation.

JPC provides individual companies with consulting services on productivity improvement. JPC follows its own methods of *Kaizen* consultation, consisting of three components: human, material, and equipment and information. Each component cross cuts sales, design, production, and procurement processes as deemed relevant. The main activities of JPC are training on managerial skills, management consultation, productivity research, issuing the Japan Quality Award, and engaging in international cooperation. JUSE has been involved in soft technology through which mathematical and statistical methods can be applied to corporate management.

Various training programs were provided on technical skills and methods. Training courses have been tailored to the level of each target group such as top executives, middle-ranking managers, and workers, with different

training programs for different industries. JMA's training program incorporates human resource management by hierarchy (supervisors, middle, and top management), production process (lean production, TPM, TQM), management skills (plant management, balanced score card, ISO), and management skills by functions (R&D, production, procurement, supply chain management, office process improvement). Usually, JPC runs three-month courses for its management consulting training program. It prepares customized training courses for different levels of productivity facilitators. JUSE give greater priorities to education and training than consulting services for companies. They have also undertaken other activities, such as the publication of technical literature, the provision of radio training courses and correspondence courses, and the development of audiovisual training materials.

Qualification and certification systems have played an important role in developing private sector capability—particularly professional experts who are engaged in technology transfer—and maintaining their abilities above a higher level. Such systems contribute to increasing customers' trust in those professional experts, as well. Quality Control Specialist (JUSE), Management Consultant (JPC), and Certified Production Engineer (CPE) Qualification (JMA) are some examples of their qualification and certification systems. JUSE has been involved in global quality affirmation, international conference for quality (ICQ), and international convention on QC Circles (ICQCC).

The award system aims to recognize companies with outstanding performance in improving quality and productivity, or '*noritsu*,' in industry. The Deming Prize (JUSE), the Japan Quality Award (JPC), and the JMA Human Resources Development Excellence Award (JMA) are typical examples of this. The awards enable award-winning companies to improve their corporate image and reputation, and in turn motivate other companies to work hard for excellence. As explained in Chapter 5, the awards contribute to encouraging the broader adoption of good practices. Starting with the Deming Prize (established in 1951), many awards have been established over the past decades including the Malcolm Baldrige National Quality Award in the US.

JUSE, JPC, and JMA all promote nationwide public relations/education activities. JUSE annually organizes the Deming Prize Award Ceremony during its Quality Improvement Month and creates slogans for nationwide

quality improvement campaigns. It has published a great number of books on QCCs, QC storylines, and TQC (Japanese *Kaizen*-based TQM). JPC has produced in-house publications that supported productivity facilitators and also issued 'declarations' whenever required. JMA has published various 'suggestions' in order to attract the interest of those working in industry and of the general public. All of them also publish various kinds of information, magazines, and newsletters. These include *Quality Management* (JUSE, monthly), *Productivity Newspaper* (JPC, quarterly) and *JMA Management Review* (JMA, monthly).

To raise the awareness of business managers, executives, production managers, and employees toward the improvement of quality, productivity, and efficiency, all three organizations hold conventions and symposiums to discuss specific themes. These events provide opportunities for successful companies to present their important achievements. Some of these conventions and symposiums are attended not only by company members but also by the general public.

2.2. The role of academia, industry, and government in local learning and translative adaptation process

Collaboration and close interactions among academia, industry, and government have been a key feature throughout the process of local learning and translative adaptation in the Japanese quality and productivity movement. First, Japanese scholars made very important theoretical and practical contributions. They were actively involved in transferring and customizing management principles, tools, and systems as well as developing new ones. As explained before, Kaoru Ishikawa, Emeritus Professor of Tokyo University is a most exemplary figure. He is highly regarded as the 'founder of quality control in Japan' and the 'father of QC Circle.' Ishikawa worked in industry for eight years and returned to the University of Tokyo in 1947 where he graduated. He started studying statistical methods such as statistical quality controls (SQC) and joined JUSE in 1949. Ishikawa played a key role in establishing an executive committee for QC conferences and sponsoring the conferences and initiating QC Circle activities in 1962. He was one of the founders of the International Conference on QC (ICQC), which was first held in 1969 in Tokyo and the International Academy for Quality in the same year. He was extensively engaged in QC consulting, including all types of manufacturing industries and services (Ishikawa 1985). Ishikawa is

also known as the inventor of the Ishikawa Diagram, a cause and effect analysis diagram (Hosono 2009).

Second, there are a large number of well-known engineers and managers who promoted quality and productivity activities in many Japanese companies. It is fair to say that Japanese companies had personnel with sufficient educational background, technical knowledge, and enthusiasm to absorb foreign technologies and make them Japanese. Subsequently, many companies developed their own systems of *Kaizen*, including the globally known Toyota Production System (TPS) and *jishukanri* (self-management) activity in the steel industry. For example, Taiichi Ohno, ex-Vice President of Toyota Motor Company, is one of the most prominent industrial practitioners, known for his contributions to consolidating TPS. Taiichi Ohno graduated from the mechanical engineering department of Nagoya Technical High School in 1943, was hired by Toyota Corporation in February 1943, appointed as machine shop manager in 1946, promoted to director (1954), managing director (1964), senior managing director (1970), and executive vice president (1970) positions, and retired from Toyota in 1978. Ohno was the architect of the *Kanban* or just-in-time system evolved out of the need to overcome certain restrictions in the marketplace that required the production of small quantities and many varieties under the condition of low demand, at a higher quality, low cost and customer preference (Ohno 1988). Ohno Taiichi's focus was mainly on *Gemba* improvement activities at the workshop floor level. He is also known for coining the concepts of *Muda*, *Mura*, and *Muri* and codifying the seven types of *Muda* commonly known as waste (Kato and Smalley 2011). These efforts laid a solid foundation for establishing the Japanese production management system. Overall, Japanese companies have endeavored to train their workers and developed in-house systems for quality and productivity improvement.

It is also important to note the role of industrial engineers, who have actively conducted training and consulting services to companies. These included Shigeo Shingo, a consultant for Toyota and Panasonic, among others. Shingo joined the JMA in 1945. He provided 79 rounds of consulting to Toyota from 1955 to 1980 focused on designing and training productivity courses for 3,000 technical personnel and contributed much to the development of TPS (Kato and Smalley 2011). Another prominent engineer is Kunio Shirose, who joined JMA in 1960 after graduating from Hokkaido University with a degree in applied chemistry. Later in

1984, he moved to JIPM where he served as a director and advisor to many companies on plant maintenance. He was the author of 'TPM for Workshop Leaders' in 1984, editor of 'TPM Team Guide' in 1988, and a contributing author of 'TPM Development Program' published in 1989.

Third, public policy played a supportive role. The Japanese government took a comprehensive approach to quality and productivity improvement. Various national systems were established to support quality and productivity improvement efforts by the private sector. These include:

- Standards system (JIS: Japan Industrial Standards, from 1949)
- Public research organizations (*kosetsushi*, or testing and research centers that meet the industrial needs of local communities)
- Export inspection system (1957)
- *Shindan* system (SME management consultants system),[18] and so on.

For example, when certifying products for the JIS label, not only the products themselves but also the factory's quality management systems and facilities were examined in light of whether they had enough capacity to meet the standards. Also, public research organizations (*kosetsushi*) conducted tests and inspections and provided technological information to local SMEs (prefectures and municipalities). An export inspection system was introduced to improve the quality of export products. On-site inspections were conducted annually by government organizations. As a result, the percentage of rejected products decreased, and product quality improved. Under the *shindan* system, advice was provided to SMEs on the adoption of scientific management methods and new technologies. A visiting consulting system was established in 1952. These systems were mutually reinforcing (Ohno 2011; Kikuchi 2011).

3. Singapore: The Experience of the Government-Led National Movement

In contrast to Japan, Singapore's national productivity movement in the 1980s was led by the government. It was executed as top-down policy with the late Prime Minister Lee Kuan Yew as the principal promoter.

[18] In Japanese, *shindan* means enterprise diagnostic and advice. It is a state-authorized and supported system or enterprise and advisory services targeted mainly at SMEs in both manufacturing and services. *Shindanshi* is a specialist who diagnoses and gives advice to SMEs, concerning various management issues.

Initial results were rolled out to a wide range of workplaces—in both the public and private sectors—through official agencies.

Singapore is the first country where JICA provided comprehensive technical cooperation—in a venture called the 'Productivity Development Project (PDP)'—to transfer Japan's know-how in quality and productivity improvement. This project was requested by the then-Prime Minister Lee Kuan Yew to the Japanese government. With the Prime Minister's strong commitment and leadership, the Productivity Movement was launched in 1981. The JICA project supported a substantial part of this initiative by mobilizing Japanese experts during 1983–90. Singapore successfully internalized, scaled up, and institutionalized the Productivity Movement. Based on this experience, by the 1990s Singapore came to offer technical cooperation for productivity improvement in developing countries.

3.1. Leadership and the role of core organizations

From the early days of independence, productivity was high on the agenda of the Singaporean government. The national productivity organization was first created as a Productivity Unit within the Economic Development Board (EDB) in 1964. Later, both employer groups and labor unions in Singapore jointly developed productivity improvement guidelines (The Charter for Industrial Progress), and the unit was formalized as the National Productivity Center (NPC) in 1967. Since then, national productivity organizations have evolved, according to the stages of development and the needs of the Singaporean economy (Table 2.2).

The NPC was upgraded to a separate agency, the National Productivity Board (NPB) in 1972 and then engaged in activities with support from the United Nations Development Programme (UNDP), for which the International Labour Organization (ILO) served as the implementing agency. In 1981, the government launched the Productivity Movement, and the NPB was designated as the principal agency to implement this national productivity drive. Also, the NPB was appointed as the counterpart agency of the JICA-supported PDP with the aim of promoting the Productivity Movement and studying Japan's experience. Separately, the Singapore Productivity Association (SPA) was established in 1973 as an affiliated body of NPB to promote active involvement of organizations and individuals in the Productivity Movement and spread the idea of productivity and its techniques. In 1996, the NPB was merged with

the Singapore Institute of Standards and Industrial Research (SISIR), a standards board that handles quality standards, to become the Productivity and Standards Board (PSB). In 2002, the PSB spun off its service-providing division, changed its name to the Standards, Productivity and Innovation Board (SPRING) and shifted its focus to SME development. In April 2018, SPRING was merged with the International Enterprise (IE) to form the Enterprise Singapore (ESG).

Table 2.2. History of Productivity-Related Organizations

Period	Organization	Remarks
1964	Productivity Unit, Economic Development Board (EDB)	1965: Charter for Industrial Progress, Productivity Code of Practice
1967-72	National Productivity Center (NPC) • Autonomously-run division under EDB	1971: Tripartite Interim Management Committee (to prepare NPB)
1972-95	National Productivity Board (NPB) • Statutory body, initially affiliated with Ministry of Labor and later with Ministry of Trade and Industry (MTI)	1973-present: Singapore Productivity Association (SPA) 1981-85: Awareness stage 1986-88: Action stage 1989-90s: Ownership stage
1996-2001	Productivity Standard Board (PSB) • Statutory body, affiliated with MTI	
2002-18	Standards, Productivity and Innovation Board (SPRING) • Statutory body, affiliated with MTI	
2018-present	Enterprise Singapore (ESG) • Statutory body, affiliated with MTI (merged with Int'l Enterprise Singapore)	New one stop agency to promote SME development, new technologies, overseas market dvt. & training of mgt. leadership.

Source: Elaborated by the author based on the published information on EDB, NPB, PSB, SPRING, and ESG.

Despite more than fifteen years of efforts to enhance productivity, the leaders of Singapore felt that the country remained far behind productivity development. In 1979, Prime Minister Lee Kuan Yew was concerned: 'Workers here were not as proud of or as skilled in their jobs compared to the Japanese or the Germans.'[19] In early 1981, Lee Kuan Yew met key Japanese employers in Singapore to discuss practices, work attitudes, and productivity in Japan. Immediately, the Committee of Productivity was

[19] According to Low Choo Tuck, former Director of Planning Division, SPRING Singapore,

formed to study Japan's productivity movement and examine the issues of productivity improvement, work attitudes, and labor management relations. In June 1981, he met with Kohei Goshi, then JPC Chairman, and was strongly convinced of the need for a Productivity Movement. The Committee of Productivity compiled a report that emphasized the importance of 'human aspects' or mindset change, and proposed the establishment of a high-level council to review productivity efforts and outline future strategy.

Based on this proposal, in September 1981, the National Productivity Council (NPC) was established as an oversight and policy coordination body for the Productivity Movement. NPC was chaired by the State Minister of Labor (from 1986, by the State Minister of Trade and Industry) with about 20 high-level representatives from government, employer groups, unions, and academia. The first action of NPC was to launch the Productivity Movement with NPB as the primary implementing agency. NPB was re-structured and expanded to carry out its mission of inculcating the concept of productivity in every man, woman, and child in Singapore (NPB 1987).

In this process, the Singaporean government requested the Japanese government for bilateral cooperation for productivity improvement, and the JICA-supported PDP was implemented for seven years. A number of the JPC experts were dispatched by JICA and provided technical cooperation throughout the period.[20] Tripartite cooperation among the government, employers, and labor unions is a key institutional feature of Singapore's Productivity Movement. This was inspired by the Japanese productivity movement experience. As such, the Productivity Movement in Singapore was primarily a nationally driven initiative. The practices of foreign direct investment (FDI) companies operating in Singapore also

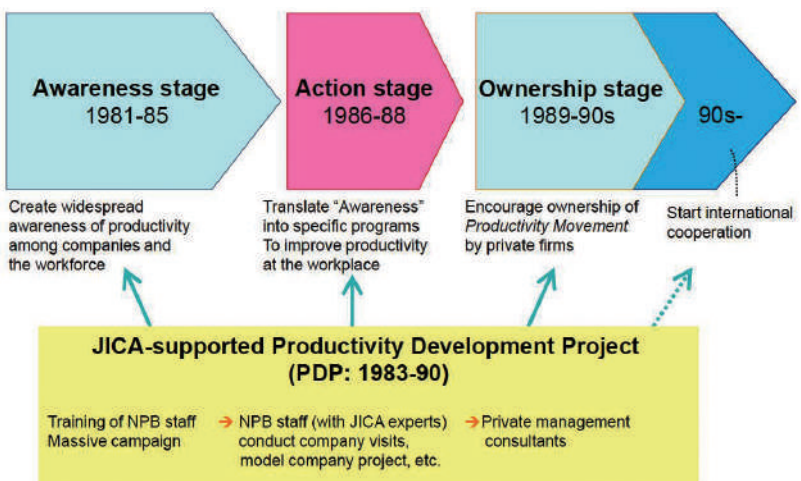
by the early 1980s, an increasingly tight labor market had driven up wages. Companies realized that to compete successfully, they must introduce better management systems and more importantly had good labor management relations and teamwork. Nevertheless, the state of labor-management relations then was fragile and there were many industrial disputes (VEPR and GRIPS Development Forum 2021).

20 The PDP's achievement included: (i) approximately 200 Singaporeans trained in Japan; (ii) about 4,000 Singaporeans receiving domestic training using materials developed in Singapore; (iii) a total of 200 Japanese experts serving as lecturers; (iv) Japanese experts and consultants who guided more than 200 companies in Singapore for productivity improvement; and (v) some 100 companies that adopted 5S with guidance from NPB (JICA 2016).

served as important benchmarks for assessing Singapore's productivity level.

3.1.1. Analysis of three-stage evolution of the Productivity Movement[21]

The Productivity Movement in Singapore evolved in three stages (see Figure 2.4): (i) awareness stage (1981-85); (ii) action stage (1986-88); and (iii) ownership stage (1989-90s). This categorization is based on perspectives of the Singaporean counterparts who were involved in the JICA-supported PDP, and consistent with the three stages of local learning and translative adaptation explained in the Japanese experience in the above.



Source: Elaborated by the author based on the information provided by Mr. Lo Hock Meng (SPA) in September 2010.

Figure 2.4. Evolution of Productivity Movement in Singapore

3.1.1.1. Awareness stage. This first stage aimed at creating widespread awareness of productivity among companies and the workforce. The main focus was to foster positive attitudes and promote teamwork and recognition for companies and individuals. Massive productivity

[21] This section is based on the author (Izumi Ohno)'s interview with Low Hock Meng, then Executive Director of the Singaporean Productivity Association (SPA) and the information provided by him on September 2, 2010. Low was one of the counterparts of JICA-supported PDP.

campaigns were launched at both the national and company levels. November was designated as 'Productivity Month,' in which Lee Kuan Yew delivered annual speeches on productivity beginning in 1981 for seven consecutive years. More specifically, NPB took the following actions:

- Education of the public and massive campaigns
- Information dissemination and training
- Strengthening company identification
- Promotion of labor-management joint consultation
- Promotion of productivity in the public sector

Public education was prompted by the launch of the Productivity Movement, accompanied by the publication of productivity data, media support, and changes in schools and tertiary institutions. To disseminate the spirit of productivity to the public, the NPB created a mascot, named Teamy The Bee (a tiny, cute cartoon bee), which symbolizes hard work, team work, and efficiency. Productivity campaign slogans and posters were created, around the key message 'Together We Work Better.'[22]

Information dissemination and training were conducted in the form of courses that emphasize human relations, a library of local case studies on good management practices, and a registry of courses on productivity and management. To strengthen workers' identification with companies, various schemes were introduced such as payments of variable bonuses and special awards for long service employees. Furthermore, labor-management joint consultation was promoted through Work Excellence Committees (WECs)[23] and QC Circles.

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[22] This message was 'political.' Productivity improvement often invites workers resistance because they fear that efficiency gains from improved productivity might lead to unemployment. Mindful of such resistance, this slogan deliberately aimed at creating a virtuous cycle such that: increased productivity will promote growth of the business and economy, which should generate more consumer demand for products; this should bring satisfaction for individuals and more work for workers; as a result, there will be welfare gains for individuals, including workers.

[23] WECs aimed to foster good labor-management relations within an organization, provide a platform to facilitate communication and consultation, study productivity challenges and discuss solutions, conduct annual surveys to access the morale and work attitudes of employees, drive the formation of QCCs to improve productivity, and organize social, cultural and recreational activities to promote interactions between workers and management (Woon and Loo 2017).

Singapore introduced the Productivity Movement to both the business and public sectors, aimed at broader impacts on popular mindset change. It is particularly notable that Work Improvement Teams (WITs) were implemented in the public sector as part of the civil service reform program. The public sector was the largest employer in Singapore at that time. A WIT is a group of civil servants from the same work unit, irrespective of divisional status, who meet regularly to solve problems, examine improvement opportunities, and develop problem solving skills. So, a WIT can be seen as a Singaporean adaptation of the Japanese-style QC Circle concept applied to its civil service needs. A productivity campaign was launched in the public sector as well, and the Productivity Working Committee was established in the form of joint committee with management and workers. The Civil Service Institute provided various training courses to promote the WITs movement. WITs emphasized worker involvement, participation, and bottom-up management; team members worked together and focused on tackling problems facing their common work areas. While these features are common to QC approach, WITs had wider scope than QCs with their tools and techniques being geared more to service needs and applied to a variety of themes and projects (Ministry of Finance and Civil Service Institute 1982). They were not restricted to any specific level in the organizational hierarchy.[24]

3.1.1.2. Action stage. At the action stage, the focus shifted from the national promotion of productivity to company-level promotion. This stage aimed at translating productivity 'awareness' into specific action at the workplace through participatory programs. It focused on upgrading the skills of management and workers, and the operational efficiency of companies. In 1986, NPB established a Management Guidance Center to administer various management consultancy programs for local companies (NPB and JICA 1990). Specific programs and activities implemented under the Center include:

- Model Company Project
- Management Consultancy Referral Scheme
- Associate Consultants Scheme
- Industry-based Consultancy Assistance Scheme
- Training of Workforce through the Skills Development Fund (SDF)

[24] According to the booklet from the Singaporean government, WIT meetings can be held during office hours or voluntary overtime.

The 'Model Company Project' was implemented jointly by the Japanese (JICA) experts and NPB counterparts and provided assistance to companies. This paved the way for on-the-job training (OJT) of NPB staff to equip them with relevant skills. The 'Management Consultancy Referral Scheme' and the 'Associate Consultants Scheme' are the systems to mobilize those trained under the JICA project as 'qualified' private management consultants. NPB allowed private sector participation in the PDP training fellowship in Japan. Those trained became NPB Associate or Referral Consultants. A pool of over 200 associate and referral consultants was created to supplement NPB's efforts in reaching out to industries (NPB and JICA 1990). Furthermore, NPB introduced the 'Industry-based Assistance Scheme' in 1986. The scheme was designed to raise the level of productivity in six priority industries and assist companies on an industry-wide basis to impact productivity levels. These industries included food manufacturing, restaurants, hotels, retail, textiles and garment, and finance.

Under the Management Guidance Center, NPB assisted companies, particularly SMEs, in improving their business efficiency and productivity management. Cases of successful companies were highlighted to serve as models for the others. NPB also promoted the growth of management consultancy services for SMEs.[25]

Besides consultancy, a high priority was placed on productivity-related training programs, and companies were encouraged to send their staff for training. For example, NPB teamed up with reputable companies such as Singapore Airlines (Service Quality Center), Philips Singapore (Industrial Engineering Training Center), and Seiko Instruments (OJT Project) to develop national training programs in specific areas for managers and workers.[26] Additionally, extensive trainings to enhance the skills of the

[25] Some 105 local companies have benefitted from assistance rendered by NPB consultants and Japanese experts, as well as the Associate and Referral Consultants (NPB and JICA 1990).

[26] Speech by Low Choo Tuck, former Director of Planning Division, SPRING, 'Productivity movement and competitiveness—the Singapore's experience,' delivered at the Vietnam Productivity Center.

workforce were conducted with support from SDF.[27]

3.1.1.3. Ownership stage. By 1989, companies and individuals had become actively involved in the Productivity Movement. So, the ownership stage aimed at self-sustaining the national movement[28] to ensure that productivity habits form part of the work ethic. Private and public organizations and individuals are encouraged to lead the Productivity Movement. The government launched various initiatives to promote company-level productivity improvement, which include:

- Annual productivity campaign led by the private sector
- Singapore Quality Award (1994-)
- Productivity Activist Scheme (1996-)

For example, NPB promoted the private sector to lead annual productivity campaigns, and employer groups were urged to chair the Campaign Steering Committee. The Singapore Quality Award was introduced in 1994 and given to both private and public sector companies. The Productivity Activist Scheme was launched in 1996. This scheme aims to develop a network to enable member companies to benchmark their productivity against partners and improve their skills and techniques. Key activists (productivity 'champions') from the public and private sectors were introduced to lead, organize, and influence other members of the workforce in various productivity activities.[29] Resources are pooled for an effective exchange of information in support of productivity improvement.

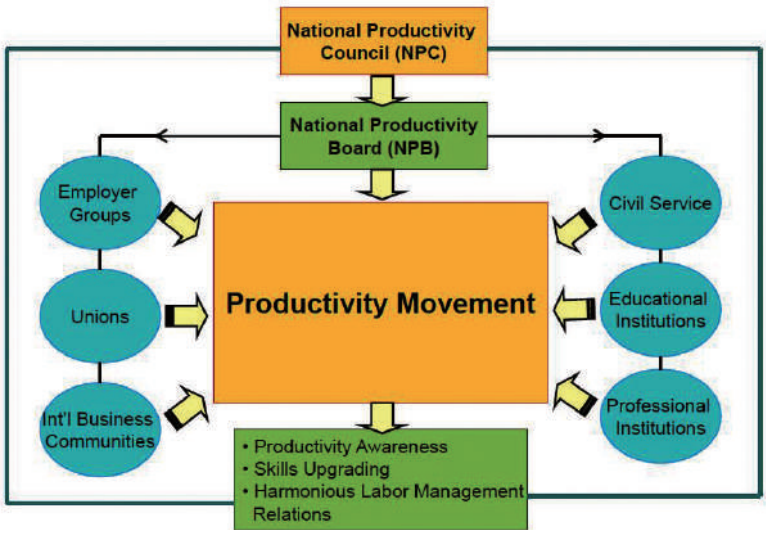
3.2. Mechanisms for stakeholder engagement in the Productivity Movement

To implement the Productivity Movement, the Singaporean government created a centralized oversight and coordination mechanism and reinforced the existing national productivity organization to perform

[27] SDF was established in 1978 as employer-based funding that provides financial incentives for staff training. All employers must pay a Skills Development Levy for all workers. The Central Provident Fund collects the levy on behalf of the Workforce Development Agency. While SDF was initially managed by the Ministry of Labor, from 1986 it came under NPB's responsibility. The levy collected is channeled into SDF, which provides grants to companies that send their workers for training.

[28] Speech by Low Choo Tuck (op cit).

[29] Speech by Low Choo Tuck (op cit).



Source: Information provided by Low Hock Meng on Sept. 2, 2010.

Figure 2.5. Framework for Productivity Movement (Around the 1980s)

such operational functions as public campaigns, training, consulting, research, measurement, and industrial relations. As Figure 2.5 shows, the mechanism was built on strong involvement and support of tripartite key stakeholders (public sector, unions, and employers) to ensure that productivity gains be shared among these stakeholders. These institutional factors greatly contributed to the successful awareness raising and scaling-up of the Productivity Movement. This framework has provided channels for involving various groups and institutions and thus facilitated the scaling-up of the movement. Because Singapore is a city state, there was no need for a local-level coordination mechanism.

At the policy level, in 1981, as a tripartite council, NPC actively involved key stakeholders, annually reviewed productivity programs and outlined its future strategy. As such, NPC ensured national consensus on key productivity strategies and programs. At the operational level, NPB played a key role as the secretariat of NPC, and also served as the operational arm spearheading the productivity campaign in both the public and private sectors throughout the three stages of the Productivity Movement. Under the oversight of NPC, NPB coordinated and promoted the diffusion of the Productivity Movement, such as productivity awareness, the improvement of skills connected to productivity management techniques

and harmonious labor management relations, and so on. It also provided training and management consultancy, spread QC circles, promoted the concept of productivity, and administered SDF, which provides financial incentives to the companies to send their staff to productivity-related training.

3.2.1. Channels of awareness raising and scaling-up

At the awareness stage, the productivity campaign was actively promoted in the public sector. The government, as the largest employer, endeavored to set an example of the private sector to improve productivity, work attitudes, and human resource management. The productivity campaign was linked with civil service reform and was spearheaded by the Central Productivity Steering Committee. The Central Steering Committee was formed immediately after the launch of the Productivity Movement, to oversee the movement within the civil service. Its members also included representatives of the civil service unions. An annual civil service campaign was launched in conjunction with the national productivity campaign. WITs were formed in all ministries to develop plans to promote teamwork spirit and productivity. These voluntary groups met regularly to identify improvements that could be achieved and formulate ways to attain the desired improvements (Sum 2000).

For example, the Ministry of Defense and the Armed Forces launched the productivity drive in 1981. Since all the young Singaporean males (age 18-21) were obliged to enroll in the national service (Singapore Armed Force, Singapore Policy Force, and Singapore Civil Defense Force) for 24 months, this has proved to be an effective way of disseminating the concept of productivity.[30]

Regarding labor unions, the National Trade Union Congress (NTUC) spearheaded the productivity campaign and created the Productivity Promotion Council. The campaign aimed to inculcate productivity and quality-consciousness at the workplace. Regarding employers groups, the Singapore National Employers' Federation and Singapore Manufacturers' Federation supported the Productivity Movement. Both unions and employer groups supported the workforce training,

[30] As of January 2008, the obligatory military service was replaced with voluntary military service.

with financial incentives coming from the NPB-administered SDF. Furthermore, productivity-related programs and human resource management contents were promoted at various tertiary educational institutions (including polytechnics) to train the future workforce on productivity awareness. In schools, formal curricula teaching teamwork, human relations, and productivity were introduced in various forms, such as group work, moral education, peer-learning, and school essays on productivity (Woon and Loo 2017). As explained earlier, the NPB partnered with various reputable organizations including multinational corporations, to set up training centers and develop training programs for the industry. Examples include partnerships with Singapore Airline, Philips Singapore, Seiko Instruments, and IBM. Such NPB-private sector training partnership programs further expanded in the 1990s.

3.2.2. Singapore Productivity Association (SPA) as a partner with the private sector

The Singapore Productivity Association (SPA), founded in 1973 as an affiliated body of the then NPB, also played an important role. While the NPB is a public organization charged with the Productivity Movement as a national project, the SPA is a private body comprised of representatives from companies that provide training and disseminate information on the Productivity Movement in the private sector (Yanagihara et al. 2018).[31] SPA charges fees to its members (institutional or individuals) and organizes courses and seminars, company visits, study tours, and so on, to promote their knowledge and skills acquisition. The members have access to information, training and seminars, and networking opportunities. SPA has promoted the active involvement of organizations and individuals in the movement and expedited its diffusion and techniques. At present, SPA is affiliated with the Enterprise Singapore (ESG), which was created in 2018 as a new one stop agency to promote SME development.

[31] While government organizations can develop 'policies,' they do not have sufficient marketing skills to disseminate them. This often requires separate sales promotion channels and hubs for their policies. In Singapore, SPA complemented the NPB's policy role by organizing productivity campaigns and forums. (Yanagihara et al. 2018).

4. Conclusion: Implications for Successful National Movements

Japan and Singapore took different approaches to designing and implementing national movements for quality and productivity improvement. In Japan, such a national movement was initiated with strong ownership of private organizations. The experiences of JMA, JUSE, and JPC provide concrete examples of the three-staged processes of technology transfer and local learning, adaptation/internalization, and diffusion. With their support, Japanese companies learned and established in-house production management systems. There was enthusiasm for learning across academia, industrial engineers, and companies, and they collaborated closely to improve the quality of Japanese products and the country's industrial competitiveness. Private organizations played a key role in this process.

The Productivity Movement in Singapore was a government-led initiative, in which Japanese support was effectively used, especially in the 1980s. The Singaporean experience confirms the vital importance of visionary top leadership in initiating, spreading, and sustaining the Productivity Movement. The establishment of centralized oversight and coordination mechanisms charged with implementing and monitoring productivity promotion activities was also important. NPC, NPB, and SPA functioned effectively, with strong involvement and support of key stakeholders (public sector, unions, employers, and academia). They organized massive awareness campaigns, implemented training programs and consultancy to upgrade skills, and developed manuals and training materials. The Singaporean experience also suggests that the three stages of the Productivity Movement—awareness, action, and ownership—can be a useful reference for a country where the cultural awareness of productivity is low. Singapore dedicated five years to awareness raising, by conducting massive campaigns to disseminate productivity culture to the public.

These experiences suggest that the degree of private sector dynamism matters (Ohno 2011). Where a dynamic private sector exists, it can take a lead in initiating, scaling-up, and sustaining a productivity movement, and the government can play a supportive role. This was exactly the case in Japan. However, if the private sector is weak as in the case of many developing countries, the government's role becomes even more

important in the introduction, adaptation, and development of the productivity movement accompanied by grassroot participation. Private sector dynamism also includes the absorptive capacity to learn, adapt, and internalize foreign technology. So, the educational and training levels of the general workforce become important.

Despite such differences, there are certain general lessons to be gained as well as common methods and instruments for success. Both countries initially introduced foreign knowledge and management technologies, but developed their own models and systems for improving quality and productivity through testing, customization, and institutionalization. They eventually succeeded in nationwide diffusion. Local learning and translative adaptation were key. What were the concrete mechanisms and factors that enabled Japan and Singapore to launch, implement and sustain such national movements?

The experiences of Japan and Singapore suggest that the following six factors are critical for designing and implementing a national movement that can successfully transform the mindset of the people.

- National commitments for quality and productivity movement
- Institutional infrastructure for quality and productivity movement
- Grass-roots awareness raising and participation
- Standardized training and consulting programs
- Industry-academia-government partnership for quality and productivity movement
- Development of private sector capability to sustain quality and productivity improvement

First, a national commitment for quality and productivity movement is indispensable. A national movement is nationwide engagement to attain economic and social progress, involving active participation of business, industry, workers, government, academia, and the general public. To orchestrate and sustain national movement, strong commitment by higher officials, organizations, and individuals is required. In Singapore, there was strong commitment and engagement by the top national leader; the deep interest of Prime Minister Lee Kuan Yew was critical to make the Productivity Movement widespread and entrenched in the society. In Japan, a sense of urgency to attain post-war economic recovery and enhance the quality of Japanese industrial products was widely shared

among political and business leaders, and even the general public. It was the business leaders that took initiatives to create organizations charged with quality and productivity improvement, with public policy playing a supportive role.

Second, strong institutional infrastructure is needed for a national movement. This includes the establishment of core organizations (such as national productivity organizations, QCC centers) responsible for implementing and coordinating various activities related to quality and productivity improvement. Since quality and productivity improvement depend on both national (economic and structural policies and the quality of public administration) and micro (the quality of managerial, professional and labor resources) levels, the institutional mechanism to support the national movement should embrace both aspects (Prokopenko 1999). Moreover, supporting institutions and mechanisms must be created at the central and local levels. This could include the establishment of a high-level national council with a central ministry or agency assuming the role of the lead organization (or national productivity organization) and the secretariat to the national council, and regional, district, and community-level mechanisms for productivity promotion (Prokopenko 1999). These organizations must be linked with broader members of the society, namely, key stakeholders such as the government, business (including business associations and chambers), labor, and academia. Such mechanism should provide channels to disseminate productivity awareness and translate that awareness into actions in their workplace, training, and education.

Third, awareness raising campaigns and participation at the grass-roots level is vitally important. In both countries, an annual campaign was conducted to promote the theme of quality and productivity, launch of campaigns by Prime Minister or business leaders, develop the nationwide program, and form QC circles within workplaces. Especially in Singapore, the government put a high priority on the public awareness campaigns in the first five-years to foster positive attitudes, values, and a culture of productivity. Massive awareness campaigns were conducted targeting not only workers and managers, but also government officials and politicians, professionals, students, and the general public. The slogan 'Together We Work Better' and the mascot character of Teamy The Bee were adopted, November was designated as Productivity Month, and the Prime Minister delivered a productivity speech for seven consecutive years. Both in Japan

and Singapore, highly visible incentive and recognition mechanisms were implemented at the national and local levels. Various instruments were mobilized, such as TV, public speeches by senior government officials or business leaders, and national conventions. Also, award programs are effective for promoting campaigns to reward good performers and stimulate interest in best practices and corporate efforts to excel.

Fourth, standardized and well-designed teaching materials, training, and consulting programs must be created to educate government officials in charge as well as private leaders and participants of the movement on the frontline of implementation. These include curriculum, courses, textbooks, manuals, visual aids, e-contents, TV programs, movies, and stories describing successful nations, firms, and individuals. These can be translated from foreign sources or created by national experts, and made available to public through various media, publications, and a web portal site. It is also important to provide education and training systems at the central and local levels that teach both theory and practice to managers and workers, as well as a higher training system for their trainers.

Fifth, partnership among industry, academia (including universities), and the government is also important. The Japanese and Singaporean experiences confirm that such linkages worked effectively for: (i) studying various international best practices; (ii) producing a new model most suitable for the domestic context by selecting, adjusting, and combining foreign components; and (iii) conducting practice- and application-oriented training. Such linkages should be also useful for preparing suitably trained graduates to meet the manpower needs of industry and providing internship for students.

Lastly, there is a need to develop a cadre of private management consultants in order to self-sustain the national movement. The national movement must continue for a sufficiently long time, typically over a decade or more, with evolving emphasis. Japan did not face major problems with the sustainability or development of private sector capability—thanks to the existence of a dynamic private sector and core organizations (JPC, JUSE, and JMA). Furthermore, the companies' top management and engineers had adequate knowledge to understand the relevant skills and techniques and the desire to adopt them. Factories also had workers capable of absorbing the new management technologies. As the Singaporean experience shows, for many developing countries, the

national movement can be initiated and led by the government through public agencies. But, it must be gradually transferred to the private sector to maintain its sustainability. In the case of Singapore, the JICA-supported PDP undertook capacity development of NPB counterparts, as well as private sector consultants. Under the 'Management Consultancy Referral Scheme' and the 'Associate Consultants Scheme,' those trained under the JICA project became NPB Associate or Referral Consultants and were mobilized as 'qualified' private management consultants (NPB and JICA 1990). As such, a pool of associate and referral consultants was created to supplement NPB's efforts in reaching out to industries. Such efforts are critical for fostering a feeling of ownership of the productivity movement by individuals. To this end, it is important for core organizations to train private management consultants so that they support productivity improvement at industry and company levels.

Certainly, we should recognize that Japan and Singapore respectively possess certain peculiarities which may have facilitated broad stakeholder engagement in their national movements. Japan is a homogeneous society without serious cultural and language barriers for mass communication. Singapore is a small-sized city-state, and there was no need for a local-level coordination mechanism. Yet, these peculiarities should not undermine the importance of establishing an institutional framework for promoting a productivity movement, such as the core agency acting as a hub for stakeholder engagement and grass-root level awareness raising campaigns. In fact, as explained in Chapters 3 and 4, since around 2009 the Ethiopian government has introduced *Kaizen* with JICA support, with a strong commitment of national leaders. The government established the Ethiopian Kaizen Institute as the core agency, launched the national *Kaizen* movement learning from the Singaporean model, and has introduced *Kaizen* to industries, educational institutions, and local governments over the past decade. Although it may be too early to evaluate the outcome of Ethiopia's ongoing efforts, this is a promising endeavor with important implications for other developing countries that deserves close attention.

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CHAPTER

3

Key Success Factors for Quality and Productivity Movement (*Kaizen*): The Case of African Countries

Getahun Tadesse Mekonen

1. Introduction

Chapter 2 of this volume—"National Movements for Quality and Productivity Improvement in Japan and Singapore: From a Perspective of Translative Adaptation"—identified six key success factors for quality and productivity movement (*Kaizen*). These are: (i) national commitment for quality and productivity improvement; (ii) institutional infrastructure for quality and productivity improvement; (iii) grass-roots awareness raising and participation; (iv) standardized training and consulting programs; (v) industry-academia-government partnership for quality and productivity movement; and (vi) development of private sector capability to sustain quality and productivity improvement.

This chapter aims to explore the characteristics of these six success factors in seven 'target countries'[1] (Zambia, South Africa, Tunisia, Tanzania, Kenya, Ghana, and Ethiopia) currently implementing *Kaizen* to shed light on the process of learning from abroad (Japan), customizing this to local situations, and expanding its dissemination nationwide. The chapter is organized in four broad sections. Following this introduction, the methodology used in the study is explained in Section 2. Section 3 illustrates how those six success factors play out in the seven target countries with the help of primary and secondary data collected from them. In Section 4, the important findings are summarized and presented and this is followed by the conclusions and recommendations in Section 5.

[1] All throughout this chapter the term 'target countries' refers to those seven countries selected for this study. The *Kaizen* project profiles of those countries are given in Appendix 3.1.

2. Research Methodology

In constructing this chapter, primary and secondary sources are used to collect data. The primary data are collected through a questionnaire prepared for the purpose of this study. The questionnaire is designed to collect data related to the six factors and additional supporting information to illustrate the current status of countries on: (i) national level commitments; (ii) customization and institutionalization of *Kaizen* activities and the strategy perused by counterpart organizations; (iii) *Kaizen* promotion: teams (Quality Control Circles (QCCs), 5S Committee, Total Productive Maintenance (TPM) team) formation and activation, and Africa Kaizen Annual Conferences (AKAC) and Awards at continental level; (iv) training of *Kaizen* consultants[2] and utilization of the *Kaizen Handbook*[3] to standardize *Kaizen* activities in Africa; and (v) maintaining the sustainability of *Kaizen* activities.

The questionnaire was sent to the seven countries listed above, directly to the heads of counterpart organizations on November 9, 2019 through the Japan International Cooperation Agency (JICA), to be filled in and returned by December 6, 2019 (please see Appendix 3.2. for the structure and contents of the questionnaire). Some countries failed to respect the due date and reminders were sent to them through the same link. The responses are collected, organized, graded, and analyzed in Tables 3.1-3.8.[4]

The secondary sources used in this study are the 'JICA *Kaizen* Project Reports'[5] prepared for six target countries (Zambia, Tunisia, Tanzania, Kenya, Ghana, and Ethiopia). The *Kaizen Handbook* (JICA 2018) and discussions and conclusions made in Chapter 2 are explained in the introductory part of this chapter. The JICA *Kaizen* Project Reports are

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2 In the context of this chapter, *Kaizen* consultant refers to those trained by Japanese experts on *Kaizen*.

3 The *Kaizen Handbook* is prepared by JICA (2018) to support the implementation of Africa Kaizen Initiative's (AKI) strategic activity; 'Standardizing *Kaizen* Activities in Africa.'

4 Please note that all tables are constructed based on this questionnaire.

5 'JICA *Kaizen* Projects Reports' refer to those reports (JICA 2008, 2011, 2014a, 2014b, 2015, 2016a, 2016b, 2019) prepared by each project in each of the six target countries, submitted to JICA and documented. In this chapter, unless otherwise individually cited, this phrase is used to indicate the reviews made and the extracted ideas that include all target countries. The reports of the six target countries of this study are given in the references. For South Africa, no such report is referred to.

collected from JICA as well as target countries and reviewed to build comprehensive understanding on the progress and challenges of each country. For South Africa a JICA *Kaizen* Project Report is not available and only the response to the questionnaire is considered.

These three sources (JICA *Kaizen* Projects Reports, data collected through a questionnaire, and the conclusions of Chapter 2) are used as inputs to construct this chapter. In writing this chapter, a descriptive approach is followed, and no statistical analysis is attempted.

3. The 'Six Success Factors' in the Context of African Countries

This section reviews the current status of the above-mentioned six factors in the context of seven African countries selected as a target group for the analysis in this chapter.

3.1. National commitments for quality and productivity improvement

The pioneer country that brought a leap forward in quality and productivity/*Kaizen* is Japan, followed by Singapore. Deming (Orsini 2013, 280) explained what he calls the meteoric rise in quality and productivity in Japan:

> The success of Japanese manufacturers is an example of what can happen when a whole nation submerges itself in a determined, enthusiastic, methodical effort involving the study and use of statistical methods in all stages of production. […] The leap forward in quality that took place in 1950 was no accident; it was not accomplished by resolution, nor by cost benefit analysis. It was the result of the concerted efforts of management, engineers, and production workers, throughout Japanese industry, company-wide and nation-wide.

The meteoric rise that happened in Japan was mainly due to the commitments by the government, institutions and companies as explained in detail in Chapter 2. The JICA *Kaizen* Project Reports and some other studies indicate the involvement of a few top government officials in

the *Kaizen* activities in the target countries. Among the top government officials, the Prime Ministers of Ethiopia (Mekonen 2018), the President and Cabinet Ministers of Zambia (JICA 2016a), and the Secretary of the Ministry of Industry and Trade (MIT) in Tanzania (JICA 2016b) are some of those in the top lists. Government officials, such as Small and Medium Enterprises (SMEs) agencies and department heads have also close contacts with organizational units they have established or delegated as counterparts to Japanese experts. Government officials are encouraged to get committed through different approaches. In this regard, the author of this chapter is well aware of the close contacts of Japanese Ambassadors and JICA representatives with target countries from personal observation while traveling to those countries for *Kaizen* studies (JICA 2018). In one case involving the former head of the Ethiopian Kaizen Unit (EKU) and the Director General of the Ethiopian Kaizen Institute (EKI), the author remembers his frequent invitations to the residence of the Ambassadors of Japan to Ethiopia for dinner with high level government and JICA officials. The discussion that took a long time during every dinner was about *Kaizen*.

In addition, government officials are invited to the Africa Kaizen Annual Conferences (AKACs). Some officials are also invited to Japan to get more exposure through the Tokyo International Conference on African Development (TICAD) processes. On top of that, *Kaizen* and its impact were officially raised at TICAD meetings. In my view, all those efforts are to create awareness and encourage government officials for national commitments.

Then, the question is 'to what extent the government officials of those target African countries are committed to *Kaizen* activities?' Countries are asked to reply to the questions intended to know the commitment of their governments in terms of allocating 'adequate'[6] budgets, as one indicator of commitment for *Kaizen* activities. The budget items asked for include: (i) salary and wages; (ii) office equipment and consumables; (iii) transport and allowances for field work; and (iv) the costs of national conventions, conferences, awards, and so on. In this study, three alternative choices are given for each budget item: (i) 'adequate' with 3 points; (ii) 'not adequate' with two points; and (iii) 'not at all' with zero. The responses of each

[6] The term 'adequate' refers to the earmarked budget for planned and agreed upon *Kaizen* activities.

country are scored and presented in Table 3.1.

Table 3.1. Cost Components for *Kaizen* Expenditure

No.	Items		Score of responses by country						
			Zam	SA	Tan	Tun	Ken	Gha	Eth
1	**Government allocate budget for counterpart organization (country average 1)**		**2**	**2.75**	**2**	**2**	**2.5**	**2**	**2.5**
	a	Salary and wages	2	2	3	2	3	2	3
	b	Office equipment and consumables	2	3	3	2	3	2	3
	c	Transport and allowances for field work	2	3	2	2	2	2	2
	d	Costs for national conventions, conferences, awards etc.	2	3	0	2	2	2	2
2	**Companies allocate budget (country average 2)**		**2**	**0.8**	**0**	**1.2**	**0**	**2**	**2**
	a	Company training	2	0	0	2	0	2	3
	b	QCCs activities	2	2	0	2	0	2	3
	c	Allowances for *Kaizen* consultants	2	0	0	2	0	2	2
	d	Recognition and awards	2	2	0	0	0	2	2
	e	Cost sharing (consultancy fees)	2	0	0	0	0	-	0
Country average score (average of 1 and 2)			**2.0**	**1.7**	**0.9**	**1.6**	**1.1**	**2.0**	**2.2**
Country ranking			**2nd**	**4th**	**7th**	**5th**	**6th**	**2nd**	**1st**

Scores: Adequate (3); Not adequate (2); and not at all (0)

The salary and wages allocated by governments are adequate for three countries namely; Kenya, Ethiopia, and Tanzania while four countries (Zambia, South Africa, Tunisia, and Ghana) they are reported as inadequate. The responses to the budget for transport and allowances are inadequate in all cases except South Africa. These two budget items are particularly important in the more effective execution of *Kaizen* activities. The only country that allocates an adequate budget for these two important line items as well as for the costs of covering national conventions, conferences, awards, and so on is South Africa (see Table 3.1, block 1).

In general, the commitments of governments in terms of allocating adequate budgets do not seem satisfactory, according to these responses.

However, it is important to note that the institutional infrastructure, the number of *Kaizen* consultants, and the administrative workers engaged in *Kaizen* activities vary from country to country. In some instances there are cases whereby budgets allocated by government may not be utilized by a project. For instance, according to the JICA *Kaizen* Project Report on Tanzania (JICA 2016b), the approved budget of the Tanzania Kaizen Unit (TKU) (total of recurrent and development budgets) amounted to 80 million TZ shillings (approximately 40,000 US dollars, nominal) in 2014/2015, and 120 million TZ shillings (approximately 60,000 US dollars, nominal) in 2015/2016, respectively. However, the disbursed amount in 2014/2015 was estimated to be roughly 10.5 million TZ shillings (approximately 5,000 US dollars, nominal), and in 2015/2016 to be 4.2 million TZ shillings (approximately 2,000 US dollars, nominal). These figures reveal two facts. On one hand, they show the commitment of the government in allocating reasonably high budget for *Kaizen* activities, but on the other hand, they indicate a lower level and declining trend in budget utilization by TKU.

National quality and productivity movement in general and *Kaizen* activities in particular presuppose the commitment of companies. Government commitment alone is not enough as the experience of other countries tells us. In the case of Japan, for instance, Deming argues that 'the Japanese manufacturers did not look to their government nor to ours for assistance. Instead they raised the money […] an invitation enclosed a ticket and a check' (Orsini 2013, 280-84). This clearly indicates the commitment level of Japanese companies in the Country's meteoric rise, as Deming argued.

To understand the commitments of companies in Africa, counterpart organizations are asked about the budget allocation for *Kaizen* activities implemented, as one important indicator of level of commitment, using five budget line items (company training, QCCs activities, and allowances for *Kaizen* consultants, recognition and awards and cost sharing for consultancy fees) in those seven target countries. The alternative choices are similar to those given to budget allocations by governments and the responses are organized as in Table 3.1. This table reveals that companies in Kenya and Tanzania do not allocate budgets at all. Except for Zambia, companies in the other countries do not assign budgets for the cost sharing of consultant fees (for example see Table 3.1. line 2.e). It is only in Ethiopia that companies allocate adequate budgets for company training and QCC activities (Table 3.1, line 2.a and 2.b). In the rest budgets are either not

adequate or do not exist.

The experience of Tanzania in obtaining a firm level of commitment by pilot companies in *Kaizen* implementation is worth mentioning at this juncture. TKU started to collect a fee of 50,000 TZ shillings from each company, to be used for *Kaizen* dissemination activity. However, the commitment fee was then transferred to the National Treasury indicating that it could not be used for *Kaizen* dissemination activity. As a result, the incentive to collect the fee was lost and TKU terminated collection in 2014 (JICA 2016b).

3.2. Institutional infrastructure for quality and productivity improvement

A meteoric rise in the nation-wide engagement in quality and productivity improvement happened in Japan due to the meticulous support of dedicated institutions such as the Japan Management Association (JMA), the Japan Productivity Center (JPC), the Union of Japanese Scientists and Engineers (JUSE), and so on (see Chapter 2). It is also due to the full participation of management and workers various industries in establishing and activating small group activities such as the 5S committee, QCCs, Total Productive Maintenance (TPM) teams, and the commitment of companies (JUSE 1985; Shirose 1984; Kikuchi 2011).

To what extent the African countries currently attempting to transfer *Kaizen* from Japan are committed in terms of establishing and supporting dedicated institutions and the role played by them are areas to explore.

During the first pilot project in Ethiopia, the Ethiopian Kaizen Unit (EKU) conducted a study on Institutional Frameworks (Sato 2011) in preparation for the organization of the Ethiopian Kaizen Institute (EKI). This was to learn from global experience on how to establish an institute dedicated to *Kaizen* that could organize, coordinate, and provide nation-wide leadership. In that study, case studies from thirteen countries were compiled and it was learnt that different countries follow various ways of institutional setup. These case studies revealed that countries disseminate *Kaizen* through their productivity centers (five countries), SME agencies (two countries), and technological or training institutes (three countries).

Generally, the practice of those thirteen countries show there are a

number of ways to institutionalize *Kaizen* activities. The success stories and failures reflected in the case study revealed the institutional strengths, dedication and leadership as core determining factors. This study confirms the conclusion made in Chapter 2 with regard to the importance of institutional infrastructure as one of the factors for the success of *Kaizen* quality and productivity movement.

The experiences of African countries are summarized in Table 3.2.

Table 3.2. Institutional Framework, *Kaizen* Strategy/Model and Means to Sustain *Kaizen* Activities

Countries	*Kaizen* promoting institutions	Period of JICA projects in years	Strategy/model designed	Means of sustaining *Kaizen* activities
Zambia	KIZ	11	Anchored on fundamentals of QCCs Developing 'Golden Triangle' (TQM, QCCs, Standardization)	Introducing fee-based system. Collaborating with donors having interest in productivity improvement
South Africa	AIDC	20	Practical workshops on workshop floor level	JICA has trained adequate *Kaizen* consultants
Tunisia	UGPQ	12	Dissemination of *Kaizen* in industrial companies	Establishing productivity center
Tanzania	TKU	7	Integration approach. Combining *Kaizen* with cluster development	Introducing fee-based services. Preparing *Kaizen* responsive strategic plan and *Kaizen* responsive budget
Kenya	KIBT/KU	13	Learning *Kaizen* principles by Master trainers, adapting the principles and disseminating the information to MSMEs and working with them during implementation	Incorporating *Kaizen* in the annual work plan
Ghana	NBSSI/ BACs	8	Customization through content and process modification Creation of local success stories Demand creation	Cost sharing Integrating *Kaizen* activities into core operations Sourcing adequate resources (budget) Train private consultants

Countries	*Kaizen* promoting institutions	Period of JICA projects in years	Strategy/model designed	Means of sustaining *Kaizen* activities
Ethiopia	EKI	11	Developing a 15-year strategy to transfer *Kaizen* step-by-step Designed TIISO Model (Testing, Implementing, Institutionalizing, Sustaining, and Owning)	Designing 10-Year Dissemination Strategy Strengthening networking between public and private institutions. • Continual commitment of the government • Aligning *Kaizen* with the National Development Plans • Introducing fee-based consultancy • Integrating *Kaizen* into the education system • Developing public and private consultant capability in both the private and public institutions • Involving Professional Associations

Among the seven countries, two of them (Ethiopia and Zambia) have *Kaizen* Institutes; three of them (Tunisia, Tanzania, Kenya) organized a *Kaizen* Unit (KU) under different ministries and institutes; Ghana conducts *Kaizen* activities through SME Agencies, and in South Africa, an Automotive Industry Development Center (AIDC) is responsible for organizing *Kaizen* activities. The institutional arrangements followed by the African countries are therefore not very different to the global experience. The issue is the effectiveness of those institutions in providing leadership: the optimum utilization of *Kaizen* projects in learning the new management technologies, customizing, and innovating new ones, disseminating, and scaling up nation-wide. This requires institutions to craft appropriate strategy and policy or model their steps and actions from the start to the end; this being the ownership stage like that in Singapore as discussed in Chapter 2.

In whatever form they are established, the institutes, agencies and units are expected to play the role of those institutions in Japan and Singapore that are discussed in Chapter 2. In fact, countries are not expected to follow

the same institutional model. However, those organizations designated as counterparts in different countries are expected to build their capacity of coordination and provide leadership in a nationwide *Kaizen* movement for *Kaizen* activities to succeed and contribute to the development agenda of the countries and the continent.

From their responses, most of the countries showed their intention to be centers of excellence. Zambia has an ambition to expand *Kaizen* into its neighbors, Tunisia has a desire to take a leading role in Francophone countries, Ghana and Kenya expressed their will to extend *Kaizen* activities to Pan-African Productivity Association (PAPA) countries, and Tanzania to Southern African Development Community (SADC) countries. But there are no concrete experiences or proposals that could lead into action so far by all countries except Ethiopia that has started to involve its neighbors (mainly Sudan and Djibouti), as reported by EKI.

The experiences of two major countries (Japan and Singapore) explored in Chapter 2 show at least two approaches. The journey of Japan is through learning foreign management technologies, customizing (adapting), and disseminating their lessons. The Singapore model consists of three stages: awareness creation, action, and ownership. The three stages models of Japan and Singapore are highly generalized and take a macro level view. If we take the case of JPC,[7] it has passed through four stages. The first stage (1955-70) was the Learning Stage, and the main activities were organizing and leading study missions to the United States (US) and Europe to learn modern management methods, disseminating this knowledge through seminars, training, consultation, and the establishment of healthy labor-management relations. The second stage (1970-85)—the Application Stage—was the period of modification of management methods suitable to Japan. The third stage (1985-95), known as the Harmonization Stage, focused on the studies of socio-economic issues related to productivity. The fourth one is the Innovation Stage (1995-now) dwelling on supporting innovation, career management, and work-life balance (Fujita 2016). The other example is the case of JMA who like other institutions engaged itself in transferring, modifying, and disseminating *Kaizen* and side by side continuing to transfer and disseminate new management principles and techniques from the western world (Saito 2013).

[7] https://www.jica.go.jp/english/news/field/2015/c8h0vm00009ulhdo-att/02_fujita.pdf.

Those seven countries covered by this study are asked to explain their strategies or framework of their model. The response of each country is organized in Table 3.2 and the summary is presented to show the overall picture as a continent. There are only two countries (Ethiopia and Zambia) who claimed to have their own model. Ethiopia has a 15-year (2011-25) strategy to transfer and own *Kaizen* from Japan step by step. Each step consists of 5 years. It has also developed a model known as TIISO (testing, institutionalizing, implementing, sustaining, and owning). The details of EKI's strategy and model are illustrated in the works of Mekonen (2018).

According to the responses of various countries, in Zambia, JICA experts designed a model known as a 'Golden Triangle.' The basis of this model is anchoring *Kaizen* on three pillars: TQM, QCC, and Standardization. Other countries have mentioned how they are thinking to expand *Kaizen*; looking at more actions. These include: (i) Tanzania following integration approach by combining *Kaizen* with cluster development; (ii) Kenya to incorporate *Kaizen* in its annual work plan; and (iii) Ghana to customize *Kaizen* through content and process modification. The response of Tunisia and South Africa cover more activities: disseminating *Kaizen* in industrial companies (Tunisia) and conducting practical workshops on the shop floor (South Africa).

One important role of institutions is to maintain sustainability of *Kaizen* activities. Countries are asked 'How to sustain *Kaizen* activities after the project is completed and the Japanese experts have left?' The responses of all countries are organized in Table 3.2 and the major points are summarized as follows: (i) collaborating with other donors who have similar objectives in productivity improvement (Zambia); (ii) no major gap can be created since JICA trained an adequate number of *Kaizen* consultants (South Africa); (iii) establishing a productivity center (Tunisia); (iv) preparing a *Kaizen* responsive strategic plan and *Kaizen* responsive budget including introducing fees (Tanzania); (v) incorporating *Kaizen* in the annual work plan (Kenya); (vi) integrating *Kaizen* into core operations, introducing cost sharing, and sourcing for adequate resources (Ghana); and (vii) (a) developing a long-term *Kaizen* dissemination strategy, (b) strengthening public-private institutional networks, (c) aligning *Kaizen* activities with the national development plan to secure government support, (d) introducing a fee-based consultancy system, (e) integrating *Kaizen* into the education and training system, (f) placing more emphasis on the development of the capability of consultants, and (g) involving professional associations

(Ethiopia).

3.3. Grass-roots awareness raising and participation

Practically all *Kaizen* projects have a program for awareness creation in the form of workshops and conferences. While this is mostly in selected pilot companies, company owners and managers, government officials, counterparts, and stakeholders are invited to those workshops and conferences (see JICA *Kaizen* Projects Reports).

In Zambia, an annual conference has been conducted to reward the best companies and QCCs since 2010 (JICA 2016a). In Ethiopia, public and private Media are mobilized to report *Kaizen* activities and effects. Sponsored programs are frequently aired on Ethiopian Television (ETV). Training is provided to parliament members, and Federal and Regional political leaders and communicators. Annually a *Kaizen* booklet is published. A *Kaizen* song has been developed and an 'Annual Kaizen Award Conference' for best companies and QCCs is conducted (Mekonen 2018; JICA 2014a). In Kenya, they have prepared promotional booklets to popularize *Kaizen* (JICA 2014b).

JICA in collaboration with the African Union Development Agency - the New Partnership for Africa's Development (AUDA-NEPAD) have been conducting *Kaizen* Knowledge Seminars and Africa Kaizen Annual Conferences (AKAC), and currently the Africa Kaizen Award (AKA). Government officials from the host countries and all *Kaizen* implementing countries, counterparts, academicians researching *Kaizen*, and Japanese experts are invited to exchange experiences and learn from each other on a number of issues. Countries are asked the level of their participation in those seminars and conferences, what lessons they have drawn and their opinions for future improvement. Their responses are organized in Table 3.3. The replies of most of the countries indicate they have taken back home a number of lessons.

Table 3.3. Country Responses on Lessons Learnt from Africa Kaizen Annual Conferences

Country name	Conferences participated	Lessons taken away	Improvement ideas for the future
Zambia	Addis Ababa, Nairobi, Durban, Tunis	Nil	Allowing four project presentations per country; 2 from manufacturing and 2 from services and 2 from QCCs chosen through national competitive process such as national conferences
South Africa	Nairobi, Durban, Tunis	Involvement of political principals on *Kaizen* development and unfortunately not successful in South Africa so far	The panels of judges must be more industry or service representatives with practical *Kaizen* experiences than only academicians
Tunisia	Addis Ababa, Nairobi, Durban, Tunis	Presentations of *Kaizen* on the on-going projects Presentation of TQM for private sector in the on-going projects	Giving bonus to the laureates
Tanzania	Nairobi, Durban, Tunis	Difficulty of having common KPIs Mobilization of candidates from manufacturing enterprises as participants on the conferences Enthusiasm gained from AKAC to improve performance and getting Award in Tunis	Extending durations for five days Exhibition of products and training materials Involving other productivity institutes
Kenya	Addis Ababa, Nairobi, Durban, Tunis	Use of *Kaizen* to improve; ensure survival, sustainability, and profitability of SMEs	Continuation of AKAC and AKA
Ghana	Nairobi, Durban, Tunis	Adoption of *Kaizen* to the needs of the country Commitment and involvement of top officials Ensuring adequate resources Incorporating *Kaizen* into national plans Increasing awareness of *Kaizen* from the demand side Strengthening AKI institutional infrastructure	Adequate exposure on the actual implementations of *Kaizen* in countries Increase chances of participation for enterprises Involving associations
Ethiopia	Addis Ababa, Nairobi, Durban, Tunis	Companies best experiences Standardization of training materials Digitalization of *Kaizen* Networking and partnership Private consultant development	Expansion of the Award by sectors (manufacturing, services, etc.) Awarding *Kaizen* promoting institutions

It is well understood that teams like 5S committee, QCCs, and TPM have pre-eminent roles to promote *Kaizen* at grass-root-level in enterprise. They can accelerate the processes of learning new ways of improvement, applying new tools, creating team dynamism, learning from each other, and creating new knowledge, thus maintaining the momentum of continuous improvement (JUSE 1985). While the applicability of QCCs in Africa is sometimes questioned, Zambia and Ethiopia are good examples that justify this in Africa. According to the response of Zambia (JICA 2016a), the fundamentals of QCC are one of the pillars of the Golden Triangle Model on which *Kaizen* is anchored. In Ethiopia, small group activities (5S Committee, QCCs, and TPM) are customized by the Kaizen Promotion Team (KPT) involved in implementing *Kaizen* step-by-step from simple to complex. KPTs play the roles of the 5S committee, QCCs, and TPM (Mekonen 2018). From the responses of those seven countries, it is understood that almost all countries have introduced QCC activities.

The responses of target countries with regards to QCCs are shown in Table 3.4. The ranges of the scores are from 4 (high grade), 3 (medium grade), 2 (low grade) to Nil or Zero. The items sorted from different tables presented in this chapter are: (i) establishing QCCs in companies; (ii) all employees are involved in QCCs; (iii) company managements provide assistance to *Kaizen* units and QCCs; (iv) *Kaizen* units/coordinators prepare and provide training to QCCs; and (v) company management establishes systems to assist and motivate QCCs.

Table 3.4. Establishing and Promoting Quality Control Circles

No.	Activities	Score of responses by country						
		Zam	SA	Tan	Tun	Ken	Gha	Eth
1	Establishing QCCs in companies	4	3	3	3	4	4	4
2	All employees are involved in QCCs	3	3	3	4	4	4	4
3	Company management provides assistance to *Kaizen* unit and QCCs	4	3	3	3	4	4	3
4	*Kaizen* units/coordinators prepare and provide training for QCCs	2	3	3	3	4	3	3
5	Company management establishes system to assist and motivate QCCs	3	3	2	3	4	3	3
Country average score		**3.2**	**3**	**2.8**	**3.2**	**4**	**3.6**	**3.4**
Country ranking		**4th**	**6th**	**7th**	**4th**	**1st**	**2nd**	**3rd**

Scores: High grades (4); Medium grades (3); Low grades (2); Nil (0)

Kenya scores all high points (4) and is ranked 1st, followed by Ghana with an average score of 3.6 and ranked 2nd. The 3rd country is Ethiopia whose average score is 3.4. The other countries that are in the medium grade category are: Zambia and Tunisia with 3.2 points each (4th rank) and South Africa with 3 points (6th rank). Tanzania scored 2.8 and ranked 7th. In general, Table 3.4 provides a positive picture about the QCCs in all countries. Although this is encouraging, countries have to learn more about the roles of the 5S committees, QCCs, and TPM teams and customize small group activities according to their circumstances. Particularly, the formation, role, and activities of QCCs under the current challenges of COVID-19 and the working culture that may take shape post COVID-19 (the new norm) have to be given due consideration.

3.4. Standardized training and consulting programs

According to the JICA *Kaizen* Project Reports, each country follows a similar process to prepare and deliver training by Japanese experts for both class-room training (CRT) and in-company-training (ICT). However, the duration of CRT and ICT differs from country to country. The whole process can be summarized as follows:

(1) Japanese experts select the type of courses to be given and prepare training materials. There are cases to add or reduce course types and contents depending on the learning capacity of selected *Kaizen* consultants, company management, and workers for the training.
(2) The duration of CRT and ICT is determined depending on the course items, the complexity in learning and applying project approaches stipulated in the work plan prepared for each project by JICA experts. There are wide differences in the duration of CRT and ICT from country to country. In the micro, small, and medium enterprises (MSME) category, the duration for basic *Kaizen* training in Ghana is 5 weeks and advanced *Kaizen* 8 weeks; in Kenya *Kaizen* training for trainers is 1 year and for master trainers 3 years. In Tanzania, training for trainers is 3.5 months and for master trainers 13 months. In Zambia, training for *Kaizen* consultants is 1 year and for *Kaizen* trainers is 2 years. In Ethiopia, training for basic *Kaizen* is 6 months and for advanced *Kaizen* 8 months (JICA 2018, 79). All training incorporates CRT and ICT.
(3) After completing CRT, the trainees (*Kaizen* consultants) are examined to know their level of understanding and readiness for

ICT. This understanding is important when teaming up the trainees for ICT by combining those at different level of capacity to facilitate learning from each other.

(4) ICT is conducted initially under the guidance of Japanese experts, particularly during the first batch, and their involvement is reduced in the second and third batches. On the other hand, the involvement of *Kaizen* consultants increases until finally they are able to conduct ICT independently. In the second and third batch ICT, mainly in the second and third years of the projects, the *Kaizen* consultants assume the leadership with little assistance from Japanese experts. However, the JICA *Kaizen* Project Reports show differences in capacities among consultants and some may take time to assume leadership.

The review of the JICA *Kaizen* Projects Reports also shows that there are differences in the overall training and consultancy approaches followed by Japanese experts. Some follow the JUSE approach (basically QCCs based *Kaizen*) while others favor the JPC approach (mainly consultant led problem solving based *Kaizen*).[8] In some instances, for example in Ghana and Kenya, a diagnosis and consulting system (*Shindan* System[9]) in combination with 5S/*Kaizen*[10] has been introduced.

Counterpart organizations are asked questions related to the capacity level of trained *Kaizen* consultants to assess the effectiveness of training. The responses from those seven target countries are organized in Table 3.5. The table is constructed to indicate the *Kaizen* activities to be undertaken by local *Kaizen* consultants trained by Japanese experts without their assistance. Eight activities are listed in the table; they are believed to measure the capacity of trained *Kaizen* consultants directly and the 'effectiveness'[11] of the training (CRT, ICT) indirectly: (i) selecting pilot companies; (ii) organizing trainings for companies; (iii) preparing tailor

[8] JUSE and JPC approaches are the two most favoured ways of transferring *Kaizen* knowledge by JICA experts. For the details of these approaches please refer to the *Kaizen Handbook* (JICA 2018).

[9] *Shindan* is a Japanese term used to describe a state authorized and sponsored management support for SMEs in an institutionalized form which was started in the year 1952 (Ohno 2009).

[10] The term '5S/*Kaizen*' is used in Ghana.

[11] Effectiveness in the context of this chapter is referring to achieving one of the outputs of the project in producing capable *Kaizen* consultants: the most important output in all *Kaizen* projects.

made training specific to the need of companies; (iv) providing training for companies; (v) establishing QCCs and providing training; (vi) assisting companies in the preparation and implementation plan and performance evaluation; (vii) periodically reviewing and upgrading training materials by including local best practices; and (viii) modifying *Kaizen* technologies/ developing new technologies.

Table 3.5. *Kaizen* Activities to be Undertaken by Local *Kaizen* Consultants Trained by Japanese Experts without Their Assistance

No.	Activities	Score of responses by country						
		Zam	SA	Tan	Tun	Ken	Gha	Eth
1	Organizing training provided for companies	3	3	3	3	3	3	3
2	Selecting pilot companies	0	3	3	3	3	3	3
3	Preparing tailor-made trainings specific to the companies	3	2	3	3	3	3	3
4	Providing training for companies	3	3	3	3	3	3	3
5	Establishing QCCs and providing training	3	3	3	3	3	3	3
6	Assisting companies in the preparation and implementation plan and performance evaluation	3	3	2	3	3	3	3
7	Periodically reviewing and up-grading training materials by including local best practices	3	3	3	3	3	3	3
8	Modifying *Kaizen* technologies/ developing new technologies	0	3	2	3	3	1	3
Country average score		**2.3**	**2.9**	**2.8**	**3.0**	**3.0**	**2.8**	**3.0**
Country ranking		**7th**	**4th**	**5th**	**1st**	**1st**	**5th**	**1st**

Note: CA=∑in; where, CA is country average, ∑ in is the sum of the score Items (∑i) of each country divided for the number of items (n=8).

Scores: 3: Yes (High); 2: Very little (Medium); 1: Not at all (Low); 0 for not providing any of those choices

Three choices were given for each item: (i) 'Yes' with 3 points and marked as High grade if the consultants are able to perform the activities without any assistance; (ii) 'Very little' with 2 points and marked as Medium grade if the consultants are able to perform the activities with some assistance; and (iii) 'Not at all' with 1 point and marked as Low grade if the consultants are not able to perform the activities without assistance. As depicted in Table 3.5, Tunisia, Kenya, and Ethiopia scored the highest grade '3' and

were ranked 1st among the seven countries. These countries, according to their responses, can conduct tailor-made training as per the needs of companies. More interestingly, they can modify and even develop new *Kaizen* technologies that are the highest stage of a consultants' capability. The country in the medium grade is South Africa with a score of 2.9 and a ranking of 4th. It scored high (3 points) in all except in preparing tailor-made training specific to companies (2 points). Like others who stood first, South Africa also indicated the capability of its consultants in modifying and developing new *Kaizen* technologies. Tanzania and Ghana scored 2.8 and were ranked 5th. Still these countries; South Africa, Tanzania and Ghana are in the high grade range since their scores are greater than 2.5, the lowest limit for the high grade. Zambia is in the medium grade, scoring 2.3 and ranked 7th.

3.4.1. Preparing standardized training and consultancy programs

Standardized training and consultancy programs include preparing standardized training materials, consultant training programs, consultant evaluation, grading, and certification system; company management and workers training programs; QCCs training and supporting conventions from company to national level programs; establishing incentives, and acknowledgement and awarding systems. As part of the Africa Kaizen Initiative (AKI)—the cooperation initiative signed by JICA and AUDA-NEPAD in April 2017—JICA commissioned a study on 'Standardizing *Kaizen* Activities in Africa' and a *Kaizen Handbook* (JICA 2018) to serve as a minimum requirement in those programs mentioned here and this is prepared and distributed to those target countries covered by this study.

Eight major contents of the *Kaizen Handbook* are incorporated in the questionnaire that was sent to the heads of counterpart organizations to assess to what extent each country has utilized the *Kaizen Handbook*. Four alternative choices were given: (i) 'to a very large extent' with 4 points and High grade; (ii) 'to some extent' with 3 points and Medium grade; (iii) 'to a limited extent' with 2 points and Low grade; and (iv) 'not practiced yet' with zero points. The responses of each country are organized in Table 3.6.

Table 3.6. Content of the *Kaizen Handbook*

No.	Content of the Handbook	Score of responses by country						
		Zam	SA	Tan	Tun	Ken	Gha	Eth
1	Training courses	2	3	3	3	4	3	4
2	Selection of companies	2	3	3	3	4	3	4
3	Training modules step by step	2	2	3	3	4	3	4
4	Establish QCCs in *Kaizen* implementing companies	2	2	3	3	4	3	4
5	Evaluation and measurement	2	2	3	3	4	2	4
6	Standardization	2	3	3	4	4	3	4
7	Recognition and awards	2	3	3	2	3	4	4
8	Aligning *Kaizen* with development policy of the country	0	2	2	3	3	4	4
Country average score		**1.8**	**2.5**	**2.9**	**3.0**	**3.8**	**3.1**	**4.0**
Country ranking		**7th**	**6th**	**5th**	**4th**	**2nd**	**3rd**	**1st**

Note: CA=∑in; where, CA is country average, ∑in is the sum of the score of Items (∑i) of each country divided for the number of item (n=8).
Scores: to a very great extent (4); to some extent (3); to a limited extent (2); not practiced yet (0)

Overall, two countries—Ethiopia and Kenya—scored High grades. Ethiopia scored all high with average of 4 points and stood 1st, while Kenya was 2nd with an average of 3.8 points. The ranks of other countries with Medium grades are Ghana 3rd (3.1 points), Tunisia 4th (3.0 points), Tanzania 5th (2.9 points), and South Africa 6th (2.5 points). Zambia scored 1.8 points and ranked 7th. In general, there are only four countries that scored 3 points, and above which can be considered to be fairly utilizing the Handbook. The remaining three countries scored below 3 points, indicating a low utilization rate of the *Kaizen Handbook*.

3.4.2. Customization of training materials

One aspect of preparing standardized training and consultancy programs is customization. The seven target countries covered by this study were asked five basic questions that are believed to shed light on their customization efforts. The responses of each country are given in Table 3.7. All countries agreed on the training materials prepared by the Japanese experts at the initial stage of any project reflecting Japanese experience, company cases and in many instances discussing engineering examples. The question that follow is 'have you customized those training materials to your company's specifics? Five countries (Tunisia, Tanzania, Kenya,

Table 3.7. Responses of Countries to the Customization Processes

No.	Process of customization	Zambia	South Africa	Tunisia	Tanzania	Kenya	Ghana	Ethiopia
1	Most of the contents and cases of the training materials prepared by Japanese experts are initially based on Japanese experiences and focuses on engineering companies. Do you agree or disagree?	Agree	Agree (we use TPS)	Agree	Agree	Agree	Agree	Agree
2	If you agree (N1), have you customized those training materials to your companies' specifics?	No Revised to avoid duplication & tuned to our level (1-4) certification step-by-step	No	Yes Insert the results of factories	Yes Using real stories and pictures of enterprises	Yes KIBT team works with JICA experts	Yes Insert local examples, modifying formulas (accounting), and replacing games and exercises with local	Yes Producing sector specific materials. Translating into local languages (Amharic, Afan Oromo, Tigrigna)
3	How frequently do you revise training materials? (i) every 3 months; (ii) every 4 months; (iii) every 6 months; (iv) every year; (v) none	Every year	Every year	Every year	None	Every year	Every year	Every year

No.	Process of customization	Zambia	South Africa	Tunisia	Tanzania	Kenya	Ghana	Ethiopia
4	Have you modified *Kaizen* principles, tools, systems (*Kaizen* technologies) you have acquired from Japanese experts to your specific requirements? (i) yes; (ii) no; If yes, how did you do it?	No	Yes Customized *Kaizen* manual	No	Yes Reduced CRT from 5-3 days. ICT from 11-5 weeks, master training from 24-6 months	Yes	Yes Refer to No.2 above	No
5	Have you introduced new technologies developed by yourself or your organization? i) yes; ii) no; if yes, explain.	No	Yes Applying MFID	No	No	No	Yes Use of 'stickers'	No

Ghana, and Ethiopia) replied 'Yes' while two countries (Zambia, South Africa) said 'No.' For those who replied 'Yes' a follow up question on how they do it is asked.

The summary of their responses are: (i) reviewing the training materials to avoid duplications; (ii) streamlining countries' training and consultancy levels of capacity (for instance Zambia has four levels of step-by-step certification); (iii) customizing the training materials to fit sector-specific needs (manufacturing, services, education, logistics, and so on) such as in Ethiopia; (iv) inserting the best experiences of companies, using real stories and pictures; (v) replacing Japanese examples, games, and exercises with those that reflect country-specific situations (Ghana); (vi) making some formulas in accounting more relevant and simple to facilitate understanding by local companies; and (vii) translating materials prepared in English into local languages. For example, in Ethiopia, the materials were translated into three local languages (Amharic, Afan Oromo, and Tigrigna). Similarly, in Tanzania, they were translated into Kiswahili. As a follow up question, countries are asked about how frequently they make the revision. Six countries make it every year while one country failed to indicate the frequency.

The most important customizing activity is modifying and developing/ innovating *Kaizen* technologies to country-specific situations. A question is forwarded to the countries: 'Have you modified the *Kaizen* principles, tools, and systems (*Kaizen* technologies) you have acquired from Japanese experts through CRT and ICT to your specific requirements?' From those seven countries, four (South Africa, Tanzania, Kenya, Ghana) replied 'Yes' but the remaining three (Zambia, Tunisia, Ethiopia) answered 'No.' Those that replied 'Yes' are asked to reason out how they do it. Their responses are different. South Africa frequently customizes *Kaizen* manual to reflect its current state of development. Tanzania reduced CRT from 5 to 3 days, ICT from eleven to five weeks and master training from 24 to six months. Ghana's response is developing stickers that reflect local examples and replacing formulas used in the training with a modified version.

Countries are further asked questions that helps to explore their customization efforts; 'Have you introduced new technologies developed by yourself or your organization?' The two countries who replied 'Yes' are Ghana and South Africa. The new technologies Ghanaians claim they introduced are 'using stickers instead of marker for visual control'

and 'using stickers instead of computer printout for labeling skill maps.' The new technology introduced by South Africa is the application of a Material and Information Flow Diagram (MIFD).

3.4.3. Assessing training and consultancy programs performance

Assessing the performances of pilot companies is also one way of examining the effectiveness of the training and consultancy programs. Pilot companies imply those selected for ICT and those enterprises practicing *Kaizen* by local capacity such as the Kaizen Institute of Zambia (KIZ), Ethiopian Kaizen Institute (EKI) and industry support centers in Tunisia without the involvement of Japanese experts. Table 3.8, therefore, indicates the degree of involvement of companies or their performances (company level commitments), and indirectly the persuasive ability of local *Kaizen* consultants in motivating those companies for *Kaizen* activities.

Table 3.8. *Kaizen* Activities to be Undertaken by Companies Implementing *Kaizen*

No.	Activities	Score of responses by country						
		Zam	SA	Tan	Tun	Ken	Gha	Eth
1	All management and workers are trained	3	4	3	3	4	4	4
2	Establishes *Kaizen* unit/coordinator	4	4	3	3	4	3	3
3	Established QCCs	4	3	3	3	4	4	4
4	All employees are involved in QCCs	3	3	3	4	4	4	4
5	Plan and execute *Kaizen* activities	4	4	3	3	4	4	4
6	Company management provides assistance to the *Kaizen* unit and QCCs	4	3	3	3	4	4	3
7	*Kaizen* units/coordinators prepare and provide training for QCCs	2	3	3	3	4	3	3
8	*Kaizen* units establish and undertake evaluation and performance measurement	4	3	2	3	4	3	3
9	Company management establishes system to assist and motivate QCCs	3	3	2	3	4	3	3
Country average score		**3.4**	**3.3**	**2.8**	**3.1**	**4.0**	**3.6**	**3.4**
Country ranks		**3rd**	**5th**	**7th**	**6th**	**1st**	**2nd**	**3rd**

Note: CA=∑in; where, CA is country average, ∑in is the sum of the score of Items (∑i) of each country divided for the number of item (n=9).

Scores: to a large extent (4); to some extent (3); to a limited extent (2); 'not at all' (0)

The table consists of nine standard activities to be undertaken by companies while implementing *Kaizen*: (i) train all management and workers; (ii) establish a *Kaizen* coordinator/team; (iii) establish QCCs; (iv) involve all employees in QCCs; (v) plan and execute *Kaizen* activities; (vi) (company management) provide assistance to the *Kaizen* unit and QCCs; (vii) *Kaizen* units/coordinators prepare and provide training for QCCs; (viii) (*Kaizen* units) establish and undertake evaluation and performance measurement; and (ix) (company management) establishes systems to assist and motivate QCCs.

Four alternative choices are given for each activity. The highest with four points is 'to a large extent' marked as High grade; the second 'to some extent' with 3 points marked as Medium grade; the third 'to a limited extent' with 2 points marked as Low grade; and the fourth 'Not at All,' marked with zero points. Countries' responses are scored, graded, and ranked (see Table 3.8). The first country to score 'High' (4) in all is Kenya. According to the responses from Kenya, it stood 1st in all activities and may show Kenyan companies are carrying out extraordinary activities. Ghana ranks 2nd with 3.6 points.

Countries that scored below 3.5 points—the lower limit for scoring high—are Zambia and Ethiopia in the 3rd rank with 3.4 points; South Africa with 3.3 points and 5th. The 6th country with 3.1 points is Tunisia and Tanzania is 7th with 2.8 points. The six countries whose points are within the range of 3.4-2.8 all fall in the category of Medium grade although their ranks differ according to their respective points. Generally speaking, a Medium grade is not a disappointing achievement. In fact, it can be considered as within the range of the 'satisfactory' level.

3.5. Industry-academia-government partnership for quality and productivity movement

The experience of Japan suggests that *Kaizen* knowledge may not have its current status and scope without the involvement of academia. The author firmly believes that Japanese scholars provided us with the opportunity to learn, expand, and deepen our knowledge of *Kaizen* by leaving behind their research works, practices, and development of *Kaizen* through time. Just four cases, among the many involving prominent scholars, are cited here:

(1) Kaoru Ishikawa who was the author of several books on QC

He received the Deming Prize in Japan, the Grant Prize from the American Society for Quality Control (ASQC). He was honored by ASQC in 1982 with the Shewhart Medal in recognition of his outstanding contribution to the development of QC theory, principles, techniques, QCCs activities, and standardization for both Japanese and the rest of the world industries that enhanced quality and productivity (Ishikawa 1985).

(2) Shigeo Shingo who was a member of JMA

He consulted Toyota from 1955-80 in designing and training productivity courses for about 3,000 technical personnel in 79 rounds and contributed a lot to the development of the Toyota Production System (TPS) (Kato and Smalley 2011). Among his major works, *A Study of Toyota Production System, From an Industrial Engineering Point of View* (Shingo 1981) and *Zero Quality Control: Source Inspection and the Poka yoke System* (Shingo 1985) are worth mentioning.

(3) Kunio Shirose

His contribution was more on TPM. He was the author of *TPM for Workshop Leaders* (1984), editor of *TPM Team Guide* (1988), and was a contributing author of different publications on TPM.

(4) Tokutaro Suzuki

He was the editor and contributor of a book entitled TPM in Process Industries to customize TPM, which was born and developed in the engineering industry, to the special features of process industries (Suzuki 1992).

The responses of countries concerning the involvement of scholars in *Kaizen* practices in Africa can be said to be at an extremely low level, and this might indicate its effect on the low pace of customization and the development of new improvement technologies. One can guess that the low level of research on *Kaizen* activities by African academicians strongly affects the ability to generate, accumulate and professionally document customized or new improvement ideas, technologies, and systems. This reflects the weakest link among the industry (end-user of Quality and Productivity Improvement (QPI tools), academia (generator and provider of QPI tools), and government (supporter and facilitator of the linkage through *Kaizen* institutions). The main actors expected to create

the linkages in the context of Africa are counterpart organizations: *Kaizen* institutes, SME agencies and *Kaizen* units.

3.6. Development of private sector capability to sustain quality and productivity improvement

Chapter 2 illustrates the role of private institutions (JPC, JMA, JUSE, and private companies) in the process of learning improvement technologies from the west, customizing, innovating, and disseminating these throughout Japanese companies. The chapter also highlighted the development of private consultants and association in Singapore during the ownership stage. The counterpart organizations to JICA *Kaizen* projects in Africa are all public institutions, according to their responses. The *Kaizen* projects approach is to produce trainers or *Kaizen* consultants from counterpart institutions. It is expected that the trained consultants from the counterpart institutions will provide wide scale training and produce public and private *Kaizen* consultants in increasing numbers. Of course, training is provided to private companies' management, supervisors, workers, *Kaizen* coordinators, and QCCs, and this might be one of the means to produce private *Kaizen* consultants in those companies.

In this study, countries are asked to what extent they have tried to train and produce private *Kaizen* consultants apart from company training. None of the target countries provides training directly to private *Kaizen* consultants nominated from private consulting companies.

4. Findings

The study made in this chapter with the help of the methodology explained in Section 2, revealed the following findings:

(1) In some countries (Ethiopia, Zambia), the commitments of top political leaders are exhibited in establishing institutions committed to *Kaizen* and allocating budgets. When observed closely, in most cases the commitments of governments and companies in terms of allocating budgets for *Kaizen* activities as one basic indicator are very low compared to those Japanese companies as explained by Deming in this chapter. This is believed to limit the efforts of countries to expand and sustain *Kaizen* activities as part of their responsibilities to scale-up project achievements, ignite nation-wide movements, and increase

the benefits of *Kaizen*. As it stands now, collecting fees by counterpart organizations and utilizing for *Kaizen* activities is a problem in any country. This is because counterpart organizations are public institutions, and their budget is allocated by governments. Collecting fees are not encouraged unless those institutions are allowed by a special regulation to use the fee for *Kaizen* activities.

(2) Although there is no 'one-size-fits all' approach in drawing strategy, designing policy, or modeling the entire journey from the start to finish, there are only few countries that have a clear strategy for learning, customizing, and disseminating *Kaizen*. Ethiopia has crafted a 15-year strategy and its own model that supports the realization of the strategy. It has also incorporated *Kaizen* in its second Growth and Transformation Plan (GTP II) 2016-2020. Zambia has developed a model known as a Golden Triangle that indicates the path it will follow to disseminate *Kaizen*. Except for those two countries, the remaining five do not indicate to have a clear strategy or model on how to transfer, customize, and disseminate *Kaizen*. One exception with Tanzania is that it has reported it will incorporate *Kaizen* in its strategic plan. It can be generalized that either there is limited awareness on having a longer perspective strategy or lack of comprehensive understanding of the experiences of those successful countries (Japan, Singapore). It is also possible to assume that, in most cases, *Kaizen* is seen as project activities managed by Japanese experts and that there is less enthusiasm to takeover (ownership) by the African side. Compared to the experiences of Japan and Singapore, it looks those target countries did not give adequate attention to the importance of developing appropriate strategy or modeling their journeys for *Kaizen*. It is also possible to assume that a QPI process without clear guidance, appropriate strategy, and modeling may limit the success of the process.

(3) In terms of institutional arrangements, Ethiopia and Zambia established *Kaizen* Institutes entirely dedicated to coordinating and disseminating *Kaizen* activities nationwide. Tunisia is using temporarily established quality and productivity activities coordinating unit (UGPQ). Ghana is coordinating *Kaizen* activities through its SMEs Agency (NBSSI) and in Kenya through its business training institute (KIBT) for SMEs. In Tanzania, TKU is established as counterpart and coordinating arm. These institutional setups are expected to play the role of those Japanese

and Singaporeans institutions illustrated in Chapter 2. However, as it is discussed in this chapter from various perspectives, *Kaizen* promoting institutions, commonly called counterpart organizations, are less vibrant than expected to be—except for a few of them; with respect to having standardized training and consultancy programs, it is understood that the priority areas of countries are diverse, ranging from micro enterprises to large-scale enterprises. Existing practices in target countries are often quite different in having standardized *Kaizen* training and exercises to develop *Kaizen* consultants and consultancy services. There are wide differences in the duration of CRT and ICT from country to country. For instance, for training a *Kaizen* consultant in basic *Kaizen* takes 5 weeks in Ghana, and 6 months in Ethiopia. For advanced *Kaizen*, it takes 8 months in Ethiopia. In Kenya *Kaizen* training for a trainer is 1 year and for a master trainer 3 years; in Tanzania, training for trainers is 3.5 months and for master trainers 13 months; in Zambia, training for a *Kaizen* consultant is 1 year and a *Kaizen* trainer is 2 years. This study has disclosed that the rate of utilization of the *Kaizen Handbook* that was prepared to standardize *Kaizen* activities in those target countries and beyond is found to be very low in Zambia, high in Ethiopia and medium to low in the remaining five countries. On the other hand, the capability of consultants, as revealed by counterpart organizations, is encouraging, and can be utilized to trigger national quality and productivity movements in each country. It can be also utilized to expand *Kaizen* to neighboring countries, one of the strategic activities of AKI. Overall, according to the responses of those seven target countries, the capabilities of *Kaizen* consultants show one aspect of the progress of *Kaizen*. They might also indicate the effectiveness of the JICA *Kaizen* projects whose main objective is producing capable *Kaizen* consultants for the provision of standardized *Kaizen* training.

(4) Generally observed, the responses with respect to the lessons each country claimed to take home from AKACs are not well developed for practically putting them into action in the analysis made in different sections of this chapter.

(5) It is learnt that most of the countries established QCCs. Although this is encouraging for the expansion of *Kaizen* and the sustainability of *Kaizen* activities in companies, still they are few in number.

(6) The involvement of scholars in *Kaizen* practices in the target countries can be said to be at an extremely low level, which might have an effect on the low pace of customization and the development of new improvement technologies as seen in Japan. One can guess that the low level of research on *Kaizen* activities by academicians in target countries might strongly affect the ability to generate, accumulate, and professionally document customized or new improvement ideas, technologies, and systems; and systems.

(7) The study further revealed that producing local private consulting houses with capable private *Kaizen* consultants is not given appropriate attention, and this can be seen in JICA *Kaizen* Project Reports and the responses of counterpart organizations.

5. Conclusion and Recommendations

5.1. Conclusion

This chapter has analyzed the current status of the on-going *Kaizen* projects based on the reports of 'JICA *Kaizen* Projects' and the responses of counterpart organizations with respect to the six success factors identified in Chapter 2. Although there are some efforts in all countries that could be seen as a start of a *Kaizen*/quality and productivity movement, much is left to be done in all countries with respect to those six factors.

In general, as viewed from the perspectives of the Japanese and Singaporean experiences discussed in Chapter 2, the responses of target countries can be considered as being at the initial stages of learning and disseminating original knowledge acquired from Japanese experts. The introduction of *Kaizen* into some of those target countries is about an age of decay. No country has made a significant effort to modify what has been acquired from Japanese experts or innovate new improvement tools.

Generally, although some encouraging efforts have been made in each country to promote *Kaizen* activities and report on the effects from time to time (showing progress), it has not developed into a national movement even in Ethiopia where the promotion of *Kaizen* is highly pronounced (indicating the challenges) as was expected.

5.2. Recommendations

From the preceding analysis and findings, the following recommendations are made:

(1) The practice of *Kaizen* should be considered in terms of short and long-term costs and benefits. In the short-term, quick wins help to attract the attention of governments. Institutional preparedness, do-able actions, and quick wins may convince the government to commit some budgets. However, a high-level commitment and devotion is expected from those counterpart institutions to overcome all challenges they may face in discharging their responsibilities. Business as usual cannot lead them to success. Extraordinary efforts are required for the success of QPI/*Kaizen* activities and building their image. Institutions have to win the hearts of their governments by showing the impact of *Kaizen* and secure resources. They have to have clear and convincing visions and strategies on how to transfer, customize, and own *Kaizen* knowledge through time. It has to be understood that government commitment is something that can be earned and maintained through untiring institutional efforts. This is because governments are usually crowded with many competing institutions with diverse services demanding budgets. *Kaizen* institutes have to win this competition.

(2) *Kaizen* institutes/units have to show their importance through their continuous achievements, particularly in contributing to the national development efforts and building their image. They have to craft a roadmap, strategy, and action plan in line with national development plans that show the strong impact of *Kaizen* and successfully implement them. In this way they have to strive to secure sustainable budgets.

(3) Primarily, countries have to take advantage of their current institutional arrangements. For instance, Tunisia is using institutes established for different industrial sectors to learn and disseminate *Kaizen* (see Chapter 4 for details). UGPQ, as a unit, is coordinating those institutes. Those institutes are closer to the companies affiliated to them, have more knowledge to understand their problems better and can combine *Kaizen* activities with their core operations. TKU in Tanzania, with the recognition it has now from MIT, has a chance to grow and expand. NBSSI in Ghana and KIBT in Kenya have a nation-wide institutional infrastructure reaching out to MSMEs

in all corners of the countries. This is a huge opportunity to launch nationwide movements, coordinate and bring success that might be the best experience to learn from. EKI in Ethiopia and KIZ in Zambia are also ideal institutions to play leading roles in a better and more coordinated way than they are doing currently.

(4) It is important to motivate and encourage companies to share costs and eventually pay for *Kaizen* services from the extra profit they are gaining. Unfortunately, most companies in Africa have developed a habit of 'free-lunch services;' high expectation from government support and 'luxury from western donors' assistance compared to *Kaizen* projects that are based on long-term thinking and becoming a learning organization through relentless reflection (Hansei) and continuous improvement (*Kaizen*). In fact, the practice of *Kaizen* in companies brings qualitative and quantitative changes contributing to the cost effectiveness, profitability, and customer satisfaction that might encourage companies to share costs. In general, much remains to be done in each country in this regard. Governments are expected to install regulations to collect and use fees by counterpart organizations with a transparent reporting mechanism to those who allocate and control government budgets. This is an important issue to be resolved in trying to realize the intentions of many countries to introduce fee-based services as one solution to maintain the sustainability of *Kaizen* activities. In addition, it could encourage companies to pay for training and consultancy services and reduce the budget burden on governments. Hence, it is important to encourage companies to share training and consultancy costs through covering the costs of company training, QCCs activities, *Kaizen* consultants' field allowances, and transport from and to *Kaizen* institutes.

(5) Although it cannot be expected that there would be one standard for all ranges of scales of enterprises, the frameworks of standards to be followed in conducting different *Kaizen* activities are important. Activities like selection of trainees, pilot companies, preparing and providing CRT and ICT trainings, follow-up, evaluations, assessments, certification, consultants' development at different levels, and so on, have to follow or meet certain standards practiced in Japan and other successful countries. For instance, the approach for training manufacturing SMEs may differ on the types of courses, depths and identified themes. But the approaches and activities may not have

any basic differences. Standardization could help in assessing the experiences of countries operating at a similar scale of operation using common indicators. It is recommended to encourage counterpart organizations and Japanese experts to give attention and use the *Kaizen Handbook* as minimum requirements to standardize *Kaizen* training and consultancy programs. Utilization of other studies—outputs of *Kaizen* projects as strategic plan, master plan and the like—could support to continuously up-grade *Kaizen* activities. JICA is advised to confirm their utilization through interim and final reports.

(6) It is also recommended to give special attention to industry-academia-government linkages by designing appropriate programs to involve scholars in on-going *Kaizen* projects. This has to be considered as one important role of counterpart organizations.

(7) Encouraging companies to promote team formations such as 5S committees, QCCs, and TPM teams in customized ways could help to create grass-root level awareness and institutionalize *Kaizen* activities. Counterpart organizations are advised to customize the activities of QCCs and TPM teams to the situation of their countries and companies.

(8) Preparing 'Executive Briefing Notes' that are very brief, illustrative, and enlightening brochures (A5-size Booklet) through the collaboration of the AUDA-NEPAD Agency and JICA is helpful to inform political leaders and policy makers on *Kaizen* impact.

Appendix 3.1. Project profiles as reported by target countries

1. Ethiopia:
   (a) The period of the first project: 2009 - 2011
   (b) The period of the second project: 2011-2014
   (c) The period of the third project: 2015-2020

2. Tanzania:
   (a) The period of the first project……2013 - 2016
   (b) The period of the second project……2017 - 2021

3. Tunisia:
   (a) The period of the first project: NA
   (b) The period of the second project: 2016-2019 (3 years)
   (c) The period of the third project: NA

4. Kenya (KIBT):
   (a) The period of the first project……3 year
   (b) The period of the second project…….3 year
   (c) The period of the third project……3 year

5. South Africa:
   (a) The period of the first project: 2001- 2006
   (b) The period of the second project: 2009 - 2013
   (c) The period of the third project: 2015 - 2019

6. Zambia:
   (0) The period of phase zero Project: 2009 - 2013 (before KiZ establishment)
   (a) The period of the first project: 2014 - 2016 and extended by about 8 months
   (b) The period of the second project: 2017 - 2020

7. Ghana:
   (a) The period of the first project: April 2012 - March 2015 (total of three years)
   (b) The period of the second project: October 2015 - January 2019

Appendix 3.2. Questionnaire prepared and sent to counterpart organizations

Country name…….

National Counterpart organization (Ministry, Agency, …) ……

Name of Implementing institution (institute, agency, department, section, *Kaizen* Unit (KU))……..

1. The period of QPI/*Kaizen* projects implemented including the on-going one, if any:
   (a) The period of the first project……
   (b) The period of second project……
   (c) The period of the third project……..
   (d) The period of the fourth project…….

2. Indicate your participation in knowledge sharing and Africa Kaizen Annual Conferences. (please mark © on your choice/s
   a) Addis Ababa Knowledge Sharing Seminar……
   b) Nairobi Knowledge Sharing Seminar……
   c) Durban Africa Kaizen Annual Conference……..
   d) Tunis Africa Kaizen Annual Conference……

Can you discuss important lessons you took and implemented from the seminars and conferences you have participated? Please provide facts for the effectiveness of those lessons you have implemented.

Can you recommend for further improvement of the conference and award?

2. In QPI/*Kaizen* projects assisted by JICA, Japanese experts prepare training materials to be used to train *Kaizen* consultants, companies, etc.
   i. Most of the training materials contents and cases presented ***initially*** are Japanese experiences, company cases, and in many instances discuss engineering examples. Do you agree or disagree? Please put © on your choice.

(a) I agree ……..
(b) I disagree……

ii. If you agree, have you customized those training materials to your companies' specifics? Please put © on your choice.
a) Yes……
b) No……

iii. If your answer to (b is yes), please give the details on how you did it. Please also provide examples that could verify your responses.

3. How frequent you revise training materials? Please put © on your choice.
(a) Every 3 months…….
(b) Every 4 months…….
(c) Every six months……..
(d) Every year……
(e) None…….
if you often revise your training materials, what are your reasons for doing it?

4. Have you modified *Kaizen* principles, tools, systems (*Kaizen* technologies) you acquired from Japanese experts to your specific requirements? Please put © on your choice.
a) Yes…….
b) No…….
If your answer to (5) is yes, please discuss how you did it/them and provide samples/evidence including their impacts on companies.

5. Have you introduced new technologies developed by yourself or your organization? Please put © on your choice.
a) Yes…….
b) No…….
If your answer to (6) is yes, please discuss how you did it/them and provide samples/evidences including their impacts on companies.

6. As part of the Africa Kaizen Initiative to standardize *Kaizen* activities in Africa, JICA has conducted a study and produced a Kaizen HANDBOOK. A general framework of steps to follow from simple to complex and lists of courses for each step in training *Kaizen* technologies are given in the HANDBOOK. To what extent you have exercised the guidelines and recommendations provided in the HANDBOOK? Please put © on your choice.
   a) We haven't exercised at all……
   b) (b) to a very limited extent…….
   c) (c) to some extent……
   d) (d) to a greater extent…….
   If your answer is (c) and/or (d), please discuss how you did it and your view on the benefits you get.

7. In the Kaizen HANDBOOK—from the experiences of Japan, Singapore, and African countries—types of institutionalization (forming responsible institutional structure) are discussed. Which of the following your country adopted as a responsible entity for *Kaizen* activities? Please put © on your choice.
   a) Establishing *Kaizen* Institutes……
   b) Delegating SME agency……
   c) Delegating sectoral specialized institutes……
   d) Forming *Kaizen* unit…….

8. If your answer is b or c, please discuss how *Kaizen* activity is organized and run. Please attach the current organizational structure and indicate the unit responsible for *Kaizen*.

9. What type of *Kaizen* activities are undertaken by local *Kaizen* consultants trained by Japanese experts without their (Japanese) assistance? Please fill the following table by marking © on your choice.

S.N.	Activities	Yes	No	Very little
1	Organizing training provided for companies			
2	Selecting pilot companies			

S.N.	Activities	Yes	No	Very little
3	Preparing tailor-made training specific to the companies			
4	Providing training for companies			
5	Establishing QCCs and providing training			
6	Assisting companies in the preparation and implementation plan and performance evaluation			
6	Periodically reviewing and up-grading training materials by including local best practices			
7	Modifying *Kaizen* technologies/developing new technologies			

10. To what extent you have referred to/utilized the *Kaizen* HANDBOOK prepared by JICA? Please fill the following table by marking © on your choice.

S.N.	Content of the HANDBOOK	Not practiced yet	To a limited extent	To some extent	To a very great extent
1	Training courses				
2	Selection of companies				
3	Training modules step by step				
4	Establish QCCs in *Kaizen* implementing companies				
4	Evaluation and measurement				
5	Standardization				
6	Recognition and awards				
7	Aligning *Kaizen* with the development policy of the country				

11. To what extent the following *Kaizen* activities are undertaken in companies implementing *Kaizen*? Please mark © on your choice.

S.N.	Activities	Not at all	To a very limited extent	To some extent	To a large extent
1	All management and workers are trained				
2	Establishes *Kaizen* unit/ coordinator				
3	Established QCCs				

S.N.	Activities	Not at all	To a very limited extent	To some extent	To a large extent
4	All employees are involved in QCCs				
5	Plan and execute *Kaizen* activities				
6	Company management provides assistance to *Kaizen* unit and QCCs				
7	*Kaizen* units/coordinators prepare and provide training for QCCs				
8	*Kaizen* units establish and undertake evaluation and performance measurement				
9	Company management establishes system to assist and motivate QCCs				

12. To what extent universities are involved in *Kaizen* activities? Please mark © on your choice.
    (a) not involved at all……
    (b) to a limited extent …….
    (c) to some extent……
    (d) to a greater extent…….
    If your answer is (c) or (b), please indicate the types of activities they are involved in.

13. Japanese strategy/model in transferring western improvement knowledge and methods and developing *Kaizen* took the steps of learning, adapting, and disseminating. Likewise, Singapore's was awareness creation, implementation, and ownership. What is your strategy/model, if any, to transfer, disseminate, sustain, and own QPI/ *Kaizen* activities/practices?

14. PJICA's technical assistance may not continue for unlimited time. How do you sustain the continuity of *Kaizen* implementation by your own efforts after the completion of the project?

15. Do you have any plan to provide training and consultancy to your neighbouring countries? Please make © marks on your choice.
    (a) Yes……..
    (b) No……..
    If your answer to (16) is yes, please elaborate your plan or how you think to do it.

    If your answer to (16) is no, what help do you need to build your capacity within the on-going project?

16. What are the factors that explain commitment of the government and implementing companies? Please fill the following table by making © on your choice.

S.Nn	Items	Not at all	Some/not adequate	Adequate
1	Government allocate budget for counterpart organization:			
	a. Salary and wages			
	b. Office equipment and consumables			
	c. Transport and allowances for field work			
	d. Costs for national conventions, conferences, awards etc			
2	Companies allocate budget:			
	a. Company training			
	b. QCCs activities			
	c. Allowances for *Kaizen* consultants			
	d. Recognition and awards			
	e. Cost sharing (consultancy fee)			

We thank you for taking your time and answering the questions with great responsibility.

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CHAPTER

4

A Comparative Study of *Kaizen* Projects in Tunisia and Ethiopia

Tsuyoshi Kikuchi

1. Introduction

The Japan International Cooperation Agency (JICA) has been assisting a quality and productivity improvement project, hereinafter referred to as 'the *Kaizen* project,' in Tunisia and Ethiopia for roughly 10 years. The first-stage of cooperation began in 2006 for Tunisia and in 2009 for Ethiopia, and has been followed by second and third stages in both countries. The time span of 10 years is by no means a short one for JICA cooperation for a project with a specific theme. This chapter analyzes the results of JICA cooperation by comparing the achievements of the *Kaizen* projects in these two countries to identify further challenges and draw implications for the future.

JICA cooperation in the *Kaizen* project in Tunisia (2006-08) was the first example in Africa, followed by a similar project in Ethiopia that began three years later (2009-11). While there are many research papers in recent years dealing with the *Kaizen* project in Ethiopia,[1] hardly any such papers are found for Tunisia.[2] This is why the author has been motivated to conduct a comparative analysis, based on his own experience of the projects in Tunisia and in Ethiopia. This chapter is organized as follows. First, the introductory section defines the term achievement as used in this chapter. We should note that individual researchers may

[1] The Journal of International Development Studies special issue (27(2), 2018) *Achievements and Future Tasks of Kaizen Research in International Development Efforts*, published by the Japan Society for International Development (JASID), presents seven research papers, most of which deal with Ethiopia. The leading paper by Shimada (2018) mentions that there are nine other papers on *Kaizen* in Ethiopia. In addition to the above, three books published after 2018 contain papers on the *Kaizen* project supported by JICA. These are: Otsuka et al. (2018), Hosono et al. (2020), and Yamada and Ohno (2021).

[2] There is a paper by the author compiling the experience of the author's involvement in JICA's first-stage *Kaizen* project in Tunisia (Kikuchi 2008).

conceptualize the achievement of a *Kaizen* project differently. In this chapter, the term achievement is conceptualized in the author's own way. Section 2 describes the history of JICA cooperation in Tunisia and Ethiopia in the last 10 years. Section 3 provides a comparative analysis of the achievements of the *Kaizen* projects in these two countries. Section 4 discusses these achievements from the perspective of 'customization' and 'translative adaptation' (Maegawa 2004). Section 5 suggests that the advancement of *Kaizen* technologies and the organizational structure to adapt to such technologies remain challenges for these countries. Section 6 draws implications for future industrial development cooperation and Section 7 concludes the chapter.

In both Tunisia and Ethiopia, most local enterprises participating in *Kaizen* projects enjoyed the positive achievements such as quality improvement, productivity improvement, cost reduction, and/or a shorter delivery time. What do these achievements signify for their future business? Their significance for the future lies not simply with these achievements but relates to whether or not a mechanism, organization, or system to produce them has been established. For example, the development of human resources should not simply mean the number of people trained but the number of people trained to become trainers who can provide technical guidance on *Kaizen* for customers (for industrial sector private and public enterprises). There is also the question of whether or not a mechanism has been established to continually train employees in *Kaizen*.

Based on this understanding, the term 'achievement' in this chapter is used not simply to mean a result but to indicate something with potential for sustainable development in the future (especially after the termination of JICA cooperation). Here, achievements that enable this form of sustainable development are classified into three categories. The first is the formulation of the country's unique vision, policy, and strategy for the future together with a clear target direction and activities for the dissemination of *Kaizen*. The second is the provision or firm establishment of a mechanism, organization, and system to make such activities concrete. The third is the existence of developed and accumulated capacity to make such mechanisms, organizations, and systems functional. The basic understanding of the author is that sustainable development is only feasible when all of these three categories of achievements are present side by side. Thus, this chapter uses the following three perspectives as a framework of comparative analysis: (i) clarification of the vision, policy,

and strategy; (ii) establishment of the mechanism, organization, and system; and (iii) development and accumulation of capacity.

2. History of JICA Cooperation in Tunisia and Ethiopia

JICA cooperation for the *Kaizen* projects in Tunisia and Ethiopia consists of three stages (Table 4.1). The total project period of these three stages is as long as 10 years in both countries.

JICA's first-stage cooperation for Tunisia and Ethiopia can be described as a pilot project for both countries. As a result of the first-stage cooperation, it was confirmed that the concept and methods of *Kaizen* were not only effective for the quality and productivity improvement of enterprises in both countries but also transferable (Mekonen 2018; Kikuchi 2008, 2010),[3] resulting in the governments of both countries making a request to Japan for second-stage cooperation. Consequently, JICA began second-stage cooperation.

There were not many differences in terms of the training-level in the second-and third-stage cooperation with either Tunisia or Ethiopia. The second-stage cooperation aimed at fostering human resources capable of providing training, guidance and consulting services for enterprises using basic *Kaizen* methods. The third-stage cooperation aimed at fostering human resources capable of providing guidance on intermediate (and partially advanced)-level *Kaizen* technologies.[4] In Tunisia, the core organization to receive JICA cooperation (counterpart organization) has been UGPQ (*Unité de Gestion du Program National de Promotion de la Qualité*) of the Ministry of Industry and SMEs (*Ministere de l'Industrie de PME: MIPME*). The UGPQ was established in 2005 for the purpose of promoting the Tunisian enterprise upgrading program (*Program de Mise à Niveau*: PMN). Its main activities are to provide support (training and consultation) for enterprises in relation to manufacturing technologies and international quality standards (ISOs) and to train newly recruited staff members. It subsequently became an organization directly controlled

[3] Overall, the Ethiopian experience has proved that differences in religion, culture, and diversity are not impediments to the transfer of *Kaizen* concept to Africa and that *Kaizen* could bring about dramatic changes to companies and public institutions (Mekonen 2018, 152-53).

[4] *Kaizen* technology can be classified into three levels according to the level of challenge: basic-level, intermediate-level, and advanced-level (Sugimoto 2018, 77).

Table 4.1. History of JICA Cooperation for *Kaizen* Projects in Tunisia and Ethiopia

JICA's Cooperation	Tunisia Project Title / Duration / C/P	Ethiopia Project Title / Duration / C/P
First-stage	• Project: The Study on the Master Plan for Quality/Productivity Improvement • Period: August 2006 - July 2008 (2 years) • C/P: UGPQ, CETIME, CTAA	• Project: The Study on Quality/ Productivity Improvement • Period: October 2009 - May 2011 (1 year 8 months) • C/P: KU
Second-stage	• Project: The Project for Quality/ Productivity Improvement (Phase I) • Period: September 2009 - March 2013 (3 years 6 months) • C/P: UGPQ/UGPQP, CETIME, PACTEC	• Project: The Project for Capacity Building for Dissemination for Quality/Productivity Improvement (*Kaizen*) • Period: November 2011- October 2014 (3 years) • C/P: EKI, TVET
Third-stage	• Project: The Project for Quality/ Productivity Improvement (Phase II) • Period: January 2016 - December 2021 (6 years) • C/P: UGPQP, CETIME, CETTEX, CTC	• Project: The Project on Capacity Building for *Kaizen* Implementation for Quality and Productivity Improvement and Competitiveness Enhancement • Period: July 2015 - July 2020 (5 years) • C/P: EKI

Notes: 1. C/P: Counterpart Agency to receive JICA's cooperation.
2. JICA's third-stage cooperation for Tunisia is still in progress at the time of writing (February 2021).
3. Although the Project Design Matrix (PDM) for the third-stage cooperation for Tunisia lists the UGPQP and three national technical centers[5] (CETIME, CETTEX, and CTC) as the principal target organizations, another five technical centers did in fact receive the transfer of technology (training and guidance) in consideration of the need to widely disseminate *Kaizen* (JICA and JPC 2020).

Source: The table was prepared by the author based on various JICA reports on the *Kaizen* Projects in Tunisia and Ethiopia.

by the Minister's Secretariat of the Ministry of Industry, Energy and SMEs (*Ministère de'Industrie, de l'Energie et des PME*: MIEPME).[6]

During the period of JICA's second-stage *Kaizen* project, the Jasmine

[5] There are eight national technical centers under the Ministry of Industry: the Technical Center of Mechanical and Electrical Industries (CETIME), Technical Center for Agribusiness (CTAA), Technical Center for Packing and Packaging (PACKTEC), Technical Center for Textiles (CETTEX), Technical Center for Chemistry (CTC), National Center for Leather and Shoes (CNCC), Technical Center for Wood and Furniture Industry (CETIBA), and the Technical Center for Construction Materials, Ceramics and Glass (CTMCCV).

[6] As of May 2021 the ministry in charge industrial sector in Tunisia is the MIEM.

Revolution broke out, toppling the administration which had been in power for 23 years. This change of government resulted in a suspension of the prioritized work under the project to examine a concrete plan to upgrade the UGPQ from a temporary to a permanent organization.[7] In January 2016, the MIEPME was reorganized as the Ministry of Industry (*Ministère de l'Industrie*: MI), which then became the Ministry of Industry and Commerce (MIC) in September 2016 through a merger with the Ministry of Commerce. The MIC was again reorganized as the Ministry of Industry and SMEs (MIPME) in September 2017 (JICA and JPC 2020). As of May 2021, the supervising ministry of UGPQP[8] is the Ministry of Industry, Energy and Mines (MIEM).

Despite these changes, the UGPQ has always been a temporary organization since its establishment without an independent budget, and its several full-time staff members are currently assigned employees from the MIPME. Meanwhile, it has acted as the window as well as the coordinator for JICA's cooperation projects and has dealt with individual projects using suitable consultants loaned from national technical centers under the jurisdiction of the MIPME. Therefore, the system to receive JICA cooperation is essentially the result of collaboration between the UGPQ/UGPQP and national technical centers.

The target personnel for training by the JICA project team in Tunisia are mostly engineers who previously worked for or currently work at the relevant technical centers, and some senior officials of the UGPQ/UGPQP. In contrast, almost half of the target personnel for training in Ethiopia are university graduates with no experience of working for an enterprise except for those training under the first-stage cooperation program.[9] While more details are discussed in Section 5, this difference in the target personnel for training has highly significant implications for human

7 At the time, the name 'Tunisia Quality/Productivity Center (TQPC)' was proposed for the planned permanent organization (JICA/JPC 2013).

8 In 2016 during the third-stage cooperation period, the UGPQ was renamed the Management Unit of the National Program of Quality and Productivity Promotion (*Unité de Gestion du Program National de Promotion de la Qualité et la Productivité*: UGPQP). In this chapter, any reference to the UGPQ from the second-stage cooperation after this change uses the term 'UGPQP' or 'UGPQ/UGPQP' depending on the particular context.

9 The target personnel for training in the first-stage cooperation by JICA were staff members of the *Kaizen* Unit (KU) who had been selected from those working at various industrial development institutes (Metal Industry Development Institute, MIDI; Textile Industry Development Institute, TIDI; Leather Industry Development Institute, LIDI; and others) of the Ministry of Industry (MoI).

resources development in the future.

In Ethiopia, the core organization acting to receive JICA cooperation is the Kaizen Unit (KU) established as a section of the Ministry of Industry (MoI) during the first-stage of cooperation. During this period (2009-11), the Government of Ethiopia confirmed the effectiveness as well as adaptability of *Kaizen* technologies (concept and methods) for the country, expanded and reorganized the KU into the Ethiopian Kaizen Institute (EKI) prior to the commencement of second-stage cooperation (2011-14) as an independent organization to disseminate *Kaizen* in Ethiopia (Mekonen 2018).

At the time of the commencement of second-stage cooperation, the number of personnel at the EKI was 10 (including the Director), all of whom had been previously trained as members of the KU. As of June 2020, the staff strength, including the Director General and other senior staff members, is as many as 154, of whom 109 are *Kaizen* consultants (JICA et al. 2020). The supervising Ministry for the EKI was originally the MoI. For the second-stage cooperation, while the EKI acted as the core counterpart organization, Technical Vocational Education and Training (TVET) under the jurisdiction of the Ministry of Education (MoE) also participated as a counterpart organization. The other principal organizations cooperating with EKI in disseminating *Kaizen* in Ethiopia are industrial development institutes (MIDI, TIDI, LIDI,[10] and so on), and regional *Kaizen* institutes (RKIs).

Although EKI had been under the jurisdiction of the MoI since its establishment in 2011, during the third-stage cooperation in October 2015 the supervising ministry was changed to the Ministry of Public Service and Human Resource Development (MoPSHRD) to disseminate *Kaizen* to the public service sector in addition to the manufacturing sector. Afterwards the MoPSHRD was renamed the Civil Service Commission (CSC) under the direct control of the Prime Minister's Office in October 2018 (JICA et al. 2020).

[10] See footnote 9 for the full names of the organizations.

3. The Achievements of the *Kaizen* Projects in Tunisia and Ethiopia

This section compares the achievements of the *Kaizen* Projects in the two countries in the light of three achievement categories: (i) vision, policy, and strategy; (ii) mechanism, organization, and system; and (iii) development and accumulation of capacity. Also, other achievements are added to the above categories such as change of mindset and function as a center of excellence.

In Chapter 2, Ohno and Mekonen state that 'the following six factors are critical for designing and implementing a national movement that can successfully transform the mindset of the people,' based on the experience of Japan and Singapore:

Factor 1. National commitment to a quality and productivity movement;
Factor 2. Institutional infrastructure for a quality and productivity movement;
Factor 3. Grass-root awareness raising and participation;
Factor 4. Standardized training and consulting programs;
Factor 5. Industry-academia-government partnership for a quality and productivity movement; and
Factor 6. Development of the private sector capability to sustain quality and productivity improvements.

Although they focus on productivity movements, these six factors can also be applied as factors that lead to success in movements related to *Kaizen* in general. In this chapter the achievements brought about in Tunisia and Ethiopia by these projects over the past 10 years are divided into three categories that will be important in the sustainable development of *Kaizen* in the future.

These three categories of the achievements of *Kaizen* in both countries cover most of the six factors described later. The first category (vision, policy, and strategy) is related to Factor 1. The second category (mechanism, organization, and system) and the third category (development and accumulation of capacity) cover Factor 2 and Factors 4 to 6, respectively. As discussed in this chapter later Factors 5 and 6 are particularly important for the dissemination of *Kaizen* from a long-term perspective. Regarding Factor 3 (Grass-root awareness raising and participation), this is not

directly related to any specific category but is indirectly connected to the 'Awards Scheme' in the second category. *Kaizen* will become known to the general public as the media continues to report on the awards given to companies with remarkable achievements (see Chapter 2).

3.1. Vision, policy, and strategy

What policy documents are available in Tunisia and Ethiopia that indicate the way of thinking and direction of activities in the form of a vision, policy, and strategy for the dissemination of *Kaizen* in the coming years? Tunisia has an Annual Performance Plan (APP) as an industrial plan prepared by the Ministry in charge of the industrial sector.[11] 'Productivity improvement' in addition to quality improvement has been recognized as an important pillar of Tunisia's industrial policy in this APP.[12] The National Productivity Promotion Committee (NPPC) was established to promote the productivity improvement in Tunisia on March 24, 2021 (Decree of the MIEM).[13] One of important tasks of the Committee is to formulate policy for productivity promotion for private companies as well as public organizations.

Ethiopia has the Growth and Transformation Plan II (GTP II). In this plan, quality/productivity improvements and the enhancement of competitiveness are considered to be the keys to achieve reform of the economic structure, and *Kaizen* is considered to be the principal tool used to achieve these (Ohno 2018; EKI 2019).[14] As of February 2020, the EKI was formulating 'the 10 Year Strategic Reform Plan (2020–2030)' as a new edition of this plan. What is notable about these efforts in Ethiopia is the strong interest in and understanding of *Kaizen* on the part of the late Prime Minister Meles Zenawi. Under his strong leadership,[15] the

[11] In Tunisia administrative organizations are frequently reorganized. As of February 2021, the Ministry in charge of the industry sector is the MIEM.

[12] Information from the JICA expert team for the Tunisian *Kaizen* project.

[13] Information source: *Journal Officiel de la Republique Tunisienne* (April 2, 2021).

[14] 'The Ethiopian government adopted *Kaizen* as an exemplary approach and tool for growth and development' (EKI 2019).

[15] Many researchers have pointed out that the greater than expected and remarkable achievements of the *Kaizen* project in Ethiopia can be attributed to the strong leadership of the late Prime Minister Meles (GRIPS Development Forum 2016; Ohno 2013; Ohno 2018; Jin 2018; and Mekonen 2018). Kenichi Ohno described Meles as follows: 'The intellectual capacity and desire of Prime Minister Meles regarding development is probably unrivalled as a leader of a country and it can be definitely affirmed that the vision, policy framework and implementation system for the development of Ethiopia

JICA-supported *Kaizen* project materialized and the EKI was established in October 2011 as the core organization for the dissemination of *Kaizen*. It is said that 'the Policy Dialogue on Industrial Development of Ethiopia'[16] assisted by JICA had a positive impact on that decision.[17]

3.2. Mechanism, organization, and system

Both countries have been making efforts to create and consolidate the mechanisms, organizations, and systems for the dissemination of *Kaizen*. Here, comparison between Tunisia and Ethiopia is attempted, taking into consideration such efforts as: (i) the national-level organization and system, counterpart organization for JICA's cooperation (or core organization for the dissemination of *Kaizen*) and the principal collaborating/cooperating organizations; (ii) the human resources development system; (iii) the qualification certification system; (iv) the system to disseminate *Kaizen* to enterprises; (v) the awards scheme; (vi) collaboration and cooperation with industrial associations; and (vii) collaboration and cooperation with universities and research institutes, respectively.

In addition, the 'change of mindset' benefitting enterprises in both countries and the ongoing development of these two countries to function as centers of excellence are discussed as important achievements because these could lead to the further dissemination and development of *Kaizen* technologies in the future.

3.2.1. National-level organization and counterpart organization for JICA cooperation

As stated in 3.1, the NPPC was established on March 24, 2021 as a ministerial-level national body to promote productivity improvement

reflect his strong conviction' (GRIPS Development Forum 2016).

16 The Policy Dialogue on Industrial Development of Ethiopia started in 2009 in response to a request by the late Prime Minister Meles (GRIPS Development Forum 2016). The industrial policy dialogue is a modality of assistance aimed at transferring the experience of development, especially in the methodology of industrial policy formulation, of East Asia to developing countries (JICA and GRIPS Development Forum 2011, 12). Please also see the volume of this research project featuring industrial policy (Volume 1), especially Chapters 1 and 8.

17 Izumi Ohno who led the Policy Dialogue on Industrial Development of Ethiopia together with Kenichi Ohno stated that 'the policy dialogue was closely entangled with the process of introducing and developing *Kaizen*, producing a synergy effect between actual practice and policy formulation' (Ohno 2018, 20).

in Tunisia. Although the NPPC focuses on productivity, it is also understood as a national level organization for the dissemination of *Kaizen* in Tunisia since it carries out activities such as the operation of the *Kaizen* trainer qualification system in addition to policy formulation on productivity promotion. The members of the Committee are ministries responsible for industry, economy, and finance, higher education and scientific research, and professional training; associations in private sector (UTICA, CONECT); labor unions; and other knowledgeable persons. This membership is relevant to the *Kaizen* network discussed later in this chapter.

In Tunisia, the counterpart organizations for JICA cooperation are the UGPQ/UGPQP and national technical centers under the jurisdiction of the same ministry. *The Centre Technique des Industries Mecaniques et Electriques* (CETIME) has been selected as a counterpart organization for training from the first to the third-stage of JICA cooperation. One of the reasons is to utilize the results accumulated in CETIME from previous[18] JICA cooperation.

In Ethiopia, the National Kaizen Council (NKC) was established in 2013 by former Prime Minister Hailemariam Desalegn as a superior organization above the EKI which was to be the counterpart organization for JICA cooperation. The chairman of this Council is the Prime Minister. The Council functions as a supervisory body of the EKI and also discusses the future vision for the dissemination of *Kaizen* and the direction for a national movement (Mekonen 2018). The counterpart organization for JICA cooperation in Ethiopia was the KU in the first-stage, and then the EKI in the second-stage. As mentioned above, in both countries, counterpart organizations have national-level superior bodies in addition to supervising ministries. However, the system of counterpart organizations that receive JICA's cooperation is different.

The major difference between Tunisia and Ethiopia in regard to the counterpart organization for JICA cooperation is that while the UGPQ/

[18] CETIME was involved in the Study on Plan for Mechanical and Electrical Industry in Tunisia as a counterpart (1999-2000) (JICA and SAIESU 2000). The objective of the Study was for the JICA Study Team to transfer the methodology of corporate diagnosis to counterpart and local enterprises. In addition, a senior volunteer, who retired from the Toyota company, was working with CITEM as a *Kaizen* consultant during the same period of the first stage of JICA cooperation on the project (2006-08).

UGPQP and the national technical centers have received training on *Kaizen* technologies as a group of counterpart organizations in Tunisia, the KU/EKI has been the core organization for such training in Ethiopia even though TVET was added in the second-stage of cooperation. Simply put, the organizational structure to receive JICA cooperation can be said to be of 'the collaborative type' in Tunisia and 'the independent type' in Ethiopia. Which one is better or which one to be chosen will depend on the policies and conditions of each country. This point is discussed in Section 5.

Another difference between Tunisia and Ethiopia is in the supervisory body of the counterpart organization. The supervisory body of UGPQP is the MIEM, but that of the EKI has been transferred from the Ministry in charge of industry to the CSC under the direct control of the Office of the Prime Minister. The reason for the transfer to CSC is that the Ethiopian government has a policy of spreading *Kaizen* methods and way of thinking to the general public beyond the industrial sector. The idea of spreading the concept to the private and industrial sectors as well as the public sector is also seen in Tunisia, as can be seen from the membership of the NPPC as mentioned above.

3.2.2. Human resources development system

JICA cooperation up to the present has established a *Kaizen*-related human resources development system in both Tunisia and Ethiopia. The basic framework for human resources development is a combination of theoretical training (classroom training or CRT) and practical training (in-company training or ICT) with emphasis being placed on ICT. Practical training means that the trainees attempt to apply the theories of the *Kaizen* technologies that they learn during CRT on the actual production floors of enterprises, together with a plant manager and workers of an enterprise. In other words, practical training, i.e. ICT, is 'on-the-job training,' a 'learning-by-doing approach,' or an 'experience-based approach.'[19]

The reason for the emphasis on practical training is that the experience of previous *Kaizen* Projects has taught us the relevance of the idea of 'learning from experience' or 'mastering through experience' (Stiglitz

[19] Jin (2018) states that 'the learning-by-doing approach' is a unique characteristic of technical cooperation provided by Japan (39).

and Greenwald 2015; Japanese translation 2017, 56-57) for learning *Kaizen* technologies (concept and methods). In Tunisia, human resources development includes training using a simulation production line[20] in addition to CRT and ICT. As far as ICT in Tunisia is concerned, its purpose includes deeper understanding of the relatively advanced *Kaizen* methods required in Tunisia in addition to the application of the basic knowledge acquired through CRT. The training uses a simulated production line and is a system that allows the trainees to practice the production of experimental products or the assembly of components using standard production or assembly equipment, thus allowing the trainees to experience a simulated production floor. Tunisia is the only country using such a system for human resources development among the eight African countries in which JICA's *Kaizen* Projects are implemented (JICA and JPC 2020).

The principal human resources development program in Tunisia is the Training of Trainers (ToT) Program. This program consists of three-levels, and it takes four years to complete all three-levels. Tables 4.2 and 4.3 outline the contents of the ToT Scheme.

Table 4.2. Tunisia: Training of Trainers (ToT) Scheme (Qualification)

Level	Qualification Name	Requirement	Training Period
3	*Kaizen* Master Trainer (MT)	MT has the knowledge and skills to implement a *Kaizen* project. MT can provide training services for certification and / or supervision in *Kaizen*	2 years
2	*Kaizen* Advanced Trainer (AT)	AT has the knowledge and skills to implement a *Kaizen* project. AT may provide basic *Kaizen* and advanced *Kaizen* training services for *Kaizen* certification under the supervision of a certified Master Trainer	18 months
1	*Kaizen* Basic Trainer (BT)	BT has the knowledge and skills to implement a *Kaizen* project. This skill level does not allow the BT to provide training services for certification in *Kaizen*	6 months

Note: The above ToT Scheme is under discussion as of May 2021.
Source: Prepared by the author, modifying Fig. 5 in JICA and JPC (2020, 55) and using information provided by the members of the JICA expert team in the third-stage of the project.

[20] This is a facility installed with JICA's cooperation. The facility enables training in linking CRT and ICT and is currently managed and maintained by CETIME (the national technical center).

Table 4.3. Tunisia: Training of Trainers (ToT) Program (CRT and ICT)

	Classroom Training (CRT)		In Company Training (ICT)	
	Contents	Duration	Contents	Duration
Basics	• 5S • Visualization • Just in Time Production • Basic TPS • Basic TPM • Basic TQM	10 days	• 5 visits to each of 2 enterprises • Application of knowledge acquired through CRT to the production floor (Practice)	5 months
Advanced Part 1	• *Kaizen* of arrangements • One piece flow production • 'Kanban' • 'Jidoka' • 'Poka yoke' • 'Dandori' • Stock Control • Concept of TPS, TQM, TPM	10 days	• 5 visits to each of 2 enterprises • Application of knowledge acquired through CRT (Advanced Part 1) to the production floor (Practice)	5 months
Advanced Part 2	• Training with a simulation production line • *Kaizen* and Lean/Six Sigma • Financial Impact by *Kaizen* • Evaluating *Kaizen* performance	8 days	• 10 visits to each of 2 enterprises • Application of knowledge acquired through CRT (Advanced Part 1 and Part 2) to the production floor (Integrated Practice)	10 months

Source: Prepared by the author, referring to the Project Progress Report (JICA and JPC 2020, Fig.1) and information provided by the members of the JICA expert team in the third-stage of the project.

In Tunisia, human resources development programs include ToT for *Kaizen* Basic Trainers (BT) and *Kaizen* Advanced Trainers (AT) for the Private Sector. The fee for such a training course is fairly expensive for small and medium enterprises; but the Government of Tunisia has established a relevant subsidy system (JICA and JPC 2020, 17). In Ethiopia, the basic training method consists of CRT and ICT. Human resources development concerning *Kaizen* in Ethiopia can be classified into three-levels: basic, intermediate, and advanced. Basic-level and intermediate-level *Kaizen* technologies were transferred to EKI consultants by the JICA expert team during the second-stage and third-stage cooperation periods, respectively. The standard duration of a human resources development program in Ethiopia is one month for CRT and seven months for ICT. Table 4.4. shows the contents of the CRT Intermediate-level Consultant

Table 4.4. Ethiopia: Intermediate-level Consultant Training Program

Date	AM	PM
1st Day	Orientation Pre-CRT Exam	Intermediate *Kaizen* Story and Tool
2	• QC story & tools • IE • Case method	(Continued)
3	(to be continued)	(Continued)
4	Production Planning • Outline • Production types	• Steps of production planning • Bullwhip effect • MRP
5	(to be continued)	(Continued)
Weekend		
6	Toyota Production System (TPS) • 'Heijyunka (Smoothing)' • Standardized work • Visual control & 5S	• 'Jidoka & Five Whys' • Just-in-Time • Value Stream Map
7	• Case Method	• Kanban training
8	Cost and Accounting	• Case method
9	Economic Engineering • *Kaizen* effect calculation	• Cost & profit study • Sunk Cost
10	• Capacity and profitability analysis • Investment pay-off analysis	• Case method
Weekend		
11	Inherent Technology • Briefing	• Visit to MIDI
12	• Visit to LIDI	• Visit to TIDI
13	TQM • Framework of TQM • SWOT analysis	• Case method
14	• Policy management	• Case method
15	TPM • Steps of TPM • 16 major losses	• Case method
Weekend		
16	• 8 pillars of TPM • Preventive maintenance	• Case method
17	Ethical code	Orientation of ICT Post-CRT Exam

Note: This is the fifth batch for CRT, September to October 2020.
Source: Table in JICA and JPC 2020 modified by the author.

Training Program in Ethiopia.

During the period of the JICA's third-stage cooperation for Ethiopia, the Management Skill Development Program was developed. Because of the need to train trainers to complement this program, the ToT on Management Skills Program was also developed. There is a slight difference between Tunisia and Ethiopia in terms of human resources development as shown in Table 4.3 (Tunisia) and Table 4.4 (Ethiopia). The CRT in both countries includes intermediate (and partially advanced)-level *Kaizen*, giving the impression that the technical contents are virtually the same in both countries although the point of emphasis in the training differs. In Tunisia, trainers are taught to faithfully apply the *Kaizen* technologies (concept and methods) learned during CRT in the ICT as the phrase 'application of the knowledge mastered in CRT to the production floor (practice)' in the table clearly indicates. In contrast, ICT in Ethiopia teaches how to proceed with a consultation in accordance with the *Kaizen* steps, using the fourth batch ICT (January 16 to July 27, 2019) of the Intermediate-level Consultant Training Program as an example (JICA et al. 2016). In other words, Tunisia aims at training *Kaizen* trainers[21] while Ethiopia emphasizes the training of *Kaizen* consultants.[22] This difference relates to the name of the qualification in the qualification certification system of each country.

Another difference between Tunisia and Ethiopia is that Tunisia in principle charges a fee for training and consultation for private enterprises. This is an issue for Ethiopia to consider in the coming years (JICA and JPC 2020).

3.2.3. Qualification certification system

As described above, the qualification title differs between Tunisia (Trainer) and Ethiopia (Consultant).[23] The qualification certification system in Tunisia was introduced during JICA's third-stage cooperation, and three

[21] JICA's third-stage cooperation for Tunisia is said 'to have attempted to foster such individual qualities as enthusiasm, cooperativeness, leadership, and so on; all of which are required for the training of trainers' (JICA and JPC 2020, 28).

[22] The training of a consultant focuses on problem identification and problem solutions discovered by themselves.

[23] In the certification system, qualified persons are called 'consultants' in Ethiopia and 'trainers' in Tunisia. Even in Tunisia, they are called 'consultants' in the actual workplace. In this chapter, the Tunisian qualified persons are referred to as either 'trainers or consultants,' depending on the context.

types of qualification, i.e. *Kaizen* Master Trainer (MT), *Kaizen* Advanced Trainer (AT), and *Kaizen* Basic Trainer (BT), are certified (Table 4.2). As of February 2020 there was an ongoing process to formulate a ministerial ordinance to have these qualifications certified by the government (MIPME) (JICA and JPC 2020). The ministerial ordinance was issued on March 24, 2021 with the establishment of the NPPC.

In Ethiopia, the *Kaizen* Consultant Certification, Accreditation and Registration System (CARS) was established in 2017 during the third-stage cooperation to ensure the quality of *Kaizen* services. There are three types of consultant qualifications, i.e. Basic-level Consultant (BC), Intermediate-level Consultant (IC), and Advanced-level Consultant (AC)[24] but the current qualification holders are either BC or IC (JICA et al. 2020).

3.2.4. Kaizen dissemination system for enterprises

In both countries, the system to disseminate basic *Kaizen* technologies was established during JICA's second-stage cooperation. In the third-stage cooperation, emphasis is placed on the transfer of intermediate-level *Kaizen* technologies in both countries and in Tunisia the transfer of some advanced-level technologies was attempted through ICT by establishing a system to disseminate *Kaizen* technologies to enterprises. However, the human resources capable of making this system function (i.e. human resources capable of guiding enterprises) are limited both qualitatively[25] and quantitatively and cannot fully meet the needs of private enterprises, making it essential for trainers and consultants to build up their practical experience in the coming years.

3.2.5. Awards scheme

The awarding of enterprises is important in two ways. First, it gives an extra incentive to enterprises that have already introduced *Kaizen* by recognizing their significant achievements. Second, it promotes a need

[24] Ethiopia is examining the introduction of the category 'Principal Consultant,' a higher qualification than the existing three consultant-levels (JICA et al. 2020).

[25] In case of Tunisia, although not so many, those who received one-on-one training by the JICA expert team between the 2nd stage (2009-13) and the 3rd stage (2016-21) can now provide the relatively high level of training services and technical guidance to companies on a commercial base (fee base). (Information source: JICA experts involved in the third stage of the JICA *Kaizen* project).

or demand for *Kaizen* on the part of those enterprises that have not yet introduced it. In Tunisia, as of February 2020, the MIPME was in the process of formulating a ministerial ordinance to establish a *Kaizen* Awards Scheme during the third-stage cooperation.[26] The ordinance regarding this Award was issued on March 24, 2021 with the establishment of the NPPC. In Ethiopia, the National *Kaizen* Awards Scheme was established in 2015, and a ceremony is held in September (the first month of the Ethiopian calendar) every year to reward enterprises and *Kaizen* Promotion Teams (KPTs) as small groups and individuals that have accomplished significant *Kaizen* achievements (Mekonen 2018).

3.2.6. Collaboration and cooperation with private associations

In both Tunisia and Ethiopia, the core organization to promote the dissemination of *Kaizen* is a public body. Although it may be the case that a public body acts as a driving force in a developing country in the stage of industrial catching-up, the dissemination of *Kaizen* should be eventually driven by the initiative of the private sector. Accordingly, the role of the government of a developing country is to create an environment in which private bodies, such as industrial associations and management associations, are fostered and developed. Collaboration and cooperation between the core organization (at present public body) and private associations are essential for the dissemination and expansion of *Kaizen* technologies from the long-term perspective.

Large-scale private bodies in Tunisia are the *Union Tunisienne de l'Industrie, du Commerce et de l'Artisanat* (Tunisian Confederation of Industry, Trade and Handicrafts: UTICA)[27] and the *Confederation des Entreprises Citoyenne de Tunisie* (Confederation of Citizen Enterprises of Tunisia: CONECT),[28] both of whom are members of the Joint Coordinating Committee (JCC) for the third-stage *Kaizen* project of JICA. The UGPQP collaborates with

[26] In 2008 during the period of JICA's first-stage cooperation, the First Grand Prix of the President was established for the Improvement of Quality and Innovation. This institutional arrangement was abolished during the Jasmine Revolution in 2010-11 (JICA and JPC 2020).

[27] The UTICA was established in 1947 and its membership includes some 150,000 private enterprises in the industrial, commercial, service, and handicraft sectors, excluding the tourism and financial sectors. It is part of the Tunisian National Dialogue Quartet which was awarded the Nobel Peace Prize in October 2015 (JICA and JPC 2020).

[28] The CONECT is a body of enterprise managers in diverse business fields, including the public sector and foreign subsidiaries, in Tunisia (JICA and JPC 2020).

these two bodies to jointly host seminars and dispatches lecturers to seminars organized by these bodies. The relationship between the eight national technical centers and private enterprises includes the provision of various technical services by these centers for private enterprises and the representation of leading private enterprises on the board of directors of the technical centers in eight technical fields. In other words, each center is operated by a public-private partnership type board of directors.

In Ethiopia, in the third-stage cooperation period, no cooperative relationship has emerged between the EKI and private bodies (especially industrial associations).[29] However, the Ethiopian Industrial Engineers Association is entrusted to conduct part of the work related to the CARS examination. This Association may be the only private body in a cooperative relationship with the EKI at present. Based on the above, the collaboration between the public sector and private sector appears to be relatively more advanced in Tunisia in view of the collaboration or cooperation between the UGPQP and the national technical centers and private associations.

3.2.7. Collaboration and cooperation with universities

Universities and higher education institutions can play a significant role in industrial development. As mentioned in Chapter 2, in the case of Japan's experience in the *Kaizen* field for example, universities have played an important role together with private associations in the study of *Kaizen* (systematization and experimental application), development of new methods, and human resources development (JUCE 1997; JPC-SED 2005; and JIIE 2010).

In Tunisia, the government, especially the MIPME, emphasizes academic-industrial collaboration in its industrial policy (JICA and JPC 2020). During JICA's third-stage cooperation a dissemination and enlightenment seminar on quality/productivity improvement (*Kaizen*) for university lecturers and a seminar for university students have been organized within the framework of the *Kaizen* project, targeting several universities and higher educational institutions. The seminar for university lecturers in particular

[29] In Ethiopia no private bodies have relations with the third stage of the JICA supported *Kaizen* project, but the Ethiopian Chamber of Commerce and Sectoral Associations (ECCSA) was a member of the JCC in the second stage of JICA cooperation.

involved not only *Kaizen* theories but also practical training using a simulated production line. Apart from these seminars, a proposal for a quality and productivity improvement curriculum has been submitted to a university via the Ministry of Higher Education and Scientific Research.

The University of Tunis has a Higher National Engineering School (*Ecole Nationale Superieure d'Ingenieure de Tunis*: ENSIT) which has the status of a faculty and offers an industrial engineering course. The curriculum for this course includes such lecture themes related to *Kaizen* as production control, quality management and supply chain.[30] The ENSIT has strong interest in *Kaizen* and hopes therefore to strengthen its collaboration and cooperation with the UGPQP and national technical centers.

What is notable in Ethiopia regarding links between *Kaizen* and universities is the fact that a *Kaizen* master's degree course as well as a *Kaizen* PhD course have been established. A two-year master's degree course started at Mekelle University in March 2014 under the guidance of a Japanese university professor (Hiroshi Osada, Professor Emeritus, Tokyo Institute of Technology). A four-year PhD course was introduced at the same university in October 2018 (JICA et al. 2020).

3.3. Development and accumulation of capacity

The establishment of 'a mechanism, organization, and system' for the future dissemination of *Kaizen* in Tunisia and Ethiopia can be regarded as a device to materialize the vision, policy, and strategy for the future of *Kaizen*. What is required as the next stage is the capacity to make these devices actually function. Here, the term capacity is subdivided into individual capacity, organizational capacity, and network capacity.

Individual capacity means the capacity of individual trainers or consultants engaged in the work to disseminate *Kaizen*. In other words, it means training/guidance capacity and/or consulting capacity (ability to discover and solve problems). Organizational capacity means the capacity of a core organization to disseminate *Kaizen* in the present context and includes the capacity to operate the organization itself,[31] the capacity to

[30] Based on ENSIT's brochure introducing its curriculum.

[31] The operation of an organization includes the operation and management of training programs, qualification systems, awards schemes, and various events in addition to the gathering and analysis of information and data.

train, strengthen and utilize the capacity of individual persons belonging to the organization in question, and the capacity to cooperate as well as coordinate with organizations, bodies, associations, universities, and so on, that form a network.[32]

Network capacity means the capacity generated by a network headed by a core organization for the dissemination of *Kaizen*, with other members being related organizations and bodies, associations, universities, and so on. Even if a core organization for the dissemination of *Kaizen* exists, there is a limit to its ability to sustain and further develop the nationwide dissemination of the concept alone. For its sustained dissemination and development, a network to ensure linkage and cooperation between related organizations and bodies is essential (Kikuchi 2014).

It is not easy to qualitatively determine the three types of capacity. This chapter only looks into the quantitative aspect of capacity, including the number of training participants[33] or the number of those who have completed training, the number of people who have obtained a qualification, and, in the case of Ethiopia, the number of master's and PhD course students and the number of students completing these courses. In the case of Tunisia, individual capacity is represented by the number of qualified persons in the different stages of cooperation with JICA (see Table 4.5).

The next topic is the capacity of a core organization for the dissemination of *Kaizen* in Tunisia. The UGPQ/UGPQP as the core organization has been a temporary organization which is renewed every five years. It does not have its own budget and has only a limited number of full-time staff. During JICA's third-stage cooperation period, the staff members consist of three full-time UGPQP employees and four Master Trainers temporally transferred from the technical centers. The UGPQP has been receiving JICA cooperation to train personnel (MTs, ATs, and BTs) through the system of collaboration with national technical centers. It has also established a mechanism to improve such activities as organizational capacity, since the UGPQP has been engaged in the training of and technical guidance

[32] If the core organization is to perform the role of a Center of Excellence for the dissemination of *Kaizen* to neighboring countries in the future, it is required to develop the capacity to function as a secretariat to fulfil such a role.

[33] Excluding the number of participants from companies, that is, executive managers, factory managers, and workers involved in *Kaizen* projects.

for enterprises using trained personnel.

Table 4.5. Tunisia: Numbers of *Kaizen* Master Trainers (MT) and *Kaizen* Advanced Trainers (AT) at UGPQP/Technical Centers

	Second-stage Cooperation (AT)	Third-stage Cooperation		
		MT	AT	MT+AT
UGPQP		1	0	1
CETIME	5	6	2	8
CETTEX		7	5	12
CTC		4	1	5
CTAA		1	4	5
PACKTEC	2		2	2
CTMCCV		1	3	4
CETIBA			3	3
CNCC			2	2
Sub Total (1)	**7**	**20**	**22**	**42**
MIPME		1	1	2
Private Co.		1		1
Sub Total (2)	**0**	**2**	**1**	**3**
Total (1) + (2)	**7**	**22**	**23**	**45**

Notes: In addition to the above numbers of qualified trainers, 2 AT Candidates, 41 BT Candidates, 16 staff members of national training centers, and 25 private company staff are under training as of February 2020.

Source: Project Database (provided by the JICA Expert Team as of February 2020).

In addition to the management of training and guidance for enterprises, the operation of the UGPQP includes the management of qualification systems, award schemes, and various events and also the gathering and analysis of information and data. Therefore, the staff strength of the administration department must increase since a greater number of such activities are planned in the coming years.[34]

Regarding network capacity, although the UGPQ/UGPQP has so far maintained a collaborative relationship with technical centers as well as various private associations and universities, these relationships will

[34] If the UGPQP is to perform the role of a Center of Excellence for the dissemination of *Kaizen* to neighboring countries in the future, it is required to develop the capacity to function as a secretariat to fulfil such a role.

be strengthened with the establishment of the NPPC comprehensive network. Once this network is established, the UGPQP will be required to have the capacity to coordinate and liaise with network members (meaning the capacity to act as a secretariat).

What about the individual, organizational, and network capacities in Ethiopia? The individual capacity is represented by the number of training participants[35] and qualification holders in the JICA's first-stage through third-stage cooperation (Table 4.6).

Table 4.6. Ethiopia: Numbers of *Kaizen*-Related Qualification and Academic Degree Holders

Qualification/ Level	Qualification/ Academic Degree Holders
Advanced-level Consultant (AC)	0
Intermediate-level Consultant (IC)	24 (EKI: 17)
Basic-level Consultant (BC)	23 (EKI: 10)
5S Master	127
5S Leader	161
Kaizen Starter (KS)	60
Trainers for the Senior Management Training Programme (ToT)	5
Master's Degree Holders	66 (EKI: 63)
Those Having Completed the PhD Course	0 (4 attending the course)

Note: Figures in the table are as of June 2020.
Source: Prepared by the author based on the Progress Report (JICA et al. 2016, 2020).

Let us now examine the organizational capacity of the EKI, which is the core organization for the dissemination of *Kaizen* in Ethiopia. The capacity to operate the organization itself is affected by the capacity of top management. The first Director General of the EKI exerted his leadership as if responding to the strong leadership of the Prime Minister and skillfully managed the EKI while securing budgetary appropriation from the government and acquiring the necessary human resources. Along with its increasing manpower strength in terms of not only consultants but also administrative staff, the EKI has also been attempting to develop and

[35] Excluding the number of participants from companies, i.e., executive managers, factory managers, and workers.

strengthen the managerial capacity of senior staff to gradually enhance the overall capacity of the organization.

In regard to the capacity of the EKI to train, strengthen, and utilize consultants, a mechanism has already been established to continually train and strengthen consultants capable of providing basic as well as intermediate-level *Kaizen* training and technical support (consultations, guidance, and so on). These trained consultants have been actively utilized to guide younger consultants and to provide training as well as technical services for enterprises. The data (Table 4.6) can be considered to show the organizational capacity of the EKI from a quantitative viewpoint. It is said that the current manpower strength of the EKI cannot cope with the demand for *Kaizen* from enterprises (JICA et al. 2020).

Regarding the network capacity in Ethiopia, although the EKI has so far established an individual relationship of cooperation with national industrial development institutes (MIDI, LIDI, TIDI, and so on), regional *Kaizen* institutes (RKIs), TVET, and universities, its collaboration with private associations has been thin.[36] It will be particularly important for the EKI to build a cooperative relationship with industrial associations in the private sector in the future. In any case, no comprehensive network with members consisting of organizations (especially, industry, government, and academia) related to the dissemination of *Kaizen* has yet to be established in Ethiopia.

The individual and organizational capacities developed and accumulated through JICA's *Kaizen* Projects over a period of 10 years in Tunisia and Ethiopia are summarized in Table 4.5 (Tunisia) and Table 4.6 (Ethiopia), respectively. Regarding network capacity, at present it is hard to say that such a comprehensive network has been established in Ethiopia. The network capacity related to the dissemination of *Kaizen* in both countries depends on the ability to cooperate and coordinate of public organizations and institutions, private and industrial associations, and universities that make up the network of the core organizations like UGPQP and EKI. In the case of Tunisia, UGPQP has had an individually collaborative relationship with eight national technical centers, industrial

[36] No private associations similar to the UTICA or CONECT in Tunisia, have been established in Ethiopia. Nevertheless, such associations as the Ethiopian Chamber of Commerce and Sectoral Associations and the Addis Ababa Chamber of Commerce and Sectoral Associations may be able to act as substitutes.

associations, and universities. A comprehensive network will be formed with the establishment of the NPPC. In the case of Ethiopia, EKI as the core organization has a relationship with national industrial development institutes (MIDI, LIDI, TIDI, etc.), RKIs, and specific universities, but no private sector associations, like UTICA and CONECT in Tunisia. In the long run, the role of the private sector (especially industrial associations, management associations, and so on.) is important for the dissemination of *Kaizen*. At present there is no comprehensive network in Ethiopia.

What must be especially considered for the formation of a network for the dissemination of *Kaizen* is the creation of a so-called industry, government, and academic cooperation system. The formation of a network is a challenge for Ethiopia in trying to develop the spread of *Kaizen* sustainably. This topic is touched on again in Section 6 from the viewpoint of future industrial development cooperation.

3.4. Other achievements

In addition to the above-mentioned achievements, there are two other achievements resulting from the *Kaizen* Projects in Tunisia and Ethiopia in the last 10 years that could have implications for the future development of *Kaizen*. One is the mindset change of managers and workers of enterprises, and the other is related to the dissemination of *Kaizen* to neighboring countries beyond the borders of Tunisia and Ethiopia or to countries using the same language. The latter advances the possibility of these two countries becoming centers of excellence in Africa.

3.4.1. Change in mindset

It is possible to quantify quality improvement, productivity improvement, cost reduction, and a shorter delivery time as results of the introduction of *Kaizen* technologies. However, there are other achievements which cannot be quantified. Based on the experience of the author's involvement in the *Kaizen* Projects in Tunisia (2006-08) and Ethiopia (2011-14), there are cases where the view of a business owner has changed, and conventional business judgement based on intuition and experience has been replaced by that based on statistics, data, or a statistical method. There are also cases where the relationship between an owner and workers has improved, workers' moral and teamwork have improved, and both the owner and workers have become more proactive toward their work. All of these are

the results of the introduction of *Kaizen*, and these achievements have a positive impact on the formation of capacity to implement further activities.

Jin (2020) explores the impacts of the *Kaizen* Projects assisted by JICA in Ethiopia. According to his study findings, *Kaizen* activities have resulted in positive changes to the leadership of the management, the teamwork of workers, the in-house communication of enterprises, attitudes towards learning, and so on. In other words, *Kaizen* group activities have facilitated a change of the mindset of workers (relating to the 5S, QCC, the elimination of *muda*, and so on). The change of mindset mentioned here may be translated to the 'core capacity' advocated by Jin (2018 and 2020). According to him, 'the core capacities are the central force in capabilities in handling issues such as discipline, will, attitude, leadership, and management capabilities which are needed for producing desirable results through the use of the technical capacities' (Jin 2018, 40). Meanwhile, Hosono (2018) describes 'core capacity' as 'cross-cutting core capacity' as it is the capacity equipped with diversity beyond a specific field.

The author visited Tunisia and Ethiopia in February 2020. A statement by an owner of a Tunisian enterprise produced an especially long-lasting impression. In response to a question about the western style of *Kaizen*, say, Six Sigma (SS) and the Lean manufacturing system (LMS) in the questionnaire, he answered that while they are effective as standardized tools, they cannot be expected to trigger a change of the mindset.' This business owner introduced the LMS for seven years with guidance from a European consultant but switched to *Kaizen* based on his own study of Japanese-style *Kaizen*. According to him, while other senior management personnel were reluctant to make a switch, the workers were more responsive. The introduction of *Kaizen* based on his decision led to greater achievements while achieving a change of mindset among workers. His earlier statement must reflect the experience of his enterprise.

In short, a change of the mindset of managers and workers as an 'achievement' and the subsequently created core capacity can be rightly considered to further amplify the possibility of the sustained development of *Kaizen* in the future.

3.4.2. Function as a regional center of excellence

As mentioned earlier, Tunisia was the first African country to implement JICA's *Kaizen* project. Its achievements and experience of the last 10 years are valuable assets, many of which are useful for other African countries. The Africa Kaizen Initiative (AKI)[37] hopes that Tunisia will become a center of excellence in Francophone Africa (Maghreb and Sub-Saharan Africa) (JICA and JPC 2020). There is already a pertinent case. In 2019 (from September 30 to October 11), a *Kaizen* training course (knowledge-sharing among Francophone countries) was held in Tunis with MTCs (Master Trainer Candidates) from the UGPQP and technical centers acting as trainers. Trainees from five African countries, i.e. Senegal, Democratic Republic of the Congo, Burkina Faso, Morocco, and Algeria, participated in this training course.

There is a growing possibility of Ethiopia functioning as a center of excellence for its neighboring countries as well as other English-speaking African countries. As described earlier, Ethiopia has also produced many positive achievements in *Kaizen* Projects in the last 10 years. As in the case of Tunisia, achievements and experiences in Ethiopia are valuable assets and many of which are useful for other African countries. Several African countries have sent observation teams to learn about the *Kaizen* achievements in Ethiopia. There have also been cases of Ethiopia sending a mission to another African country to provide guidance on *Kaizen*. One such example is the training on the 5S and elimination of *muda* which took place in Djibouti in April 2019 during the period of JICA's third-stage cooperation with EKI consultants acting as the trainers.

In this way, both Tunisia and Ethiopia are on course to possibly becoming a Center of Excellence in the future for neighboring countries as well as other African countries in the same linguistic areas, and such a possibility is growing ever stronger. This development will mean a shift of JICA cooperation from conventional country-based cooperation to region-based cooperation. In other words, it will mean moving to assistance for

[37] The Africa Kaizen Initiative is a project promised by Japan's Prime Minister Abe and the New Partnership for Africa's Development (NEPAD) at the Sixth Tokyo International Conference for African Development (TICAD VI) held in Nairobi, the capital of Kenya, in August 2016 to improve the quality and productivity of factories in Africa through the introduction of *Kaizen*. This project started in April 2017 with the joint sponsorship of JICA and the NEPAD.

the creation of Centers of Excellence[38] for the dissemination of *Kaizen*. Cooperation in the creation of Centers of Excellence can be interpreted as a move to improve the efficiency of cooperation as it fosters ownership to countries that are the recipients of cooperation by eventually becoming a Center of Excellence. *Kaizen* can be further disseminated to neighboring countries and regions through the activities of each country.

4. Customization and Translative Adaptation

Japan has learned and modified technology and knowledge originating in Europe and the United States (US) according to its own needs in the process of modernization after the Meiji era and economic development after the World War II through 'translative adaptation.'[39] 'Translative adaptation' is a term used by cultural anthropologist Keiji Maegawa (Maekawa 2004, 38). The concept of' translative adaptation used in this research is explained in Chapter 1. Strictly speaking, the concepts of 'customization' and 'translative adaptation' are different, but both are stated to be interchangeable (See Chapter 1).

Technology transfer, from the perspective of the recipient, is to learn technology from a foreign country, attempt to apply the acquired technology, modify or customize it to suit their own needs, and then diffuse the modified technology widely (Kikuchi 2014, Chapter 2). Moreover, it is a process of making further modification to meet needs, rather than ending with one modification. In other words, technology transfer is a process of continuous modification or customization for the recipient of the technology. Based on this recognition, the project assisted by JICA has not only transferred *Kaizen* technology to the recipient country, but also provided technical cooperation in consideration of continuous customization in the recipient country (Jin 2018, 38).

The AKI is promoting standardization for the spread of *Kaizen* in Africa. What is the difference between standardization and customization? Here,

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[38] Outside Africa, Argentina is already functioning as a Center of Excellence in the *Kaizen* field in Latin America. The core organization is *Instituto National de Technologia Industrial* (INTI) (JICA 2017).

[39] See the website of JICA Ogata Research Institute and the *Research Project on the Japanese Experiences of Industrial Development and Development Cooperation: Analysis of Translative Adaptation Process*
https://www.jica.go.jp/jica-ri/research/strategies/20190724-20240331.html.

the author would like to clarify the difference. At the first glance, the two terms may seem contradictory. Standardization is the unification or averaging of methods and approaches that suit needs and conditions of every country, while customization is their modification or adjustment tailored to the needs and conditions of each country. The methods and approaches that the AKI targets for standardization may be basic and acceptable to any country. However, it is not always compulsory for AKI member countries to follow the standard. The countries which will introduce and disseminate *Kaizen* could customize the methods and approaches standardized by the AKI according to their own needs and conditions (Kikuchi and Suzuki 2018).[40]

4.1. Customization in Tunisia and Ethiopia

How about the customization of *Kaizen* technology in Tunisia and Ethiopia for the last 10 years? Trainees from both countries first tried to absorb the methods and way of thinking born from a different industrial climate and corporate culture brought by the Japanese expert team, while the expert team made efforts to get the trainees of both countries to understand the essence of *Kaizen* and to learn how to apply the learned knowledge and methods to real production at factories. As the project progressed, both trainees and JICA experts became aware of the need for adjustments and modifications according to differences in the industrial climate and corporate culture of each country.

Both countries have been working on the review of training curricula, the improvement of teaching materials and manuals, translation into ethnic languages (Ethiopia), and dissemination to rural areas and the development of private human resources according to their own country's needs and conditions. In Tunisia, the training method taught by JICA was a combination of CRT and ICT. But after training in Japan, the counterparts (UGPQP and national technology centers) developed their own training method using 'simulated production lines' between CRT and ICT (JICA and JPC 2020). Although it is not the customization of a 'simulated production line' itself, it is evaluated as a customization of the training method in that the 'simulated production line' seen in Japan is

[40] The Africa Kaizen Initiative's 'standard should focus on transferable knowledge and skills so that customization can be attempted in each country' (Kikuchi and Suzuki 2018, 144).

added to the training method (a combination of CRT with ICT) taught by the JICA expert team through their own initiative.

In Ethiopia, the Kaizen Promotion Team (KPT) and the TIISO model are the other examples of customization. EKI has modified the Quality Control Circle (QCC) originally developed in Japan into KPT. The KPT includes not only the concept of QCC but also that of cross functional teams (Mekonen 2018). EKI has also developed the TIISO model as a unique model for *Kaizen* dissemination in Ethiopia with reference to the successful experience of the approach in Japan and other countries. The TIISO model consists of five stages: testing, institutionalizing, implementing, sustaining, and ownership (Mekonen 2018, also see Chapter 3).

4.2. The period from learning to customization in Japan

Is 10 years long enough for Tunisia and Ethiopia to customize foreign-born *Kaizen* technology? This study confirms the experience of customization in the development process of Japanese production management technology. Quality Control Circles (QCC), Total Quality Management (TQM), Total Productive Maintenance (TPM), and the Toyota Production System (TPS) are typical Japanese *Kaizen* technologies (ways of thinking and methods). The literature survey for this study shows how many years have passed since the originals were learned from the US and became unique technologies in Japan (Japanization, indigenization).

QCC: In 1950, an American statistician, W. Edwards Deming introduced statistical quality control to Japanese managers, engineers, and researchers through an eight-day course or one day seminars. This was the event that triggered the quality improvement movement in Japan. Twelve years later, in 1962, QCC was developed mainly by Hajime Ishikawa as a method to promote quality improvement activities at the corporate level. And in the same year, the QC circle headquarters was set up in the Union of Japanese Scientists and Engineers (JUSE) (QC Circle Headquarters [1970] 2012);

TQM: TQM is an approach based on the use of quality concepts developed in Japan. By the late 1970s, the diligent application of these techniques by Japanese manufacturing companies had enabled them to overtake Western manufacturers. Ironically, however, the quality movement was originally inspired by American ideas (Crainer and Dearlove 2001, 419-20). The study of quality control began in the latter half of the 1940s and

took into consideration the practical utilization of statistical methods by engineers, the strengthening of organizational management by executive managers and factory managers, the development of QC circle activities at the front line of the workplace, and so on;

Policy Management: Born in Japan, this is an important pillar that supports TQM. This is an idea that evolved from American-born goal management. Goal management emphasizes results, while policy management emphasizes processes, and it takes about 10 years to reach that point (Osada et al. [1996] 2005);

TPM: The driving force behind the development of TPM was Seiichi Nakajima of Japan Management Association (JMA). In 1951 he studied PM (Preventive Maintenance) developed in the US, and in 1969, he proposed TPM, as a further development of the conventional PM (JMA 2010);

TPS: Taiichi Ohno, an engineer who had been in charge of machine shops within Toyota Motor Corporation since the post-war reconstruction started in 1945, investigated American supermarkets and thought that the method of supermarket organization might be connected to the concept 'just in time.' He started applying the method at manufacturing sites ('*gemba*' in Japanese) in 1952. In 1956, Ohno had a chance to go to the US and could confirm the methods in the American supermarket system with his own eyes. After coming back to Japan, he adopted the *Kanban* system company-wide in 1962. The '*Kanban* system' is a management tool for realizing just in time, the first pillar of the TPS (Taiichi Ohno [1978] 2014).

As we have seen, the period from when Japan learned technologies (including ways of thinking and methods) from western countries, especially the US, to when those were modified or customized to adapt to Japan's needs and conditions is more than 10 years. From the above cases we can see that it took more than 10 years for QCC and TQM, and more than 15 years for TPM and for TPS, to learn production management technologies from western countries, especially the US, and to customize them to Japan's technological needs and conditions.

As a conclusion for this section, although some customizations or translative adaptation of *Kaizen* have been tried in Tunisia and Ethiopia for the last 10 years, this period has not been long enough to create innovative systems and methods of *Kaizen* that can be achieved after trial and error.

The 10 years for both countries was a period focused on learning and application of *Kaizen* at '*gemba*' and it will be left to the future to create unique advanced-level systems and methods of *Kaizen* that will suit the needs and conditions of their own countries.

5. Future Challenges: Advancement of *Kaizen* Technologies and Organizational Structure in Tunisia and Ethiopia

5.1. Advancement of Kaizen technologies

One prominent achievement of JICA cooperation for *Kaizen* in Tunisia and Ethiopia in the last 10 years is that both countries have mastered basic as well as intermediate (and partially advanced[41]) level *Kaizen* technologies. In addition, a system for developing such human resources has also been established in each country. The future challenge for them is how to achieve the learning and dissemination of advanced-level *Kaizen* technologies while making continuous efforts to further disseminate and firmly establish the *Kaizen* technologies they have mastered so far. Typical examples of advanced *Kaizen* technologies are TQM, TPS, and TPM, all of which were developed in Japan. Such technologies that were developed in the US as Six Sigma (SS), the Lean manufacturing system (LMS),[42] and Business Process Reengineering (BPR) can be added to this list. These *Kaizen* technologies born in the US are modified or customized versions of TQM, TPS, and TPM.

The themes to be discussed in this section are: 'What kind of an organizational structure should be in place?' and 'What are the necessary conditions for the required capacity?' for the learning and dissemination of advanced *Kaizen* technologies in the future.

5.2. Organizational structure

In this chapter, the term organizational structure includes the core organization to disseminate *Kaizen*, the organizations collaborating and cooperating with the core organization, and the mechanisms and

[41] In Tunisia, some advanced-level *Kaizen* technologies, especially TPS, were transferred to trainers of UGPQP and the technical centers through ICT as well as CRT (see Table 4.3).

[42] SS and L became international standards in the form of ISO 18404 in December 2015. The title of ISO 18404 (2015) is 'Quantitative methods in process improvement – Six Sigma – Competencies for key personnel and their organizations in relation to Six Sigma and Lean implementation.'

systems pertaining to *Kaizen* learning, training, and dissemination. As described above, the organizational structure to receive JICA cooperation differs between Tunisia and Ethiopia. In Tunisia, the UGPQ/UGPQP as a core organization for *Kaizen* learning and dissemination has been a temporary organization since its establishment in 2005 and there has been a collaborative system involving the UGPQ/UGPQP and the national technical centers (collaborative type). On the other hand, the EKI in Ethiopia was established in 2011 after JICA's first-stage cooperation and has been the core organization receiving the JICA cooperation in that country (independent type). It doesn't matter which type is better here. Looking back on the achievements of the *Kaizen* projects of both countries over the past decade, it can be said that each type has brought about appreciable results in each country.

However, there is no guarantee that each type of organizational structure that has worked effectively in both countries will remain valid in the future. The two countries must not only challenge the acquisition of more advanced *Kaizen* technology, but also strive to disseminate the technology that they have acquired so far. Also, in the long run, how will both countries develop the private associations and private consultants who are expected to play an important role in promoting *Kaizen*? Considering these matters, what type of organizational structure is appropriate is an extremely challenging issue for both countries.[43]

5.3. Capacity and conditions for advancement of Kaizen

The needs (demand) of enterprises for advanced *Kaizen* are not currently apparent but will emerge in due course. Competition between enterprises in the international market is likely to grow rather than ease off in the coming years. It will be especially necessary for Tunisia to strengthen its market competitiveness in terms of not only price but also quality, to meet the demands of the European Union (EU) countries that have been the main export destinations for Tunisian products for many years.

What are the required capacity and conditions to master and disseminate

[43] From a long-term policy level perspective, what to do with the organizational structure for the dissemination of *Kaizen* may depend on whether the state leads the private sector or the state outsources it to the private sector. In other words, it may depend on whether the country aims to become a developmental state or a small government based on neoliberalism.

the necessary advanced *Kaizen* technologies in the coming years? In general, the introduction of basic *Kaizen* technologies to an enterprise does not require much technical knowledge of machinery and systems (inherent technologies) compared to the introduction of advanced technologies. Meanwhile, a knowledge and experience of inherent technologies are necessary to master advanced *Kaizen* technologies (JICA et al. 2016; Sugimoto 2018). In this context, consultants (or engineers) at the national technical centers in Tunisia have acquired knowledge and experience through their essential work in providing technical services to enterprises.

In Ethiopia, many consultants of the EKI are the graduates of an engineering course and were employed by the EKI immediately after graduation. Thus, even though they have subsequently built up their experience of applying basic *Kaizen* technologies to the production floors of enterprises, they lack sufficient practical knowledge and experience regarding manufacturing as well as operating technologies involving machinery. During the training on intermediate-level *Kaizen* theories (CRT) in the third-stage of cooperation, the trainees (EKI consultants) made study visits to industrial development institutes (MIDI, TIDI, and LIDI) to strengthen their knowledge of inherent technologies in addition to having classroom lectures on such technologies (Table 4.4). Nevertheless, their practical experience regarding inherent technologies at actual production floors is limited (JICA et al. 2020). Accordingly, for EKI consultants aspiring to learn advanced-level *Kaizen* technologies, how they acquire practical knowledge of inherent technologies will be an unavoidable issue in the coming years.

This narrative suggests that the participation of national technical centers throughout the three stages of JICA cooperation in collaboration with the UGPQ/UGPQP in Tunisia has been very advantageous. The consultants at the UGPQP and national technical centers have another advantage compared to the Ethiopian consultants. Basic *Kaizen* technologies generally have their basis at the production floor. With the advancement of these technologies to the intermediate-level and further to the advanced-level, their relationship with management increases, and knowledge of

business management becomes necessary.[44] Those consultants currently working at the national technical centers in Tunisia have already acquired knowledge of business management to some degree.

The consultants of the UGPQ/UGPQP and eight national technical centers in Tunisia have acquired their knowledge of business management through international cooperation by the EU. This has been providing them with guidance since 2005 so that Tunisian enterprises can receive certification under the ISO 9000 series of international management standards.[45] The ISO 9000 series of standards aims at promoting the quality management of enterprises and these Tunisian consultants do have knowledge of business management within the scope of such standards. Based on this, it can be said that the Tunisian consultants who have acquired some of the advanced-level *Kaizen* technologies in addition to basic and intermediate-level technologies with the cooperation of JICA are in a better position than the Ethiopian ones to master advanced technologies as the next step.

In Ethiopia, while EKI consultants have acquired some knowledge and experience of inherent technologies through practical work at enterprises and study visits to national industrial development institutes during the third-stage cooperation period, their knowledge and experience are not always sufficient. In regard to knowledge of the ISO 9000 series, these consultants study quality management during the CRT but their training does not extend to providing practical guidance for enterprises based on the ISO 9000 series.

During JICA's third-stage cooperation, EKI consultants provided training on basic *Kaizen* technologies for engineers of industrial development institutes; but these engineers still lack sufficient experience required to provide guidance for enterprises on their own even though national industrial development institutes in Ethiopia are corresponding organizations to the national technical centers in Tunisia. The major challenges faced by Ethiopia regarding the learning and dissemination of

[44] Basic *Kaizen* mainly deals with problems which can be solved by a bottom-up approach from the production floor. In the case of advanced *Kaizen*, problem-solving solely relying on the production floor is difficult and guidance from the top management or a higher department is essential (JICA et al. 2016, 65).

[45] With EU assistance, the UGPQ aimed at certifying 600 Tunisian enterprises by 2010 and 1,300 enterprises ultimately to have capacity equivalent to that required under ISO (International Organization for Standardization) and other international standards (JICA and JDS 2008; JICA and JPC 2020).

advanced *Kaizen* technologies in the coming years are: (i) how to overcome the insufficient knowledge and experience of inherent technologies among EKI consultants; (ii) how to make engineers of industrial development institutes learn these technologies in earnest; and (iii) how to develop collaboration between the EKI and industrial development institutes.

In regard to challenge (iii), it is not easy in reality to develop collaboration and cooperation between the EKI and industrial development institutes. Each industrial development institute has its own essential work (especially fee-charging services for the private sector) and its engineers prioritize such services. Another problem is that the EKI and industrial development institutes are under the jurisdiction of different government offices (as of June 2020). While the EKI reports to the CSC, it is the MoI that oversees industrial development institutes. Accordingly, it can be assumed that arrangement of a collaborative relationship between the EKI and industrial development institutes will not always be easy. This means that there should be a higher-level function to coordinate the work of the EKI and industrial development institutes.

6. Implications for Industrial Development Cooperation

It has become clear that in the process of comparing Tunisia and Ethiopia it is necessary to remember the experience of Japan from which a message can be derived. This message is about desirable ways for future technical cooperation in the industrial sector.

As Ohno and Mekonen explain in detail in Chapter 2, it must be noted that collaboration involving industry, government, and academia has formed the background for the development of *Kaizen*. The Japanese experience suggests a desirable path for technical cooperation in industrial fields. Firstly, there can be technical cooperation for the formation (networking) of collaboration/cooperation among various organizations of different levels along with cooperation for each level of industry, government, and academia, i.e. industry level, policy level, and university (higher education) level.

When looking back at JICA's technical cooperation for the *Kaizen* project (industrial fields) in Ethiopia over the period of 10 years, it can be concluded that this technical cooperation has taken the roles of industry, government, and academia into consideration. Cooperation for the *Kaizen*

project 'Policy Dialogue on the Industrial Development of Ethiopia,'[46] and the establishment of master's degree and PhD courses corresponds to the levels of industry, policy (government), and university (academia) respectively. Both the Policy Dialogue on the Industrial Development of Ethiopia and the *Kaizen* project (first-stage cooperation) were assisted by JICA and simultaneously commenced in 2009. Meanwhile, assistance for the establishment of master's degree and PhD courses was not part of the original concept of the first-stage *Kaizen* project; but, with a strong request made by the Ethiopian side, a master degree course was added to the second-stage *Kaizen* project. The PhD course was then introduced during the third-stage cooperation period. Assistance at the university level (introduction of these courses) started later than cooperation at the policy level (Policy Dialogue on the Industrial Development of Ethiopia) and cooperation at the industrial level (*Kaizen* project). While it is too early to assess the achievements of this cooperation, it is still reasonable to expect future synergy effects from cooperation at these three levels.

In contrast, JICA cooperation for Tunisia in the last 10 years has been confined to the *Kaizen* project at the industrial level even though an effort to develop an industry-government-academia collaboration was made within the framework of that project. A series of such projects are exact examples of cooperation at the industrial level and have resulted in various achievements including 'change of mindset' in the participating enterprises. In addition, a collaborative relationship has been created with leading industrial organizations (UTICA, CONECT) during the process of project implementation.

At the policy level, the JICA expert team and counterpart team made joint recommendations for the Annual Performance Plan (APP) of the Ministry of Industry. As a result, productivity improvement in addition to quality improvement came to be recognized as an important pillar of Tunisia's industrial policy after 2019.[47] At the university level, the JICA expert team and UGPQP conducted seminars for some universities, for instance, seminars for teachers and students not only with universities in Tunis, the

[46] The Policy Dialogue on the Industrial Development of Ethiopia is a joint scheme of JICA and GRIPS (National Graduate Institute for Policy Studies), Tokyo dealing with policies involving the Prime Minister and minister-class personnel in Ethiopia. It consists of three phases: First Phase (June 2009 to May 2011), Second Phase (January 2012 to October 2015), and Third Phase (January 2017 to March 2022).

[47] Information from members of JICA expert team for the third stage of cooperation.

capital, but also in local universities to develop a collaborative relationship with those universities. However, Tunisia has no equivalent to the policy dialogue on the industrial development of Ethiopia. In Ethiopia, a deep understanding of *Kaizen* and strong willingness to introduce *Kaizen* on the part of the Prime Minister as well as policy makers provided the opportunity for the introduction of the *Kaizen* project. The significance of the *Kaizen* project was subsequently promoted to the level of a national development plan through the Policy Dialogue on the Industrial Development of Ethiopia (Ohno 2018).

This history does not mean that political leaders in Tunisia have not been proactive in regard to the *Kaizen* project. In 2008 during JICA's first-stage cooperation, Tunisia launched the *Kaizen* Awards scheme targeting those enterprises with prominent *Kaizen* achievements and awarded the First Grand Prix of the President for the Improvement of Quality and Innovation. An annual *Kaizen* Week in March was introduced with the intention of elevating quality and productivity improvement to a national movement (JICA and JPC 2020). Unfortunately, both of these were abolished following the Jasmine Revolution in 2011 (JICA and JPC 2013). At the start of the JICA's second cooperation period (2009-13), an 'Advisory Committee on Productivity' consisting of knowledgeable persons was in place as a body directly controlled by the President to examine a national strategy for productivity improvement. This committee, too, was abandoned following the Jasmine Revolution (JICA and JPC 2013). However, on March 24, 2021, the NPPC was established with the purpose of promoting productivity improvement throughout the country. The activities of the Committee include qualification certificate system, awarding scheme, and so on, in addition to policy formulation on productivity.

Either way, the process of attempting to compare the achievements of the *Kaizen* Projects in Tunisia and Ethiopia reminds us of the experience of Japan (Kikuchi 2011) and reconfirms the importance of industry-government-academic collaboration. This line of thought is strengthened by a study by the Massachusetts Institute of Technology (MIT). In the second half of the 1980s, the MIT published a book (*Made in America: Regaining the Productive Edge*) which compiled the findings of a two-year study aimed at restoring American industries. This study involved interviews with senior members of some 200 enterprises plus labor unions, etc. in the US, Japan, and Europe. The subsequent policy recommendation based on detailed

data produced by the study contains the following sentence:

> […] for the United States to succeed in building and sustaining an economy with high productivity growth, all sectors – business, government, labor[48] and educational institutions – will have to work cooperatively toward this goal. (Dertouzos et al. 1989, 131-32)

In sum, it is desirable that industrial development cooperation should consider not only cooperation at the industry, government (policy), and academic (university) levels separately, but also cooperation designed to promote collaboration between various organizations, bodies, associations, universities, and so on at each level. In other words, desirable cooperation should lead to the formation of a network made up of industrial, governmental, and academic organizations. What is important here is 'to recognize the different domestic conditions and circumstances of each country and to adopt cooperation policies to suit such conditions' (Yanagihara et al. 2018). This is also the perspective of 'translative adaptation,' which is the keyword of this research project (see Chapter 1).

7. Conclusions

To conclude this chapter the author would like to touch on two matters which are important for implementation of a *Kaizen* project.

7.1. Environment for Kaizen implementation in two countries

The achievements of the *Kaizen* projects in Tunisia and Ethiopia over a period of 10 years suggest that there has been much effort and cooperation by those directly or indirectly involved under their given environments and conditions. For a project to be implemented as designed it is desirable that events which cannot be controlled by the project team do not occur during the project implementation process. But multiple events of this type occurred in Tunisia. The typical events were the Jasmine Revolution

[48] In this policy recommendation, emphasis is placed on cooperation with labor unions. The participation of labor unions was important in the post-war productivity movement in Japan (JPC-SED 2005) and also in the similar movement in Singapore where labor unions were cooperative (Ohno and Kitaw 2011). The labor union in Tunisia is a member of the NPPC.

in 2010-11, the repeated reorganization of the Ministry supervising UGPQP, the repeated change of Minister, and so on. In the year before the scheduled final year (2020), the global COVID-19 pandemic has been raging, almost like another attack on Tunisia after its series of misfortunes. Due to the above-mentioned unexpected events and pandemic in Tunisia, it was decided to extend the completion of the third-stage *Kaizen* project from July 2020 to July 2021.[49]

There was also an unexpected political change in Ethiopia. The Oromo protest happened during the period of the third-stage cooperation, and the prime minister changed in 2018. However, any negative impact on the *Kaizen* project was limited even though the supervisory authority was also changed from the MoPSHRD to the CSC.

In 2020 the third-stage *Kaizen* project entered its final year in Ethiopia. The negative impact of COVID-19 resulted in the early departure of the JICA expert team in March 2020. However, the planned activities under the third-stage project in Ethiopia have almost been completed, and it is said that it has been little affected by the pandemic. Ethiopia has been fortunate that no events beyond the control of the project team occurred in the 10-year period, unlike in Tunisia. Accordingly, it can be concluded that the environment for the implementation of the *Kaizen* Projects in the last 10 years has sometimes been tougher for Tunisia than for Ethiopia.

7.2. Challenge for the JICA expert team

In Section 4, the author discussed what would be the challenges for Tunisia and Ethiopia if they aim to learn and disseminate more advanced-level *Kaizen* technology in the future. And in Section 5, the author discussed what would be the implications for JICA to support recipient countries with *Kaizen* projects in the future. However, there was no discussion about how a JICA expert team that participates in such a project should implement that project together with counterpart organizations. This section discusses the future challenges for JICA expert teams in relation to 'customization' and from the perspective of 'translative adaptation.'

For whom or what is the customization made? Needless to say, it is to disseminate the technology widely and sustainably in the destination

[49] Finally the termination of the project has been postponed to the end of 2021.

of the technology transfer (the recipient country). For this purpose, it is important to modify and adapt the technology to local needs based on industrial climate, corporate culture, and local conditions. The modification and adaptation are called 'customization' at the production site ('*gemba*') of the *Kaizen* project, and 'translative adaptation' from a cultural anthropological point of view (Maegawa 2000, 2004).

A crucially important condition for successful customization is that the technology to be transferred is well-adapted to the industrial climate, corporate culture, and local conditions of the recipient country. Accordingly, two sides—one which is the recipient of technology transfer (the counterpart) and the other which transfers the technology to the counterpart (the JICA expert team)—must have a deep understanding of the essence of the technology[50] and a good understanding of the circumstances of the country to which the technology is being transferred.

However, it is unlikely that both sides will be in such a state from the beginning. Usually, at the beginning of technology transfer (or in the first-stage of a project), the counterpart may not have sufficient knowledge or information about the technology or may not have it at all. On the other hand, the JICA expert team may not have sufficient knowledge and information about the industrial climate, corporate culture, and local conditions of the recipient country. However, as the project progresses, the counterpart who receives the training deepens their understanding of the technology, while the JICA expert team improves its understanding of the circumstances of the country.

Therefore, while the counterpart should take the initiative in customizing transferred technology, the *Kaizen* expert team should also endeavor to propose ideas on 'customization' or ideas on 'translative adaptation' when the counterpart does not. It is often said that 'Even if you seem to know yourself well, sometimes you may not be aware of it by yourself.' Regarding 'customization,' it seems that even if the counterpart is familiar with the industrial climate of their own country or their own corporate culture, it is apparent that there are some points that they do not notice from the inside.

[50] Wada (2008) emphasizes the importance of understanding the essence of the technology to be transferred, taking the experience of Japan's Meiji Restoration and Japan's economic development after the World War II as examples.

From the viewpoint of sustainability and ownership, the independence ('*shutaisei*'[51]) of 'customization' should be the side to whom the technology is transferred, or the counterpart. However, since the JICA expert team can gain a deeper understanding of the industrial climate, corporate culture, and local conditions of the counterpart side as the project progresses, the JICA expert team will be able to provide the counterpart with the idea of 'customization.'

When implementing a project, JICA experts will generally do their utmost to get their counterparts to understand the essence of *Kaizen* technology as soon as possible and to use it smoothly even though they have 'customization' in mind. However, considering the above points, the JICA expert team should proceed with the transfer of the technology together with their counterparts on the premise of 'customization' from the beginning of the project. Therefore, the JICA expert team should not only transfer *Kaizen* technology, but also contribute to the provision of 'customization' ideas and the formation of capacity and independence for the 'customization' of counterparts. How to materialize this is a challenge given to future JICA expert teams. The useful suggestions may be in the 'translative adaptation' approach that takes particular note of the relationship between the technology recipients (counterparts) and technology providers (JICA expert teams) from a social and cultural perspective rather than simply working from a technical perspective.

[51] *Shutaisei* is a Japanese term used in this chapter to mean having a strong will to do something and being responsible for the result.

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CHAPTER

5

The Africa Kaizen Award: Its Practice and Contribution to Quality and Productivity Improvement in Africa

Norman Faull

1. Introduction

This chapter reports on how the Africa Kaizen Award (AKA) came about, and its objectives and essential features. Embedded in the chapter is a review of the wider vision of the founders. Also, a comparison with similar awards is undertaken. Furthermore, the chapter reports on the process followed to launch the award and the bestowing of the first awards at the Africa Kaizen Annual Conference (AKAC), held in Tunisia in June 2019. It concludes with a range of recommendations.

Two constituencies are key to the AKA: first, those who put forward organizations for consideration for the award (the Nominators) and, second, those so nominated (the Nominees). To assess the response of these two constituencies a survey was conducted, via an emailed questionnaire, seven months after AKAC 2019. The response rate of the survey was disappointing, and it was difficult to conduct rigorous statistical analysis. Nevertheless, the survey results contain useful information, observations and recommendations for the future of the AKA; they conclude this chapter.

2. Overview of the Africa Kaizen Award (AKA)

2.1. Genesis of the AKA

What gave rise to the Africa Kaizen Award? A series of engagements took place with African leaders at the Sixth Tokyo International Conference on African Development (TICAD VI) in 2016. The engagements continued at the *Kaizen* Knowledge Sharing Seminar, Nairobi, April 2017, which led

the New Partnership for Africa's Development (NEPAD) Agency[1] and the Japan International Cooperation Agency (JICA) to launch the Africa Kaizen Initiative (AKI) '[to] accelerate momentum, integrate knowledge and mobilize resources for further *Kaizen* dissemination in Africa' (AKA Secretariat 2018).

The deliberations in Nairobi in 2017 led to the first Africa Kaizen Annual Conference (AKAC) in Durban, July 2018. The decision to establish the African Kaizen Award was an outcome of the Durban AKAC. A breakout sub-session for policy makers on Day 1 of the AKAC discussed suggestions for an AKA; this intent was expressed as: 'The aim of the Award is to encourage best practices throughout Africa' (AKAC Secretariat 2018). On Day 3, a 30-strong subset of the one hundred and twenty participants discussed the topic 'Towards an African Kaizen Award.' Subsequent to these deliberations, the following points were agreed (quoted from the AKAC Secretariat 2018, para 46):

(1) Purpose of the award is to motivate firms and organizations.
(2) An action plan should be developed.
(3) An assessment process should be established for the credibility of the award and to ensure transparency. For this, we need to have a steering committee which will elaborate a standard assessment system including the identification of evaluation criteria.
(4) The main points which must be evaluated are the engagement of leadership, the allocated resources for *Kaizen* activities, check the setup of *Kaizen* activities (GEMBA CHECK), results related to productivity improvement, impacts of *Kaizen*, how the organization is disseminating *Kaizen* for others.
(5) Communication system between group members should be adopted for sharing documents, remarks, feedback.
(6) The role of national organization must be identified mainly for providing funding from government or ask other sponsors for funding.

A comprehensive document, setting out all the major features and processes for the AKA 2019,[2] was circulated by JICA in late 2018 (AKA

[1] In 2018, the African Union (AU) decided to transform the NEPAD Agency to the African Union Development Agency (AUDA-NEPAD).

[2] Kimiaki Jin, JICA, and Hiroshi Osada, Professor Emeritus, Tokyo Institute of Technology, designed the overall process, categories and evaluation criteria of AKA2019.

Secretariat 2018). The composition and roles of the AKA Secretariat (hereafter referred to as the Secretariat) and Examination Committee (EC) for 2019 were stated as follows:

- The Secretariat members: NEPAD *Kaizen* focal points, JICA Project Formulation Advisors to NEPAD and JICA *Kaizen* focal points;
- EC members[3]: a chair and six evaluators, three evaluators from Africa and three others from outside of Africa.

Furthermore, the document stated that the primary objectives of the award are: (i) to demonstrate the benefits of *Kaizen* and make this known to the public; (ii) to encourage all practitioners to disseminate and upscale *Kaizen* practices; and (iii) to facilitate development of a national award system in each target country.

Finally, it is clear from the opening paragraph of a recent document that JICA has a long-term vision of contributing to Africa's development and that the AKA is integral to that vision:

> Quality and productivity improvement activities are critical to develop industries and services in Africa and success in modern economy. Their improvement is essential to transform Africa and realising its potential, in particular, to entering international markets and global value chains. (AKA Secretariat 2020)

This is a bold assertion. We return to it in Section 5.3, in our discussion of the third of the objectives of the AKA.

2.2. Participating countries in 2019

JICA supports and promotes *Kaizen* in the following nine countries in Africa: Cameroon, Egypt, Ethiopia, Ghana, Kenya, South Africa, Tanzania, Tunisia, and Zambia. Nominations for the 2019 AKA were primarily drawn from these countries, but not exclusively. In addition, six other countries, as participants in the Pan-African Productivity Association (PAPA), were also invited to submit nominations: Botswana, Burkina Faso, Mauritius, Namibia, Nigeria, and Zimbabwe. Furthermore, 'Other countries in Africa

[3] The members were appointed by the Secretariat in late 2018.

could also submit nominees if NEPAD Agency and JICA agree that there is enough evidence to nominate a capable organization or team/circle in its country for the award' (AKA Secretariat 2018).

2.3. Types of AKA Awards and the nomination process

Two categories of Award were established: one for organizations and the other for *Kaizen* teams or circles (AKA Secretariat 2018). Each of the sixteen countries has one or two '*Kaizen* promoting institutes or units' permitted to submit to JICA the names of candidate organizations or *Kaizen* teams. Each country may nominate up to two organizations or teams. The nominations were to be made via a standard form, supported by evidence that the *Kaizen* supporting institute had conducted onsite surveys and recommended the nominee for consideration by the EC for an AKA.

2.4. Evaluation criteria and Entry Sheets

AKA criteria were set for each category of the award, viz. organizations and *Kaizen* team/circle. Although the general framework for the AKA criteria is based on the evaluation criteria of the Deming Prize in 2018, it also incorporates key elements arising from the 'characteristics and effects of *Kaizen*' as depicted in Figure 5.1 from the JICA *Kaizen Handbook* (JICA 2018). An information document, setting out the purpose, processes and schedule of the Africa Kaizen Award for 2019, was approved by the EC in December 2018 (AKA Secretariat 2018). The 'Entry Sheet' for each category of the award (see Appendices 5.1 and 5.2) asked applicants to provide 'Information on *Kaizen* Activities' under three 'first level' headings: Objectives, Process, and Outputs/Outcomes of their *Kaizen* activities. Each of these headings was followed by sub-headings which were mostly the same, but not identical, as the criteria included in the 'Evaluation Criteria' stipulated for the EC as per Appendices 5.3 and 5.4. A comparison with the criteria of other awards is below in Section 3.2.

The information document (AKA Secretariat 2018) was sent to Nominators in early January 2019, for submission of Entry Sheets by late February. Appendices within the document set out the evaluation criteria agreed by the EC in December 2018, and the entry forms, as follows:

Source: Adapted by the JICA Study Team from a JICA's brochure "KAIZEN Management approach for enhancing quality and productivity: the driving force economic development"
Source: AKA Secretariat (2018).

Figure 5.1. Characteristics and Effects of *Kaizen*

- For organizations: evaluation criteria in Appendix 5.3 and entry requirements in Appendix 5.1;
- For *Kaizen* teams/circles: evaluation criteria in Appendix 5.4 and entry requirements in Appendix 5.2.

Table 5.1 shows the headings of evaluation criteria for organizations extracted from Appendix 5.3.

Table 5.1. Headings of Evaluation Criteria for Organizations

No		Features		
1	Objectives	a) Organizational vision and strategies	1 2 3 4 5	/20
		b) Clarity of *Kaizen* activities	1 2 3 4 5	
		c) Scope of *Kaizen* activities	1 2 3 4 5	
		d) Commitment of the management	1 2 3 4 5	
2	Process	a) Participatory approach	1 2 3 4 5	/20
		b) Continuous approach	1 2 3 4 5	
		c) Scientific approach	1 2 3 4 5	
		d) Economical approach (efficiency)	1 2 3 4 5	
3	Outputs/Outcomes	a) Quality of products/services	1 2 3 4 5	/50
		b) Productivity of products/services	1 2 3 4 5	
		c) Motivation of and incentives for workers	1 2 3 4 5	
		d) Skill development of workers	1 2 3 4 5	
		e) Teamwork and communication	1 2 3 4 5	
		f) Safe and comfortable work environment	1 2 3 4 5	
		g) Customers satisfaction	1 2 3 4 5	
		h) Social responsibility	1 2 3 4 5	
		i) Spillover effects	1 2 3 4 5	
		j) Achievement of organizational objectives and targets	1 2 3 4 5	
4	Presentation	• Presentation (or description) is made within specified time (or volume) and completed in good balance.	1 2 3 4 5	/10
		• Presenter makes clear and impressive explanation as well as responses to questions/comments made by audience.	1 2 3 4 5	
Total				/100

Source: Adopted from AKA Secretariat (2018).

2.5. Nominees for the 2019 AKA

As indicated above, sixteen countries were eligible to submit up to two nominations each. The maximum number of nominees was thus thirty-two, and the actual number received was sixteen, from eight countries. Of the eight primary countries eligible to nominate, only Egypt failed to do so. PAPA member organizations in Kenya, South Africa, Tanzania, and Zambia also submitted nominees. No other African country submitted nominations. Of the PAPA countries, Botswana, Mauritius, Nigeria, and Zimbabwe did not attend the AKAC 2019.

The Secretariat conducted a preliminary screening, reducing the sixteen submissions to nine, eight in the category of Organization Award and one in the category of *Kaizen* team/circle. Table 5.2 identifies the Nominees short-listed for the Awards. In consultation with the EC, all sixteen nominees were invited to attend the AKAC in Tunisia in June, with the selected nine being required to make presentations to the gathering, and the balance to provide posters for exhibition at the AKAC.

Table 5.2. Nominees Deemed Eligible for the Final Round of Examination

Nominee code	Country	Nature of business
G	South Africa	Logistics
A	Tanzania	Textiles and garments
E	South Africa	Electrical harnesses for automotive
B	Ethiopia	Textiles and garments
F	Tunisia	Electrical apparatus manufacturing
D	Tunisia	Electrical apparatus manufacturing
H	Kenya	Agro-technology manufacturing
C	Ethiopia	Borehole drilling
Z	Zambia	Hospital

2.6. Examination Committee process

Evaluation of the applicants was done prior to the conference. On May 10, the Secretariat released to EC members two significant documents. The first was entitled 'Process of the Africa Kaizen Award 2019.' The comprehensive information for the EC members is shown in Table 5.3. Furthermore, the EC members were given access to the full set of Entry Sheets of the nine Nominees scoring over 60 per cent via a password protected GIGAPOD link. The Secretariat also distributed to members of the EC an Excel file with three sheets:

- Each row in the first sheet summarized a Nominee's application under these column headings: Country, Nominee, Category, Business, Capital & Turnover, Number of Staff, Major *Kaizen* activities, Major outcomes, Title of application documents saved in GIGAPOD, Nominator, and Contact person (The application forms of the nine were by an emailed link);

- The second, a blank Scoring sheet with a row for each Nominee, had these headings: Country, Nominee, Category, Nature of Business, Capital & Turnover, Number of Staff, Objectives (vision, activities, scope, commitment of management) (to be scored out of 20), Process (participatory, continuous, scientific, economical)(to be scored out of 20), Outputs (quality, productivity, motivation, skill, teamwork, safety) and Outcomes (customer, corporate social responsibility (CSR), spillover, organizational objectives)(to be scored out of 50), Presentation (format, clarity)(to be scored at the conference, out of 10), and Total (out of 100);
- The third, a detailed blank, scoring sheet with a row for each of the eighteen evaluation criteria (grouped thus: four for Objectives, four for Process, and ten for Outputs/Outcomes) arranged for each Nominee.

Table 5.3. Structure of EC Briefing Document Released May 10, 2019

Document Title	Process of the Africa Kaizen Award 2019
Section	Section heading
1	The First Screening by the Secretariat
2	Preliminary Scoring by the Examiners (10 May – 10 June)
3	Process at the Annual Conference in Tunisia (23 June – 27 June)
3-1	Preparatory Meeting (evening of 23 June)
3-2	Presentation Session at the Conference (afternoon 24 June)
3-3	Poster Session at the Conference
3-4	Selection of Awardees (finalize morning of 25 June)
3-5	Awarding Ceremony (evening of 26 June)
3-6	Evaluation Process (morning of 27 June)
4	Selection of the Awardees
5	Contact address (of EC members)
Annexure	Annexure heading
1	List of Nominees Who Make Oral Presentations
2	List of Nominees Who Make Presentations at the Poster Session
3	Schedule for Africa Kaizen Award towards the Annual Conference
4	Evaluation Criteria for Organization (as per Table 5.1) and for *Kaizen* Team/Circle (as per Table 5.2)
5	Tentative schedule for the Examination Committee and Tentative Agenda

The third sheet allowed each member of the EC to enter a score from the scale of zero to five, against the detailed statements shown in Appendices 5.3 and 5.4. The second sheet could then be used to report the score per section, i.e. Objectives, Process, and Outputs/Outcomes.

Skype calls were conducted in mid-May with the JICA AKA organizers to ensure that members of the EC understood clearly what was required of them in the examination process. The return date for their evaluations was June 10, 2019. Upon arrival at the Tunisian conference venue on June 23, the EC members attended a meeting with the Secretariat to ensure full understanding of their role over the next few days. Last minute problems meant that just four people were involved in the activities of the EC at the AKAC, three from Japan and one from South Africa. Each member was given a version of sheet two, as described above, reflecting their previously submitted scores. They were told that these scores could be revised prior to the submission of the final, completed scoring sheet, once the Nominee presentations had been concluded.

AKAC 2019 itself commenced on the morning of Monday June 24. Proceedings ran from 8:30 to the lunch break at 12:30. About two hundred people were present to hear a range of dignitaries and guest speakers address a range of topics. The afternoon session started at 13:30. Members of the EC were seated in the front row of the conference and provided with a microphone with which to pose questions to the presenters. The eight presentations for the Organizations Award were made in alphabetical sequence of company name, each allocated twenty minutes, including the time for questions and answers. After all these were over, the single entry for the *Kaizen* team/circle presented.

The session for the first five presentations ended at 15:30. The final four presentations began at 16:00 and were concluded at 17:30. Immediately thereafter the poster session took place. This was designed to give the EC members a further chance, more privately, to question presenters. Moreover, it gave the companies that scored below 60 per cent the chance to showcase their activities. The presentations allowed the members of the EC to question and clarify any aspect of either the presentation or the Entry Sheet. Each then assigned a score for the presentation and revised any subsection score. They were asked to hand the final assessment to the Secretariat by 20:30 the same day.

2.7. Examination Committee results

At 7:30 the next morning, the EC members met with members of the Secretariat who distributed a one-page summary of the scoring. The sheet showed the final total score given by each examiner to each of the nine Nominees. The Secretariat explained that for each Nominee, the highest and lowest scores were eliminated and the two remaining scores averaged to arrive at the score used to rank the Nominees. It was soon clear that each examiner had his own base line: Table 5.4 shows the number of times each examiner either gave the highest or the lowest score for a Nominee. Clearly, examiner A was most consistent in giving the lowest score and examiner D in giving the highest score. In only one instance were the scores of these two examiners used to find the average for a Nominee.

Table 5.4. Frequency of Extreme Scores by EC Members

Examiner		A	B	C	D
Number of times scored	Lowest	5	3	1	0
	Highest	1	1	2	5

The 7:30 meeting, based on the ranking, discussed which Nominees should receive which awards. Regarding the awards for organizations, an initial proposal was put forward by the Secretariat: two Outstanding awards, two Excellent awards, and four Prize for *Kaizen* Achievement awards. After discussion the EC and Secretariat agreed the following: two Outstanding awards, three Excellent awards, and three prizes for *Kaizen* Achievement awards. It was further agreed to elevate the single candidate for the *Kaizen* team/circle award to Exemplary.

2.8. Common Kaizen elements from the submissions

What were the outcomes reported by the Nominees in their Entry Sheets? Table 5.5 shows these ranked as per the EC scoring. Only outcomes that were quantified in the Entry Sheets were included. Furthermore, the coding of each aspect reported allows for a general picture of the particular value the nominees achieved. One of the nominees failed to provide anything but generalized statements of outcomes achieved, leaving data from just eight to be considered. The eight predominantly indicated significant improvements in productivity and quality. Indeed, all but one (the hospital) claimed productivity improvements, and four

Table 5.5. Outcomes Reported in Entry Sheets, Ranked by EC Scores

Rank	Nominee (year *Kaizen* started)	Outcome reported	Coding
1	A (2017)	Net fabric rejects per day reduced by 24% Stitched net repairs per day reduced by 44% Plastics production performance improved by 13% Woven production performance improved 16% Time to find tools from 2 mins to 40 sec.	qi pi qi pi pi pi pi
1	B (2013)	Total Production: piece output up by 66% Total Sales increased by 20% Labour Productivity measured as pcs/day/operator increased by 100% to 2017	pi si pi
3	C (2014)	From before *Kaizen* to after *Kaizen*: Revenue: increased by 134% and profits by 266%	 si & pi
3	D (2008)	Productivity measured as Pcs/Person/hour/M2 increased for - socket production by 104% - switch assembly line by 51% Lead time measured in minutes improved for - socket production from 37 to 11 - switch assembly line from 32 to 4.60	 pi pi ltr ltr
5	E (2018)	Reduce Work-in-Process from 650 to 13 Target of customer satisfaction met 100% of the set actions and targets have been achieved	pi & ltr qi ?
6	F (2016)	Productivity measured as P/Hr/pre increased for - process HC1550 by 186% improvement - process HC550 by 87.2% Required space measured as m2 reduced for - HC1550 by 5.3% - HC550 14.7%	 pi pi pi pi
7	G (2014)	Movement between 2013 and 2018: Customer Satisfaction Index - from 65% to 92% Net Profit After Tax - from 2.77% to 4.0% Total income/total expenditure - from 101 to 120 Annual labour turnover – from 6% to 0.01% Total Productivity - 10% to 24%	 qi pi qwl pi
8	H (2015)	(None of the outcomes claimed were quantified)	
Team/ Circle	Z (2018)	Patient waiting time reduced in - ARV Department from 5 hours to 3 hours - Out Patient Department from 6 hours to 4 hours	 ltr & qi ltr & qi

Key: qi = quality improvement pi = productivity improvement si = sales improvement.
ltr = lead time reduction qwl = quality of work life.

claimed quality improvements. Three mentioned lead time reduction as a benefit achieved. Increased sales/turnover were claimed by two. Only one of the eight mentioned improved quality of work life as an outcome.

Which *Kaizen* elements were most frequently mentioned by the nominees, such as 5S, Visual Management, Quality Control (QC) Circles, Fishbone diagrams, or 7 Wastes? Table 5.6 shows, again in rank order as per the EC scoring, the extent to which the eight Organization Nominees mentioned the use of these elements. Organizations are listed according to the ranking given by the EC, with the *Kaizen* team/circle last.

Table 5.6. *Kaizen* Elements Most Frequently Mentioned

Ranking by EC scoring	Nominee	*Kaizen* Practices Reported in Entry Sheet				
		5S	VM*	QC Circle	CEDAC+	Other
1	A	Y	Y	Y	Y	
1	B	Y	Y	Y	Y	
3	C	Y	Y	(Y)	Y	
3	D	Y	Y		Y	
5	E	Y	Y			
6	F	Y	Y		Y	
7	G					
8	H	Y	Y			
Team/Circle	Z	Y	Y	Y	Y	

*VM = Visual Management.
+ = Cause and Effect Diagram with Addition of Cards (Fishbone Diagram).

It is clear that the higher scoring Nominees made use of more of the elements. The *Kaizen* team/circle, given an 'Exemplary' award, also used a wider range. Only one of the Nominees failed to explicitly mention any of the elements. All eight of the others mentioned both 5S and Visual Management. Six out of eight used CEDAC/Fishbone. Three explicitly mentioned QC Circles, while a fourth appeared to use the approach. But this is an interpretation of what was stated.

Although no clear picture is apparent, Table 5.7 lists the Nominees by size[4]

[4] AKA2020 changed its award categories from the organization and *Kaizen* team/circle (which was the case of AKA 2019) to the large-scale organization and small & medium-scale organization.

(in terms of number of regular/permanent staff), years of implementing *Kaizen*, and the ranking following EC scoring. The two largest companies ranked equal first. The two smallest fell into the bottom half of the ranking. Years of *Kaizen* use varied from 1 to 11, with most in the three-to-four-year category. Three, including the hospital, had less than three years' experience. One appeared to start with *Kaizen* just nine months before submitting their Entry Sheet.

Table 5.7. Size and Years of *Kaizen* Experience, Ranked by EC Scores

Ranking by EC scoring	Nominee	Permanent employees	Years of *Kaizen*
1	A	7000	2
1	B	1550	5
3	C	450	4
3	D	208	11
5	E	59	1
6	F	1200	3
7	G	250	4
8	H	68	4
Team/Circle	Z	200	1

3. The AKA in Comparison with Other Award Systems

3.1. The proliferation of awards and their motivation

By 2001 more than 70 quality awards had been established worldwide (Calingo 2002), and they continue to proliferate; by 2004 there were over 90 quality and business excellence awards in over 75 countries (Koura and Talwar 2008). Probably the best known and oldest is the Deming Prize established in Japan in 1951. In 1987 the United States (US) established the Malcolm Baldrige National Quality Award, awarded for 'business excellence,' probably the next most famous 'excellence' award, but, as indicated, many other awards have been established since then (Talwar 2011a).

What motivates the establishment of these awards? The Deming Prize looked for the successful application of Total Quality Control based on statistical process control (Dooley et al. 1990). The Baldrige is seen to raise awareness of excellence as a competitive edge (Best and Neuhauser 2011). The title of an Asian Productivity Organization book arising from a

conference sums up much of what motivates the establishment of awards: *The Quest for Global Competitiveness Through National Quality and Business Excellence Awards* (Calingo 2002). Raising competitiveness grows an economy, adds jobs, and raises social wellbeing; this is essentially what lies behind the establishment of the awards within countries. A similar sentiment lies behind the establishment of the AKA.[5]

Research tells us that, over time, awards play the role of encouraging a broader adoption of good practice (Gupta 2019; Baldrige 2015; Best and Neuhauser 2011; Dooley et al. 1990). Moreover, the application process headings used in the award applications can guide adoption of improved practices and outcomes (Doulatabadi and Yusof 2018; Lee 2002; Rajashekharaiah 2014). However, there are bigger, continent-wide reasons for promoting the AKA, as evidenced by the above quotation from AKA Secretariat 2020: 'transform Africa' to enter 'international markets and global value chains.' It declares that 'quality and productivity improvement activities' are critical to this objective.

This is a bold ambition. Where do nations find the quality and productivity improvement activities to adopt, if not from countries that appear to have developed and refined practices that underpin their superior competitiveness? And awards can lend assistance: for instance, both the American and Japanese agencies promoting their national awards offer training associated with their award criteria (Baldrige 2020a; JUSE 2020b). We now turn to review the criteria of some of the foremost awards.

3.2. A comparison of award criteria

The criteria used in awards such as Deming, Baldrige, European Foundation for Quality Management (EFQM), and others are stated or analyzed in various papers (Uygun et al. 2020; Best and Neuhauser 2011; Koura and Talwar 2008; Miguel 2001; Dooley et al. 1990). The preponderance of the comparison insights reported below are from papers published in 2020 and 2011 (Uygun et al. 2020; Talwar 2011a, 2011b).

Talwar (2011a) identifies 100 BEMs/NQAs (Business Excellence Models/ National Quality Awards), relating their criteria relative to those of the

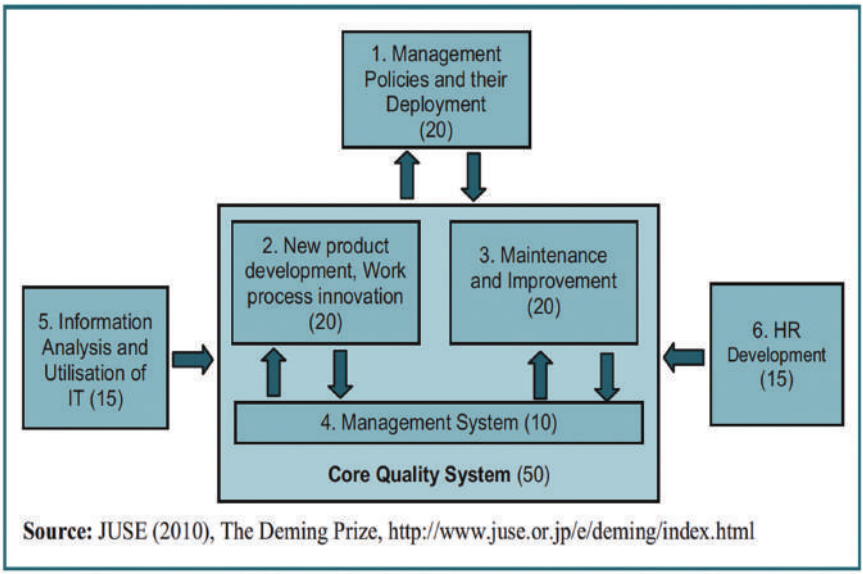
[5] From notes taken by the author from a speech by the CEO of NEPAD, Ibrahim Assane Mayaki, at the opening of the Africa *Kaizen* Awards Conference, Tunisia; June 2019.

Deming Prize, the Baldrige Award and the European Award; he finds that these three awards are most frequently used as the basis for BEMs in the other countries. He concludes that 'evaluation criteria of most of the BEMs/NQAs are similar.' But the weighting varies: criteria relating to customers, employees and business results account for 'about 50 per cent' in most awards. However, this is not true for the Deming Prize. It assigns 'maximum weighting' to the 'internal environment criteria' of leadership, strategic planning, processes and knowledge, and information management. At the lower end of weighting, two criteria, accounting for less than 10 per cent, are 'society' and 'supplier/partners.' Talwar (2011a) further notes that the Deming Prize has a focus on 'core quality systems' through a 'hand-holding approach' and is highly prescriptive, supported with 'TQM diagnosis' by the assessors. In contrast, most BEMs, are non-prescriptive and have a focus on 'business results,' including the Baldrige and European Awards (Talwar 2011b).

The second Talwar paper goes into greater detail on 20 BEMs/NQAs (Talwar 2011b). It reports nine criteria as most common. Through the analysis of criteria and weightings across the 20 awards, the nine criteria being grouped under three headings:

- Core criteria ('a must for survival')
  - Customer
  - People
  - Business results
- Internal environment criteria ('the differentiators')
  - Processes
  - Leadership
  - Strategic planning
  - Knowledge and information management
- Stakeholder value ('satisfaction')
  - Society
  - Suppliers/partners

Many of the awards have a diagram to depict the interrelationship of criteria (Miguel 2001). Figure 5.1 is the equivalent for the AKA. A diagrammatic representation of the Deming Prize criteria, showing the



Source: Talwar (2011a).

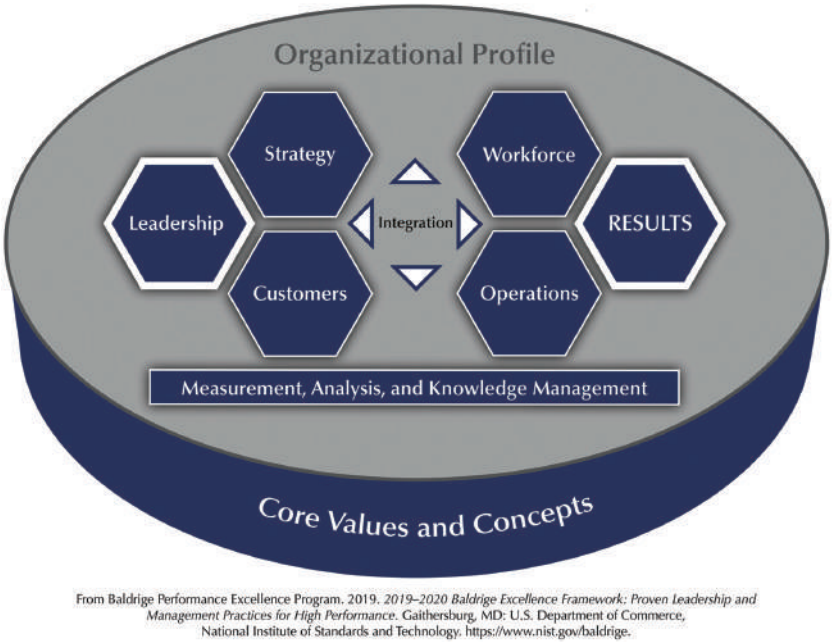
Figure 5.2. A Diagrammatic Representation of the Deming Prize Criteria

'points' (totaling 100) assigned to each, is shown in Figure 5.2[6] (Talwar 2011a). The equivalent schematic for the Baldrige award criteria, without 'points,' is depicted in Figure 5.3 (National Institute of Standards and Technology 2019).

Some awards established subsequent to the Baldrige group criteria in ways similar to that system. For instance, the EFQM requires applicants to report under headings and subheadings, as shown in Figure 5.4 (Miguel 2001).

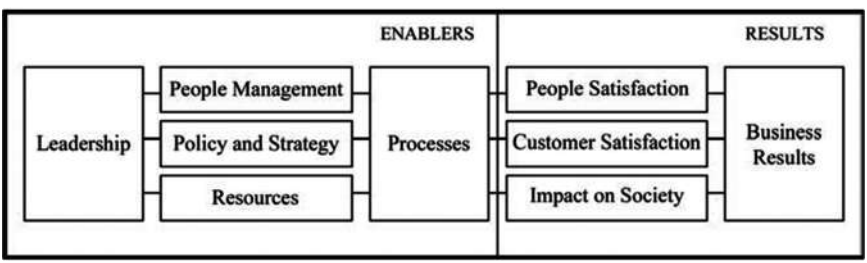
A helpful paper in comparing the above three awards is that by Uygun et al. (2020). The paper, together with the above sources are the basis for Table 5.8 which shows a comparison of the criteria and weightings, shown in brackets, of all four awards (Please note that the weightings reported by Uygun et al. (2020) are not identical with those of Talwar (2011a); being more recent, the 2020 weightings are used here). The 'criteria' column

[6] Evaluation criteria of the Deming Prize was revised in 2016. Total point has become 300 that consists of 100 for the establishment of business objectives and strategies and top management leadership, 100 for suitable utilization and implementation of TQM, and 100 for the effects of TQM.



Source: National Institute of Standards and Technology (2019).

Figure 5.3. Baldrige Award Criteria



Source: Miguel (2001).

Figure 5.4. EFQM Criteria

is from Uygun et al. (2020). The next four columns give the 'first level' headings of the Deming, Baldrige, EFQM, and Africa Kaizen Awards, from the above depictions, Uygun et al. (2020), and Table 5.1. The fifth column shows the second level headings for the AKA, using only the criteria for an organization, i.e. those in Table 5.1. It is, however, important to note that 'Human Resource Development' has been inserted into Table 5.8 as a first level heading although it is not present in Table 5.1. All four of the

second level headings shown with this first level heading come originally from the 'Outputs/Outcomes' area of Table 5.1. Because the other three awards compared in Table 5.1 have a clear 'people' heading at the first level, it was deemed useful to rearrange criteria in this way. Please refer to Section 4 for recommendations regarding reviewing the AKA criteria.

Table 5.8. Comparison of First Level Award Criteria and Weights [x] with AKA Second Level Criteria

Criteria	First Level Headings for Award Criteria				*Second Level
	Deming	Baldrige	EFQM	AKA	
Leadership	Management system (Organization) [10]	Leadership [10]	Leadership [10]		Commitment of top management (1d)
Strategic planning	Management policies and their deployment [10] Future Plans [10]	Strategy and strategic planning [10]	Policy and strategy [10]	Objectives [20]	Business vision and strategies (1a) Clarity and scope of activities (1b&c)
Assessment and evaluation	(Stated in effect criteria) Information analysis and utilization of IT [10]	Measurement, analysis and knowledge management [5]	(In output criteria)		
Human resource management	Human resource development [10]	Workforce and human resource focus [17]	People management [10] People satisfaction [10]	#Human resource develop-ment	Motivation and incentives (3c) Skill development (3d) Teamwork and communication (3e) Safe and comfortable environment (3f)

Criteria	First Level Headings for Award Criteria				*Second Level
	Deming	Baldrige	EFQM	AKA	
Process oriented	Maintenance [10] Standardization [10] Quality assurance [10]	Operations and process management [17]	Process, products and services [10] Partnerships and resources [10]	Process [20]	Participatory (2a) Continuous approach (2b) Scientific approach (2c) Efficient (2d)
Continuous improvement	Improvement [10]				See 2b under 'Process'
Social responsibility	(Stated in effect criteria)	(Stated in results)	Impact on society [10]		Social responsibility (3h)
Focusing on output performance	Effects [10]	Customer focus and satisfaction [17] Business results [24]	Customer satisfaction [15] Business results [15]	Outputs/ Outcomes+ [50]	Quality and productivity improvement (3a&b) Customer satisfaction (3g) Achievement of organizational objectives and targets (3j)
Total points	100	100	100	90 + 10 for presentation	
Geographical region	Japan and world-wide	North America	Europe	Africa	

Source: Uygun et al. (2020), Table 5.1.

Note: *References in brackets are from Table 5.1.

#Human resource development is not a First Level Heading in Table 5.1.

+The score includes [20] for human resource development as shown in Table 5.1.

Comments arising from Table 5.8:

(1) AKA has the fewest first level headings, meaning that each AKA heading covers a broader range of criteria. This may or may not be an advantage; 'Assessment and evaluation' (including analysis) is missing from AKA criteria.
(2) 'Business results' is not an explicit AKA criterion. Business results, e.g. profits, are the outcome of so many factors that the AKA's 'Achievement of organizational objectives and targets' is probably a more appropriate criterion regarding a *Kaizen* initiative.
(3) 'Social responsibility' is an explicit second level AKA criterion. Only the EFQM states it at the first level. Miguel (2001) reports that the

impact an applicant has on society, corporate responsibility and citizenship is a feature of many of the award criteria.

(4) Baldrige and EFQM are most similar at the first level of headings;
(5) Deming is low on Human Resource Development and on Output Performance.
(6) Deming is high on Process Orientation, as is AKA.
(7) Baldrige is strong on Output Performance (41/100), with EFQM at 30, and Deming just 10. AKA is difficult to assess. Although the weighting is 50/90 in Table 5.1, at least four of the criteria listed under Output performance can be seen to fall under Human Resource Development when compared with the other awards.

However, the biggest difference between the AKA and the other three awards is not revealed by Table 5.8. The Deming, Baldrige, and EFQM awards require applicants to report actual data which can be used in an 'absolute' scale of excellence, along with on-site verification by members of an adjudication committee (Baldrige 2020b; Business Excellence Australia 2019; Calingo 2002). The AKA EC members are not required to do on-site verification visits; obviously, such would require Africa-wide travel at extraordinary cost. The EC has to rely on each Nominator verifying the respective nominee's *Kaizen* journey; the Entry Sheet requests applicants to include 'data, measurable facts, and graphs appropriately to make explanation convincing;' the EC thus has to rely on the self-reporting. However, this is in line with the following extract:

> At current stage, the award is not aiming to guarantee capacity and quality of work of the winning firms, but to promote *Kaizen* activities in Africa through information sharing of good practices. Therefore, evaluation is based comparative assessment, not based on absolute scale. However, after several years of experience of awarding, the system may be developed to more objective award system to evaluate concrete capacity of firms like ISO, Deming Prize and Good Design Award are doing. (AKA Secretariat 2018)

4. The AKA Contributions to Quality Productivity Improvement and Motivation towards Effective Implementation of *Kaizen*: Survey Results

A survey was conducted in 2020, but only to a limited number of those who participated in AKAC 2019: the Nominators and Nominees. According to the 'List of participants' issued at AKAC 2019, there were 215 delegates

Table 5.9. Country Participation in AKAC 2019, Ranked by Total Delegates

Rank by total delegates	Country	*Kaizen* delegate count	Count of JICA representatives	Note
1	Tunisia	95	10	Host country; one Excellent Award and one Prize for *Kaizen* Achievement Award
2	South Africa	15	1	Previous host country; one Excellent Award and one Prize for *Kaizen* Achievement Award
3	Japan	5	10	Sponsoring country
4	Ethiopia	10	4	Government spoke at previous AKAC; one Outstanding Award and one Excellent Award
5	Tanzania	11	1	Outstanding Award organization
6	Cameroon	9	1	No Nominee made final sixteen
7	Ghana	8	1	No Nominee made final sixteen
8	Kenya	4	2	One Prize for the *Kaizen* Achievement Award
8	Zambia	5	1	One Exemplary Award (*Kaizen* team/circle)
10	AUDA-NEPAD	3	1	
10	Mozambique	4	0	JICA serves from South Africa
12	Algeria	3	0	
12	Argentina	2	1	
12	DRC	2	1	
15	Malaysia	2	0	
16	Burkina Faso	1	0	
16	Egypt	1	0	No nomination made
16	Namibia	1	0	JICA serves from South Africa
Totals		181	34	215

from 17 countries, with 34 identified as JICA personnel. Of the non-JICA participants (181), 52 per cent were from the host country, Tunisia. Of the thirty-four JICA personnel, 10 were from Japan and 10 from Tunisia. The remaining 14 came from 10 countries. Table 5.9 sets out participation by country, in order of number of delegates, together with some notes.

The survey questionnaire (see Appendix 5.5) was distributed by the JICA Secretariat on behalf of Norman Faull to poll aspects of the influence of the conference and awards on the Nominators and Nominees. The questionnaire was sent as an email attachment in early February 2020, seven months after the conclusion of AKAC 2019. Out of a possible 29 responses, 10 were received, 8 from Nominators (out of a possible 13), and 2 from nominees (out of a possible 16). Given the low response rate, 15 Nominees were sent the questionnaire again in mid-March; this elicited 3 more responses. Table 5.10 summarizes the responses by the various categories.

Table 5.10. Questionnaire Distribution

Questionnaire		Note
Responses received	Number sent	
8	13	Nominators
5	16	Nominees
13	29	Total
1	2	Outstanding Award recipient
0	3	Excellent Award recipient
2	3	Prize for *Kaizen* Achievement Award
1	1	*Kaizen* Team/Circle Award recipient
1	7	Poster presenting organization
5	16	Total Nominees

4.1. Analysis method applied to questionnaire responses

Given the disappointingly small number of responses, the analysis of the data is essentially descriptive. Figure 5.5 shows a typical profile of responses, in this case from Nominees indicating the significance of various possible sources of information on the JICA *Kaizen* initiative. Respondents were asked to score according to the scale 1 = Unimportant/ Weak and 7 = Highly important/Very strong.

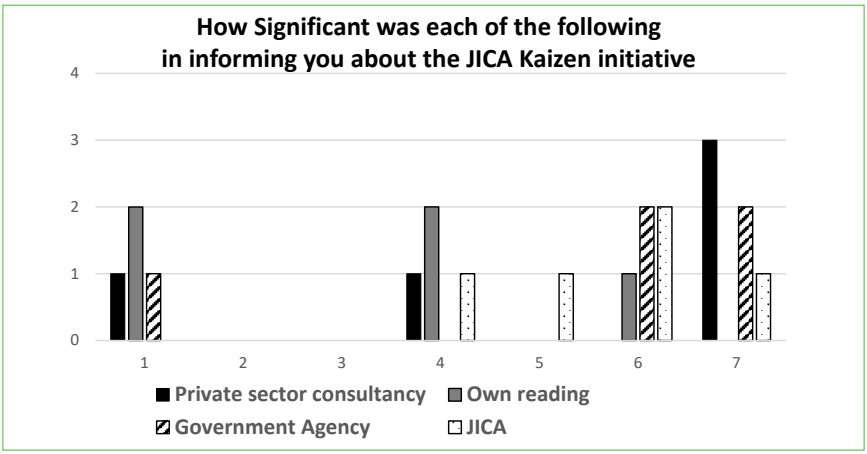


Figure 5.5. Illustration of Typical Response Profile to a Questionnaire Question

To clarify and simplify the data, a weighted score was calculated for each choice/option offered on the questionnaire, using only the counts of Important/Strong, i.e. of '6' and '7.' Here is an example, based on Figure 5.5 and using just the Nominee responses:

Private Sector Consultancy	(7 × 3) + (6 × 0) = 21
Own reading of articles/internet	(7 × 0) + (6 × 1) = 6
Your national government agency or institute	(7 × 2) + (6 × 2) = 26
Direct information from JICA	(7 × 1) + (6 × 2) = 19

Table 5.11 shows how these weighted scores were used to rank the sources of information according to the relative significance of each

Table 5.11. Illustration of How Significance was Calculated and Ranked

Source of information	Count of score		Weighted score	Percentage of total score	Rank
	7	6			
Private sector consultancy	3	0	21	29	2
Own reading of articles/internet	0	1	6	8	4
You national government agency or institute	2	2	26	36	1
Direct information from JICA	1	2	19	26	3
Total (rounding error)				99	

source of information on the JICA *Kaizen* initiative. However, in the reporting that follows, information is listed by EC ranking, and not as per the questionnaire sequence, as illustrated in Table 5.12.

Table 5.12. Significant Sources of Information about The JICA *Kaizen* Initiative (Question 1)

Source	Nominee		Nominator		Notes
	Weight %	Rank	Rank	Weight %	
Your national government agency or institute	36	1	1	35	
Private sector consultancy	29	2	4	12	Biggest difference
Direct information from JICA	26	3	1	35	
Own reading of articles/ internet	8	4	3	17	

4.2. Questionnaire results

The results of the questionnaire survey are tabulated in Tables 5.12 to 5.17. Other than ranking results by the method reported under Section 4.1, no statistical inference from results is attempted: the number of responses is too small. The tables present a simple ranking of the relative importance of the various dimensions explored by the questionnaire and no depth of analysis is attempted. It should be also noted that Questions 3 and 4, reported in Tables 5.16 and 5.17, were for Nominees only.

4.2.1. Major findings from the questionnaire surveys

The results of the questionnaire response, as compiled in the Tables 5.12 to 5.17, are summarized below. Recommendations arising from these observations are made in Section 5.1.

First, private sector consultants played quite a significant role in informing Nominees of the AKA, as Table 5.12 suggests (see the previous section). Second, there are some differences between Nominators and Nominees over their reasons for participating in the AKA, as indicated by Table 5.13. Whilst Nominators and Nominees agreed that 'Quality of goods and services produced' is the main reason for engaging with the AKA, there was a significant difference with respect to 'Employee safety,

Table 5.13. Reasons for Engaging with The Africa Kaizen Awards (Question 2)

Reason	Nominee		Nominator		Notes
	Weight %	Rank	Rank	Weight %	
Employee safety, well-being and morale	16	1	9	5	Biggest difference
Quality of goods and services being produced	16	1	1	14	In accord
Delivery reliability of goods and services being produced	13	3	5	11	
International competitiveness	12	4	2	14	
Speed of response to customer requests	10	5	5	11	
Affordability of goods and services being produced	9	6	2	14	Third biggest difference
Customer relations	9	6	7	8	
Domestic competitiveness	7	8	2	14	Second biggest difference
An instruction from your political seniors/senior managers	6	9	10	3	
Supplier relations	3	10	7	8	

well-being and morale.' Nominees placed this first and Nominators ninth; Nominators should reflect on this: Africa is host to seven of the eight countries in the world most dangerous for workers (Statista 2020). 'Domestic competitiveness' is also ranked differently. It is less of a priority for the Nominees than the Nominators; the two populations probably have very different priorities with respect to the domestic market, the former being a participant in the market and the latter aiming to stimulate the domestic market in general. This may be reflected also in that 'Affordability of goods and services being produced' is also of more importance to Nominators that Nominees.

Third, while Nominators and Nominees largely agree on the ranking of benefits gained from attending AKAC 2019, they disagree on a few aspects that could have important implications for future activities to be planned by AKAC. As Table 5.14 shows, the most significant source of benefit whilst attending AKAC 2019 for Nominators came through 'Knowledge

Table 5.14. Benefits of Attending AKAC 2019 (Question 5)

Benefit	Nominee		Nominator		Notes
	Weight %	Rank	Rank	Weight %	
Knowledge gained from presentations made by expert speakers	18	1	2	16	
Renewed personal motivation to continue with *Kaizen*	17	2	2	16	
Insights and motivation taken back to your own organization	17	2	2	16	
Knowledge gained from presentations made by other applicants	17	2	5	11	Next biggest difference
Insights and motivation taken back to your wider community	11	5	5	11	Low for Nominators?
Knowledge gained from poster presentations made by other applicants	10	6	5	11	
Knowledge gained from informal conversations during the conference	9	7	1	18	Biggest difference

gained from informal conversations during the conference' whilst that was the least beneficial element for Nominees. Two points may be at play here:

(1) Non-Tunisian private sector participants were in the minority at AKAC 2019. From the AKAC 2019 'List of Participants,' and excluding the large Tunisian numbers, only 20 of the remaining 110 participants can be identified as coming from the private sector. Non-Tunisian Nominees, all from the private sector, were thus less likely to bump into other non-Tunisian private sector participants. This is not true for the Tunisian numbers: about 80 of the 105 Tunisian participants appear to be from the private sector.
(2) Participants from JICA itself and from the Nominating organisations, excluding Tunisian participants constituted around 80 per cent of the participants. As a central function of these participants is the promotion of *Kaizen*, it is to be expected that they would take the opportunity of the AKAC to learn from each other in informal conversations.

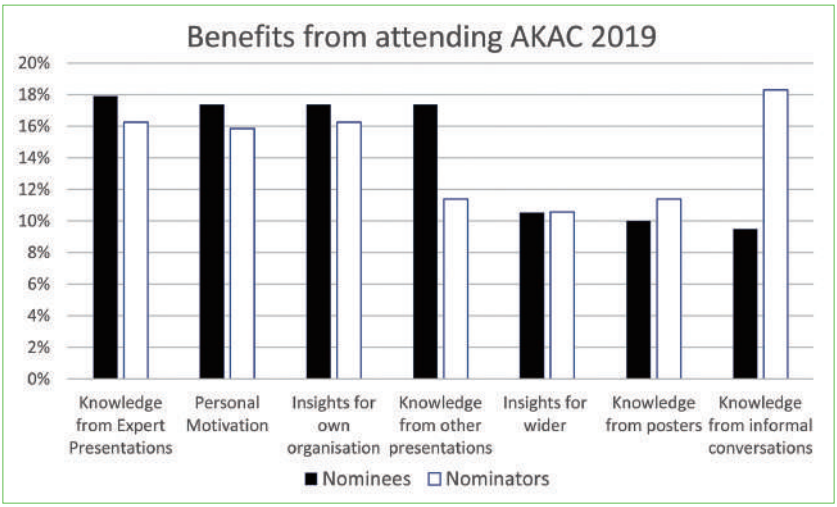


Figure 5.6. Contrasting Benefits from Attending AKAC 2019

Figure 5.6 gives further perspective on the benefits of attending AKAC 2019. Percentage benefit is ranked for the Nominees. Clearly the first three benefits, 'Knowledge gained from presentations made by expert speakers,' 'Renewed personal motivation to continue with *Kaizen*,' and 'Insights and motivation taken back to your own organization,' were equally beneficial to both groups. Similarly, both groups drew least benefit from Knowledge gained from poster presentations made by other applicants and Insights, and motivation taken back to your wider community. But it should be noted that Nominators took relatively less value from the presentations by Nominees; and this is disappointing. Furthermore, given their national roles, one might have expected that more motivation be taken back for their wider communities.

Fourth, the attendance of AKAC 2019 seems to have contributed to promoting *Kaizen* in various ways, for both Nominees and Nominators. Table 5.15 reflects outcomes for participants once they returned home. Unsurprisingly, Nominators talked more about JICA support than the Nominees, and did more to promote *Kaizen* outside of their organizations. However, it is heartening to see that both groups used *Kaizen* and new tools after returning home. This accords with the reported (Table 5.14) increased personal motivation and insights for own-organization improvements.

Table 5.15. Outcome of Post Africa *Kaizen* Annual Conference in Tunisia (Question 6)

Outcome	Nominee		Nominator		Notes
	Weight %	Rank	Rank	Weight %	
Promoted *Kaizen* in own organization	23	1	3	21	
Continued improvement in own organization based on *Kaizen*	21	2	4	17	
Used new tools or approaches in implementing *Kaizen*	21	3	5	13	
Promoted *Kaizen* outside own organization	17	4	2	22	
Talked about the support of JICA	17	4	1	27	Understandable difference

Lastly, the response to the two specific questions reserved for Nominees provide useful information on the benefits of AKAC gained through the application process. The results are reported in Tables 5.16 and 5.17. Both questions had to do with the application submitted for the AKA.

Table 5.16. Motivation for Submitting Application for AKA (Question 3 Nominees only)

Motivation	Nominee		Notes
	Weight %	Rank	
Give staff involved something to be proud of	26	1	68% of the motivation for applying lies with these three reasons
Pride in what the company/team has achieved	21	2	
Desire to share learning with others	21	2	
Senior management instruction	16	4	
Curiosity	11	5	
Possible trip to Tunisia	5	6	

Table 5.16 ranks the factors motivating the preparation of the application. Consistent with the priority of 'Employee safety, well-being and morale' (Table 5.13) is that 'Giving staff involved something to be proud of' was top of the list. Pride in what the company had achieved, and the desire to share learning, were nearly as significant. The facetious question regarding the trip to Tunisia was appropriately dismissed.

As shown in Table 5.17, the top two benefits of preparing the AKA application were that undertaking the application:

(1) Created awareness of gaps in what had been done and thus revealed opportunities for further improvements; and
(2) Widened the awareness of *Kaizen* in the company.

Furthermore, 'Learning from the review of how we implement *Kaizen*' also provided a benefit. The finding is consistent with the findings from other research (Lee 2002; Doulatabadi and Yusof 2018). This benefit should be emphasized in the publicity for the AKA in each country. All three benefits listed in Table 5.17 are undoubtedly desirable in a company striving to improve.

Table 5.17. Benefits of Preparing the AKA Application (Question 4 Nominees only)

Benefit	Nominee		Notes
	Weight %	Rank	
Saw gaps in what we had done and thus saw opportunities	23	1	63% of the benefit of applying lies with these three benefits
Widening awareness of *Kaizen* in the company	23	1	
Learning from the review of how we implement *Kaizen*	17	3	
Insights from the on-site assessment by the nominating agency	16	4	
Conversations amongst staff involved	12	5	
Senior management appreciation	11	6	

4.2.2. General comments made at the end of the questionnaire

Six respondents added views: four Nominators and two Nominees. In summary, the following observations were made:

(1) Appreciation for the role played by JICA in promoting *Kaizen* in Africa;
(2) Appreciation for the learning afforded at AKAC;
(3) Appreciation for JICA publications on *Kaizen*;
(4) The valuable link between productivity improvement and socio-economic development;

(5) AKAC motivated greater practical commitment to *Kaizen* on the return home;
(6) An appeal to strengthen collaboration between JICA and the national agencies promoting productivity improvement; and
(7) An appeal for an improved 'structure' or 'template' for nominations and presentations to 'follow a similar flow' and make it easier for 'the assessor to capture the relevant information.'

5. Observations, Recommendations, and Conclusions

5.1. Observations and recommendations arising from the tables and application forms

Table 5.12 shows the significance of private sector consultants in publicizing the AKA. An opportunity to broaden the number of companies aware of the AKAs and possibly result in a wider pool of applicants may lie here. The current Nominators should be encouraged to specifically target private sector consultants to advise them of the awards and the process for submitting an application; they in turn should then encourage their best clients to apply. This process would of course be even more beneficial should each country comprehensively revise the overall process by which the best possible applicants are identified. The AKA Secretariat has the goal of each country developing its own awarding process: ideally, perhaps, this would entail promoting national awards with the best companies going forward to the AKA.

Responses to the questionnaire show that, not surprisingly, the Nominees and Nominators come from different populations, often with quite different priorities and interests. This is clear from Tables 5.12 to 5.15 which summarize responses to questions 1, 2, 5, and 6. The difference in ranking between Nominees and Nominators is highlighted in some of the tables, e.g. Table 5.13. The differences should influence the marketing (by separately indicating the value for each group) and organization (through some separate break-out sessions for each group) of future AKACs.

As noted above, the differences in Table 5.14 that show the most valuable aspects of attending AKAC 2019 are considerable: Nominees gained little from informal conversations, while Nominators rated these most highly. In future AKACs it is recommended that a separate function be organized to which only the Nominees and EC members are invited. This function may take the form of a 'cocktail party' or something structured

to promote conversations amongst 'strangers,' and also taking account of the variety of languages represented. Nominees are in a minority at the AKAC and have little in common with Nominators from outside their own country, therefore some facilitated interaction and sharing may enrich their attendance. A further reason for proposing this: also in Table 5.14, Nominees report finding the presentations by Nominees to contribute well to the value they enjoy from the AKAC; being able to mingle informally should facilitate further value. Finally, such a function could be used to poll Nominees about ways to make attendance at the AKAC even more valuable; given how poor the response to the questionnaire survey was, the insights garnered from the function could add significant insights about how to do this, and to extend value to Nominees beyond the AKAC.

The low benefit enjoyed from the poster presentations should be noted. The effort needed to prepare them should be weighed against the value they appear to deliver. To reduce the effort perhaps it should be stipulated that the posters should be based on slides extracted from the presentations made in the plenary sessions. Should entries be restricted to organizations with at least three years' experience with *Kaizen*? Results from organizations with less than eighteen month's experience may just be showing a Hawthorne Effect. Should there be a separate category for those with more than eighteen months but less than 3 years? On page three of the Secretariat information sheet (AKA Secretariat 2018), at 8.a., it states that 'The *Kaizen* promoting institute/unit in each participating country collects basic facts and conducts an onsite survey of each possible candidate to confirm their *Kaizen* activities during the **past two years (2017-2018)**' (The bold type is in the original). However, Table 5.7 shows that, according to their Entry Sheet as summarized by the Secretariat, two Nominees failed to meet this criterion. Was this noticed by the Secretariat and condoned when short-listing for the Awards? Or was it not noticed by both the Secretariat and the examiners? The brevity of experience of some Nominees, and the wide range years of experience might need to be considered when plans are reviewed for future years.

Table 5.10 shows that the response to the questionnaire was disappointing, particularly from Nominees; overall only thirty-one per cent of the latter responded. Sixty-two per cent of Nominators responded. What does this indicate? Only one of the five organizations that received the top Awards responded. This may indicate that the impact and motivation from Conferences and Awards on private organizations wanes quickly.

A revision to, or addition to, the Award may be necessary. For instance, if JICA-sponsored marketing or advisory support for each awardee is included, there might be ongoing collaboration which sustains interest and value. It is suggested that awardees are consulted directly as to how collaboration can continue; alternatively, the Nominators may be asked how awardees might be motivated to support and assist future AKACs.

It is noticeable that the examiners found it easiest to evaluate those Entry Sheets that closely followed the prescribed format (Appendix 5.1 and Appendix 5.2). It is possible that this biased their judgement in favor of those submissions. An alternative view is that adherence to required standards is a mark of progress towards improvement and that adherence in this instance is correlated with such progress. The different scoring baselines of the examiners, as shown in Table 5.4, might also occasion a re-think of how the final scores are ranked. A way of standardizing the scores[7] prior to ranking might be found to be fairer to Nominees. See Appendix 5.6 for a proposal of how to standardize scores prior to ranking.

Table 5.14, showing the high ranking afforded 'Knowledge gained from informal conversations during the conference' indicates the importance of AKAC for participants from governments and their agencies promoting *Kaizen*. Given this high ranking, it may be unnecessary to change the structure of the AKAC, but the value of refreshment breaks, lunches, etc. should be noted and the time allotted to such events should not be shortened.

5.2. Recommendations derived from the literature reviewed

The points and weighting given to criteria in other awards are periodically revised (Uygun et al. 2020; Tavana et al. 2011; Talwar 2011a, 2011b). It is recommended that the criteria and their weightings of the AKA also be periodically revised. Table 5.8 and the comments thereon may prove helpful in this regard; in particular, it is recommended that a first level 'Human Resource Development' heading be introduced. The views of business leaders and quality/productivity experts might be garnered to aid this process and improve the credibility of the revision, if any.

It is acknowledged that individuals will have different interpretations of

[7] AKA 2020 applies the Normal Standard Scoring method for ranking.

the criteria. For instance, should 'Skill development of workers' (3d in Table 5.1) be considered an 'Output/Outcome' as at present, or a 'Process' element, i.e. an input element stimulating *Kaizen*, or one falling under the category 'Human Resource Development'? A review process should therefore reflect on the cause-effect nature of the criteria used. Members of the EC should be briefed on the reasoning adopted. In addition to these the following papers may also be of value should a review be undertaken: Calingo (2002), Doulatabadi and Yusof (2018), Miguel (2001), and Rajashekharaiah (2014). It is further recommended, if not already done, to join the Global Excellence Model (GEM) Council. Their website states: 'Through a formalized approach for sharing knowledge, experience and information, the members of the GEM Council, as guardians of Premier Excellence Models and Award processes globally, enhance the value for their customers and other stakeholders' (GEM Council 2020). The on-site verification feature of other awards, mentioned in Section 3.2, is also important. Consultation with the national authorities to either fund such verification visits by an independent group, or to find other means of independent verification, is recommended. It is inconceivable that one verification team can do this for all African applicants. It will need to be nation-by-nation.

5.3. Observations and recommendations relative to the objectives of establishing the Award

As indicated in the introduction to this chapter, the primary objectives of the award are: (i) to demonstrate the benefits of *Kaizen* and make this known to the public; (ii) to encourage all practitioners to disseminate and upscale *Kaizen* practices; and (iii) to facilitate development of their own national awarding system in each target country. This chapter has reported the process and outcome of the inauguration of the AKA during 2018/19. Did these contribute to the above objectives? This chapter, via the survey questionnaire, can obviously only comment in the context of the AKAC 2019.

However, as preamble to this concluding section, it should be noted that the AKA has a range of 'interested parties.' Table 5.18 sets out some of these, together with their surmised 'interest' and the actions they might take in promoting that interest. It would be impertinent as well as beyond the remit of this chapter to make recommendations for each of these parties. Table 5.18 is therefore speculative at best. However, if

Table 5.18. Parties with an Interest in the AKA

Party	Nature of interest	Actions in support of AKA
1. Japanese government	Promote good will Promote trade	Host TICAD Mandate and fund JICA
2. JICA	Give effect to national policy	Africa Kaizen Initiative including AKA Dispatching experts *Kaizen Handbook* preparation Liaising with national agencies in Africa (Nominators)
3. Governments of African countries	Advance well-being of population through enhanced competitiveness and trade	Attend TICAD Mandate and fund Nominators
4. Nominators	Give effect to national policy regarding improved quality, productivity and competitiveness	Advisory services Learning from JICA Promoting national *Kaizen* award Publicize AKA Short-list potential AKA applicants Assist AKA application process of Nominees
5. Nominees	Publicity and marketing Review own *Kaizen* progress Motivate staff Learn from experts outside of own company	Apply for AKA Attend AKAC if invited Learning at AKAC Applying learning
6. Other interested parties 6.1 Universities	Access to research subjects	Participate in national *Kaizen* award
6.2 Private sector consultants	Promote own profile	Promote awards amongst clients and potential clients Put forward best clients for awards
6.3 Chambers of Business, Commerce and Industry	Promote the interests of their members, with particular reference to enhanced competitiveness	Publicize: • The value of *Kaizen* • The work of Nominators and JICA • AKA
6.4 Trade Unions	Achieve for members: • Fair compensation • Safe work conditions • Development opportunities	Monitor the criteria and process of national award and AKA

JICA wishes to review the purpose and processes of its African Kaizen Initiative in general and the AKA in particular, something along these lines might be appropriate. A panel drawn from interested parties and independent experts might be needed for such a comprehensive review.

As indicated in the second paragraph of this chapter, two constituencies are key to the AKA: the Nominators and the Nominees. Nominators are crucial to the development of *Kaizen* capabilities in organizations in their countries, leading to the availability of Nominees. The 'cause-and-effect' relationship here should be clearly recognized and strengthened. As indicated in Table 5.18, Nominators have the role of giving effect to national policy regarding improved quality, productivity and competitiveness. This role is congruent with the AKA objectives. This nexus between Nominator, promotion of *Kaizen* and the development of Nominees is unique among the awards reviewed above. JICA is already building a range of capabilities with Nominators. Perhaps further capability development in support of both *Kaizen* dissemination and the AKA can be devised, for instance, a standardized, on-site way of assessing potential nominees against the explicit (and evolving) criteria of the AKA; this may facilitate a move in support of the recommendation in Section 3.2 regarding independent assessment of applicants. Independent assessment will also be necessary if the nomination process is broadened, possibly even to allowing self-nomination. Furthermore, it should be noted that the literature asserts that the award criteria themselves act as a guide to improvement (Dooley et al. 1990; Rajashekharaiah 2014; Gupta 2019).

Returning to the objectives (i) and (ii) above, the Nominees were indeed able to report the benefits of *Kaizen*, as shown in Table 5.5 and benefits were further shown through the poster presentations at AKAC 2019. There is only weak evidence to indicate that these benefits were made known to the public, as seen in the relatively low ranking of 'Insights and motivation taken back to your wider community' (Table 5.14) and the Nominees' low ranking of 'Promoted *Kaizen* outside own organization' (Table 5.15). It is recommended that Nominators be asked to collaborate with awardees to ensure such publicity happens; there will surely be benefits to both those parties and the promotion of *Kaizen* through such action. The recommendation regarding 'tours' to awardees' premises also pertains to the objective regarding the wider community.

As to the dissemination and upscaling of *Kaizen* practices, Tables 5.14 and

5.15 again provide supportive insights: personal motivation to continue with *Kaizen* ranked high, as well as the taking back of insights to own organizations. Nominees also rated high the 'Continued improvement in own organization based on *Kaizen*.' It is heartening to also see that both groups used *Kaizen* and new tools after returning home. However, it is difficult to claim that the award motivated organizations to take up *Kaizen*. The AKA was only announced late in 2018, with applications due in February 2019. Organizations had between 1- and 11-years' experience with *Kaizen* up to and including 2018. It is recommended that 'tours' to the award winning organisations be organized in the months following the AKAC. The aim should be to promote awareness and adoption of *Kaizen* as well as boost the prestige of the award winner. Obviously, a budget will be needed for this, as well as agreement about the limitations a host might want to invoke regarding visitors from competitors. These 'tours' might also be used to educate the visitors as to the AKA criteria and how to conduct self-audits (Doulatabadi and Yusof 2018).

Regarding the third objective (iii) of facilitating the 'development of their own national awarding system in each target country,' this research provides no evidence. However, the objective invites serious consideration. It is clear from the opening paragraph of a recent document that JICA has a long-term vision of contributing to Africa's development:

> Quality and productivity improvement activities are critical to develop industries and services in Africa and success in modern economy. Their improvement is essential to transform Africa and realising its potential, in particular, to entering international markets and global value chains. (AKA Secretariat 2020)

This is a bold assertion. Where do nations find the quality and productivity improvement practices to adopt, if not from countries that appear to have developed and refined practices that underpin their superior competitiveness? Rote copying may be successful for some, but likely more effective would be the 'translation' of the practices and their adaptation to the local setting, circumstances and 'culture.' In the context of the AKA, is it JICA's wish to see the '*Kaizenization*' of Africa or the Africanization of *Kaizen*?

These are questions of some importance and lead to the concept of

'translative adaptation.' As indicated in Chapter 1 of this book, the concept means 'the adaptive acceptance of advanced system and new culture,' strongly inferring adoption, adaptation, and cultural assimilation (Maegawa 1998). Whilst stating that 'the conditions that ensure the autonomy and uniqueness of every culture hardly exist,' Maegawa (1998) encourages the vision that through translative adaptation, developing countries may become competitive, contributing, and respected participants in the modern world system of trade: 'entering international markets and global value chains' as per AKA Secretariat (2020).

Chapter 2 uses the concept of translative adaptation to explore how Japan and Singapore respectively undertook the adoption, adaptation, and cultural assimilation of practices to improve national competitiveness. In the case of Japan, it was the private sector corporations in the period following the World War II that took the lead to bring about translative adaptation of the practices seen to underpin the competitiveness of the US; a case in point is that in 1950 Japanese business leaders invited W. Edwards Deming to teach executives and engineers about science-based quality improvement (JUSE 2020b). In the case of Singapore, it was the government that took the lead and in doing so looked to Japanese practices for translative adaptation.

The JICA *Kaizen* promotion initiative, which includes the AKA, makes 'practices' and supportive advisors available. Will African governments, or private sector corporations, appropriate them in comprehensive translative adaptation? In so doing, will they succeed in approaching those of Japan and Singapore? Only time will tell. But in the way JICA is partnering with national productivity and quality improvement agencies across the continent of Africa, the PAPA and with the African Union Development Agency (AUDA-NEPAD), the opportunity exists for both governments and corporations. A fleshing out of the parties and their interests, as set out here in Table 5.18 may enrich the opportunity. A close reading of this volume's Chapter 2 may also be helpful in understanding what would be required from and by the partners.

At an immediate and practical level, it is recommended that JICA and AUDA-NEPAD circulate a draft proposal to that effect to the Nominators prior to the upcoming AKAC meeting and convene a discussion of the proposal and practical pathways to the achievement of 'their own national awarding system,' possibly stated in the context and methodology of

translative adaptation. References that may be of value in drafting such a proposal are: Doulatabadi and Yusof (2018), Talwar (2011a and 2011b), and Miguel (2001).

If 'translative adaptation' of *Kaizen* practices is to take place in Africa, it will need an inspiring vision and a plan of action. JICA is providing such a stimulus. But its efforts can only achieve so much: one cannot 'do' *Kaizen* to another organization, let alone a country. Without its visionary, concerted and resolute adoption by significant national industry associations or top-level government departments, the JICA stimulus for translative adaptation is likely to wane. One must ask, 'If not now, when?'

The objectives of the AKA are ambitious and of consequence. Their widespread and quick achievement cannot be expected, and certainly not at the first attempt. The above findings should encourage perseverance by JICA and its partners throughout Africa: socio-economic development must remain an imperative for many years. *Kaizen* has an important and practical role to play. Dare we hope for both the *Kaizenization* of Africa and the Africanization of *Kaizen*?

Appendix 5.1. Entry Sheet for Organizations

(AKA Secretariat 2018)

Entry Sheet for Organization

i. Please describe the following points in maximum ten (10) pages of A4 sheet excluding attachments.
ii. The entry organization should prepare the entry sheet.
iii. The entry sheet should include data, measureable facts and graphs appropriately to make explanation convincing.
iv. The entry sheet can be written in either English or French.

1. Information on Entry Organization

1.1	Name of Organization, Physical address (Head office/Factory) and Contact details
1.2	Year Founded
1.3	Capitalized at (US$)
1.4	Annual Turnover (US$)
1.5	Type of Business and main products/services
1.6	Number of Employees 1) regular employees 2) irregular employees
1.7	Number of Managers
1.8	Name of person in charge of nominated *Kaizen* activities
1.9	Organization Chart (Attachment 1)
1.10	Division of Duties (Attachment 2)
1.11	Current Quality Control System of Work (Attachment 3)

2. Information on Kaizen Activities

2.1	Level of *Kaizen* organization nominated a) company/institution, b) department/factory/division
2.2	Number and composition of managers/workers involved in the activities
2.3	History of *Kaizen* implementation a) year of *Kaizen* started, b) major process and approaches, c) detailed activities and results in 2017 and 2018

2.4	Objectives of *Kaizen* activities a) vision and strategies of the organization, b) clarity of the objectives and target of *Kaizen* activities, c) scope of *Kaizen* activities, and d) commitment of the management,
2.5	Process of *Kaizen* activities a) feature of participatory approach, b) continuity of *Kaizen* process, c) feature of scientific and data based approach, and d) efficiency of the activities and countermeasures.
2.6	Outputs/Outcomes of *Kaizen* activities a) measurable improvement of quality of products/services, b) measurable improvement of productivity of products/services, c) change of motivation of and incentives for workers, d) skill development of workers, e) change of teamwork and communication, f) change of working environment, g) reported and measured customers satisfaction, f) promotion of organizational social responsibility, i) spillover effects of *Kaizen* activities, and j) overall achievement of targets
2.7	Other appealing points of *Kaizen* objectives, process and outputs/ outcomes, to be described, if any

3. Contact person in the Kaizen promoting institute/unit that nominate the organization

3.1	Name of the *Kaizen* promoting institute/unit and country
3.2	Name, position, and contact details (including e-mail address) of the person in charge
3.3	Relationship between the *Kaizen* promoting institute/unit and the nominee (how the institute/unit supports the nominee)

4. Other Attachment

In case of attaching photos, please limit the number to maximum of 10 photos.

Appendix 5.2. Entry Sheet for *Kaizen* Team/Circle

(AKA Secretariat 2018)

Entry Sheet for *Kaizen* Team/Circle

i. Please describe the following points in maximum eight (8) pages of A4 sheet excluding attachments.
ii. The entry team/circle should prepare the entry sheet.
iii. The entry sheet should include data, measurable facts and graphs appropriately to make explanation convincing.
iv. The entry sheet can be written in either English or French.

1. Information on the Organization that the team/circle belongs

1.1	Name of Organization, Physical address (Head office/Factory) and Contact details
1.2	Year Founded
1.3	Capitalized at (US$)
1.4	Annual Turnover (US$)
1.5	Type of Business and main products/services
1.6	Number of Employees 1)regular employees 2) irregular employees
1.7	Number of Managers
1.8	Name of person in charge of nominated Kaizen activities
1.9	Organization Chart (Attachment 1)
1.10	Division of Duties (Attachment 2)
1.11	Current Quality Control System of Work (Attachment 3)

2. Information on *Kaizen* Activities

2.1	Position of *Kaizen* team/circle nominated within the organization and number and composition of team/circle members
2.2	History of *Kaizen* team/circle activities a) year of the activities started, b) major process and approaches, c) detailed activities and results in 2017 and 2018

2.3	Process of *Kaizen* team/circle activities a) relevance of theme selection, b) grasping of situation before *Kaizen*, c) continuity of activities, d) root cause analysis, e) problem solving analysis, f) development of countermeasures, g) effects of the activities, and h) standardization of *Kaizen* approach
2.5	Outputs/Outcomes of *Kaizen* activities a) measurable improvement of quality of products/services, b) measurable improvement of productivity of products/services, c) change of motivation of and incentives for workers, d) development of problem-solving skill, e) improvement of teamwork and communication, and f) spillover effects of the activities
2.3	Commitment of the management throughout *Kaizen* activities
2.4	Other appealing points of *Kaizen* objectives, process and outputs/outcomes to be described, if any

3. Contact person in the Kaizen promoting institute/unit that nominated the *Kaizen* team/circle

3.1	Name of the *Kaizen* promoting institute/unit and country
3.2	Name, position, and contact details (including e-mail address) of the person in charge
3.3	Relationship between the *Kaizen* promoting institute/unit and the nominee (how the institute/units support the nominee)

4. Other Attachments

In case of attaching photos, please limit the number to maximum of 10 photos.

Appendix 5.3. Evaluation Criteria for Organization

(AKA Secretariat 2018)

No	Features			
1	Objectives	a) Organizational vision and strategies		0 /20
		● The organization has clear vision and strategies for its own proactive customer-oriented aspiration.	1 2 3 4 5	
		b) Clarity of *Kaizen* activities		
		● The organization has clear objectives of *Kaizen* activities and targets to be improved, which are relevant to the vision of the organization.	1 2 3 4 5	
		c) Scope of *Kaizen* activities		
		● The scope of the countermeasures identified is wide enough to create impact in the organization.	1 2 3 4 5	
		d) Commitment of the management		
		● The management presents clear commitment to promote *Kaizen* activities and performs concrete leadership throughout the activities.	1 2 3 4 5	
2	Process	a) Participatory approach		0 /20
		● Building effective systems to promote participation of people are incorporated in the activities.	1 2 3 4 5	
		b) Continuous approach		
		● *Kaizen* activities are frequently and continuously organized and the PDCA cycle is repeatedly applied.	1 2 3 4 5	
		c) Scientific approach		
		● Data are collected accurately and frequently and they are accumulated, properly analyzed and effectively utilized.	1 2 3 4 5	
		d) Economical approach (efficiency)		
		● The countermeasures are designed based on wisdom and internally available resources, instead of external resources mobilization.	1 2 3 4 5	
3	Outputs/Outcomes	a) Quality of products/services		0 /50
		● The activities create measurable improvement of quality of products/services verified with data of Key Performance Indicators.	1 2 3 4 5	
		b) Productivity of products/services		
		● The activities create measurable improvement of productivity of products/services verified with data of Key Performance Indicators.	1 2 3 4 5	

No	Features			
3	Outputs/Outcomes	c) Motivation of and incentives for workers		
		● Mechanisms to motivate staff to participate in and sustain the activities, such as reward and award, are established, and motivation of staff and incentives are increased.	1 2 3 4 5	
		d) Skill development of workers		
		● Mechanisms to develop human skills such as training and education program are established, and skill/ competency are developed.	1 2 3 4 5	
		e) Teamwork and communication		
		● Improved system to promote teamwork and communicationis established and functional.	1 2 3 4 5	
		f) Safe and comfortable work environment		
		● Any concrete improvement in work environment that brings benefit to workers is created by the activities of *Kaizen* .	1 2 3 4 5	
		g) Customers satisfaction		
		● Concrete satisfaction of customers in value chain (quality of products/services, lower price, improved delivery and waiting times) is reported and measured.	1 2 3 4 5	
		h) Social responsibility		
		● The organization is promoting social responsibility and appreciated by stakeholders in measurable manner.	1 2 3 4 5	
		i) Spillover effects		
		● The activities are spillovered to other departments in the organization or to business partners or to residence of employees.	1 2 3 4 5	
		j) Achievement of organizational objectives and targets		
		● Overall achievements of *Kaizen* activities meet organizational objectives and targets, which are countable.	1 2 3 4 5	
4	Presentation			0 /10
		● Presentation (or description) is made within specified time (or volume) and completed in good balance.	1 2 3 4 5	
		● Presenter makes clear and impressive explanation as well as responses to questions/comments made by audience.	1 2 3 4 5	
Total				0 /100

Appendix 5.4 Evaluation Criteria for *Kaizen* Team/Circle

(AKA Secretariat 2018)

No		Features		
1	Kaizen Process			0 /40
		a) Selected theme is relevant to priority of management and workplace issues.	1 2 3 4 5	
		b) Situation before *Kaizen* is clearly described based on data and facts.	1 2 3 4 5	
		c) *Kaizen* activities are frequently and continuously organized during the past two years.	1 2 3 4 5	
		d) Logics and depth of root cause analysis (e.g., fishbone chart, repeating why, why, why) are adequate.	1 2 3 4 5	
		e) Problem solving analysis is made by using adequate *Kaizen* tools.	1 2 3 4 5	
		f) Development of countermeasures are discussed by team and all hands together.	1 2 3 4 5	
		g) Effects of *Kaizen* activities are measured by using key performance indicator (KPI).	1 2 3 4 5	
		h) *Kaizen* approach is standardized and applied to business processes widely.	1 2 3 4 5	
2	Outputs/Outcomes	a) Quality of products/services		0 /30
		● The activities create measurable improvement of quality of products/services verified with data of key performance indicators.	1 2 3 4 5	
		b) Productivity of products/services		
		● The activities create measurable improvement of productivity of products/services verified with data of key performance indicators.	1 2 3 4 5	
		c) Motivation of and incentives for workers		
		● Mechanisms to motivate the team/circle members to participate in and sustain the activities, such as reward and award, are established, and their motivation and incentives are increased.	1 2 3 4 5	
		d) Development of problem solving skill		
		● Problem solving skill of the team/circle members is developed based on the activities.	1 2 3 4 5	
		e) Teamwork and communication		
		● Improved system to promote teamwork and communication is established as a result of the activities.	1 2 3 4 5	

No		Features		
2		f) Spillover effects ● The *Kaizen* activities are spillovered to and replicated by other teams/circles.	1 2 3 4 5	
3	Commitment of the management ● The management understands *Kaizen* activities and supports them throughout the activities.		1 2 3 4 5	0 /5
4	Presentation	● Presentation (or description) is made within specified time (or volume) and completed in good balance. ● Presenter makes clear and impressive explanation as well as responses to questions/comments made by audience.	1 2 3 4 5 1 2 3 4 5	0 /10
Total				0 /85

Appendix 5.5. Questionnaire as Distributed in Early February 2020

Dear XXX,

Sincere greetings to you in the New Year.

Your country participated in the Africa *Kaizen* Award conference in Tunisia in June 2019. JICA, the organisers of the event, and promoters of *Kaizen* in nine African countries, wishes to learn from the reflections of those who participated in the conference. We would be grateful if you would take a few minutes to complete the following six questions.

In each question you will be asked to choose a 'score' by marking one of the numbers from 1 to 7, where

1 = Unimportant/Weak and 7 = Highly important/Very strong

Question 1

How significant was each of the following in informing you about the JICA *Kaizen* initiative?

1 Private Sector Consultancy	1 2 3 4 5 6 7
2 Own reading of articles/internet	1 2 3 4 5 6 7
3 Your national government agency or institute	1 2 3 4 5 6 7
4 Direct information from JICA	1 2 3 4 5 6 7
Other (please specify) ……	1 2 3 4 5 6 7
Other (please specify) ……	1 2 3 4 5 6 7
Other (please specify) ……	1 2 3 4 5 6 7

Question 2

What were the reasons your organisation/company engaged with the JICA *Kaizen* Awards?

1 Employee safety, well-being and morale	1 2 3 4 5 6 7
2 Domestic competitiveness	1 2 3 4 5 6 7
3 International competitiveness	1 2 3 4 5 6 7
4 An instruction from your political seniors/senior managers	1 2 3 4 5 6 7
5 Quality of goods and services being produced	1 2 3 4 5 6 7

6 Affordability of goods and services being produced 1 2 3 4 5 6 7
7 Delivery reliability of goods and services being produced 1 2 3 4 5 6 7
8 Speed of response to customer requests 1 2 3 4 5 6 7
9 Customer relations 1 2 3 4 5 6 7
10 Supplier relations 1 2 3 4 5 6 7
Other (please specify) 1 2 3 4 5 6 7
Other (please specify) 1 2 3 4 5 6 7
Other (please specify) 1 2 3 4 5 6 7

Question 3 – for completion only by companies/teams that submitted applications for the Africa *Kaizen* Award

What motivated the preparation and submission of the application?

1 Curiosity 1 2 3 4 5 6 7
2 Possible trip to Tunisia 1 2 3 4 5 6 7
3 Desire to share learning with others 1 2 3 4 5 6 7
4 Pride in what the company/team has achieved 1 2 3 4 5 6 7
5 Give staff involved something to be proud of 1 2 3 4 5 6 7
6 Senior management instruction 1 2 3 4 5 6 7
Other (please specify) 1 2 3 4 5 6 7
Other (please specify) 1 2 3 4 5 6 7
Other (please specify) 1 2 3 4 5 6 7

Question 4 – for completion only by companies/teams that submitted applications for the Africa *Kaizen* Award

What were the benefits of preparing the application?

1 Learning from the review of how we implement *Kaizen* 1 2 3 4 5 6 7
2 We saw gaps in what we had done and thus opportunities 1 2 3 4 5 6 7
Conversations amongst staff involved 1 2 3 4 5 6 7
4 Widening awareness of *Kaizen* in the company 1 2 3 4 5 6 7
5 Senior management appreciation 1 2 3 4 5 6 7
6 Insights from the on-site assessment by the nominating agency 1 2 3 4 5 6 7
Other (please specify) 1 2 3 4 5 6 7
Other (please specify) 1 2 3 4 5 6 7
Other (please specify) 1 2 3 4 5 6 7

Question 5

What were the benefits of attending the African *Kaizen* Award conference in Tunisia?

1 Renewed personal motivation to continue with *Kaizen* 1 2 3 4 5 6 7
2 Insights and motivation taken back to your own organisation
1 2 3 4 5 6 7
3 Insights and motivation taken back to your wider community
1 2 3 4 5 6 7
Knowledge gained from
- 5 Presentations made by other applicants 1 2 3 4 5 6 7
- 6 Poster presentations made by other applicants 1 2 3 4 5 6 7
- 7 Presentations made by expert speakers 1 2 3 4 5 6 7
- 8 Informal conversations during the conference 1 2 3 4 5 6 7

Other (please specify) 1 2 3 4 5 6 7
Other (please specify) 1 2 3 4 5 6 7
Other (please specify) 1 2 3 4 5 6 7

Question 6

In the months since the Africa *Kaizen* Award conference in Tunisia, to what extent have you:

Been more motivated to promote *Kaizen* in your own organisation?
1 2 3 4 5 6 7
Promoted *Kaizen* outside of your organisation? 1 2 3 4 5 6 7
Talked about the support of JICA? 1 2 3 4 5 6 7
Used new tools or approaches in implementing *Kaizen*? 1 2 3 4 5 6 7
Seen continued improvement in your organisation based on *Kaizen*?
1 2 3 4 5 6 7
Other (please specify) 1 2 3 4 5 6 7
Other (please specify) 1 2 3 4 5 6 7
Other (please specify) 1 2 3 4 5 6 7

Please feel free to add any general comments:
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Many thanks for completing this questionnaire. We greatly appreciate it. It will contribute to continuous improvement in the promotion and effective use of *Kaizen* in Africa!

Appendix 5.6. Proposed approach to standardizing examiner scores

A classic approach to standardizing is to use the mean and standard deviation to represent each original score as the distance above or below the mean (Martin 2020).

Let x_{ij} = Score by Examiner i for Nominee j
$\bar{x}_i$ = Mean of scores by Examiner i, across all Nominees
σ_i = Standard deviation of scores by Examiner i, across all Nominees
Y_{ij} = Standardized score by Examiner i for Nominee j

Then the standardized score of Examiner i for Nominee j is calculated by this formula:

$$Y_{ij} = (x_{ij} - \bar{x}) / \sigma_i$$ [8]

Note that in those cases where the mean of the scores given by an Examiner is greater than the score given to a particular Nominee the standardized score for that Nominee will be negative. This does not affect the ranking of Nominees. Ranking is based on listing the standardized scores of all the Examiners from biggest positive number to biggest negative number. The 'best' Nominees will have the biggest positive standardized scores.

8 After the discussion at the Evaluation Committee meeting, the following Normal Standard Scoring method is applied in AKA2020,. $Y_{ij} = (x_{ij} - \bar{x}_i) / \sigma_i * 10+50$.

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CHAPTER

6

Which One Does Africa Need, Innovation or *Kaizen*?

Tomonari Takeuchi

1. Introduction

1.1. Background

According to the United Nations Conference on Trade and Development (UNCTAD), the achievement of the Sustainable Development Goals (SDGs) by 2030 requires innovation in development as well as for development (UNCTAD 2017). Three industrial revolutions have fundamentally altered the structure of economies and cultures over the last 200 years and we are now in the Fourth Industrial Revolution (4IR). The accelerating pace of technology dissemination, the convergence of multiple technologies and the advent of global platforms are challenging traditional models of growth (World Bank 2018). The World Bank defines disruptive technology as 'emerging technologies that result in a step change in the cost of or access to products or services, or that dramatically change how we gather information, make products, or interact' (World Bank 2018, iii).

In Africa, there are various innovative solutions emerging with such disruptive technologies. When it comes to innovation in Africa, one can easily image M-PESA in Kenya. In addition to mobile technology, several kinds of emerging technologies have also spread out across the continent. For example, the African Development Bank (2019) published a report entitled *Potential of the Fourth Industrial Revolution in Africa* that analyzes the potential impact of disruptive technologies such as the Internet of Things (IoT), Big Data, Additive Manufacturing (AM), Artificial Intelligence (AI), Drones, and Blockchain. In this context, it is necessary to consider technology and innovation more than ever before when we think about international cooperation for industrial development in Africa.

The Japan International Cooperation Agency (JICA) has been

continuously assisting the industrial development of African countries and mainly supporting productivity improvement by disseminating *Kaizen*. Regarding the relationship between *Kaizen* and innovation, there are different views depending on the scholars involved. Some scholars (Drucker 1990; Lindberg and Berger 1997) insist that *Kaizen* can contribute to incremental innovation. On the other hand, others, for example Masaaki Imai, who is a famous scholar of *Kaizen*, considers innovation as 'major changes in the wake of technological breakthroughs' and suggests that *Kaizen* is therefore an opposite concept to innovation (JICA 2018, 1-9). It seems to Imai that *Kaizen* is not such a radical innovation. This is because improvement of existing products or processes is not likely to bring about technological breakthroughs as Schumpeter implies in his analogy 'Add successively as many mail coaches as you please, you will never get a railway thereby' (Elliott 1980).

Which view is right? Is *Kaizen* already old-fashioned in the current digital era when innovation with disruptive technologies is needed? To discover the answer to such a question, this chapter attempts to clarify the relationship between *Kaizen* and innovation, particularly in the development context of Sub-Sahara Africa.

1.2. Research question

To clarify this, three research questions are set up as follows:

- What type of innovation is most needed in Africa?
- How does *Kaizen* contribute to the innovation process in Africa?
- How to harmonize the effect of *Kaizen* for innovation in Africa?

First, it is necessary to define innovation because there are many definitions of this term such as incremental innovation, radical innovation, sustaining innovation, disruptive innovation, and so on. In addition, it is crucial to define what type(s) of innovation is most needed for the development of Africa. Though it is very difficult to define this, it is important to do so to avoid vague discussion. Secondly, how *Kaizen* contributes to the defined innovations will be analyzed through reviewing several opinions by different scholars. Finally, this chapter outlines a potential way for *Kaizen* to successfully contribute to African development in terms of innovation as the new relationship between *Kaizen* and African innovation.

1.3. Methodology

First of all, this chapter clarifies what type(s) of innovation is most needed for Africa through a literature review of innovation theory as well as a review of emerging innovations. Since one of the difficulties in discussing innovation is due to a complexity in its types, it is particularly important to narrow down the innovation type as a starting point. Secondly, regarding the second and the third research questions, these establish a hypothesis that *Kaizen* contributes to the implementation process (how to brush up a prototype to a practical product). Although sometimes one may think that innovation is something unpredictable and even a spark of genius, the innovation process can include continuous and incremental effort like Thomas Alva Edison's saying that '[g]enius is 1 per cent inspiration and 99 per cent perspiration.' How innovation process and *Kaizen* are related can be investigated by carefully exploring such a step-by-step process. And M-PESA in Kenya is used as a case study to verify the hypothesis based on the literature review to discover coherence between what they did and *Kaizen* practice and philosophy. Finally, the chapter proposes a potential way to harmonize *Kaizen* and innovation based on the translative adaptation approach (referring to the discussion in Chapter 2) for further development in Africa.

2. What Type of Innovation is Most Needed in Africa?

2.1. Definition of innovation

There are more than 40 definitions of innovation (JICA 2018), and the definition depends on each scholar's understanding and focused field of study. For example, Rogers (2003) focuses on the process of innovation diffusion rather than the creation of innovation. Rogers' definition of innovation is 'an idea, practice, or object that is perceived as new by an individual or other unit of adoption' (Rogers 2003, 12). However, it is too broad to discuss here. To narrow down a definition of innovation, this section reviews some of generally accepted definitions as described below.

2.1.1. Joseph Schumpeter

Joseph Schumpeter was the first scientist to introduce innovation theory (Fagerberg 2003). According to him, innovation is defined as the unprecedented new combination of production factors and it can be categorized into five types (Schumpeter 1911, 1939):

(1) Product innovation: introducing new products or improving product quality;
(2) Process innovation: adopting new production methods and processes;
(3) Market innovation: developing new markets;
(4) Supply chain innovation: exploring new sources of supply of new material or partly finished products;
(5) Organization innovation: implementing new organizational forms.

In addition, innovation can be divided into incremental innovation and radical innovation. Incremental innovation is precedented improvement while radical innovation is characterized by unprecedented change.

2.1.1.1. Incremental innovation. Incremental innovation can be referred to as minor improvements and updates of the existing product, process, service, and business model along the initial trajectory. It does not seem to involve technical breakthroughs on a significant scale, but it has nevertheless contributed to the growth of companies as well as the economy (Chen and Yin 2019). Typical example is fuel efficiency improvement in the gasoline engine.

2.1.1.2. Radical innovation. On the other hand, radical innovation—sometimes called 'breakthrough'—is a type of innovation that results in tremendous growth in the basic performance indicators of a product. It has a critical impact on market conditions, competitive environment, and industry structure, or even promotes complete reorganization of industry patterns (Wooder and Baker 2012). It usually takes eight to ten years or more before radical innovation is materialized for practical use in for example, the automobile, energy, pharmaceutical, and internet industries because it requires significant investment for Research and Development (R&D) by leading scientists or engineers, major technological advances, and even completely new concepts (Chen and Yin 2019). A typical example of radical innovation can be a motorcar against a horse drawn carriage and an electric car against a gasoline car.

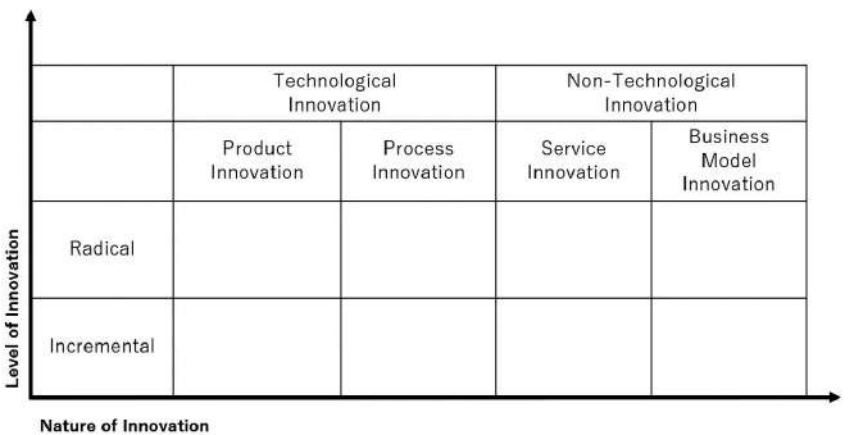
2.1.2. Oslo Manual

One of the generally accepted notions about innovation is proposed by the Organization for Economic Co-operation and Development (OECD). OECD issued the first edition of the *Oslo Manual: Proposed Guidelines for*

Collecting and Interpreting Technological Innovation Data in 1992, updating it in 1997 and 2005. This manual broadly defines technological innovation as follows:

> An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations. (OECD/Eurostat 2005, 46)

Figure 6.1 shows the classification of innovations based on both of the definitions mentioned above.



Source: Adapted from Chen and Yin (2019, 37).

Figure 6.1. Classification of Innovations

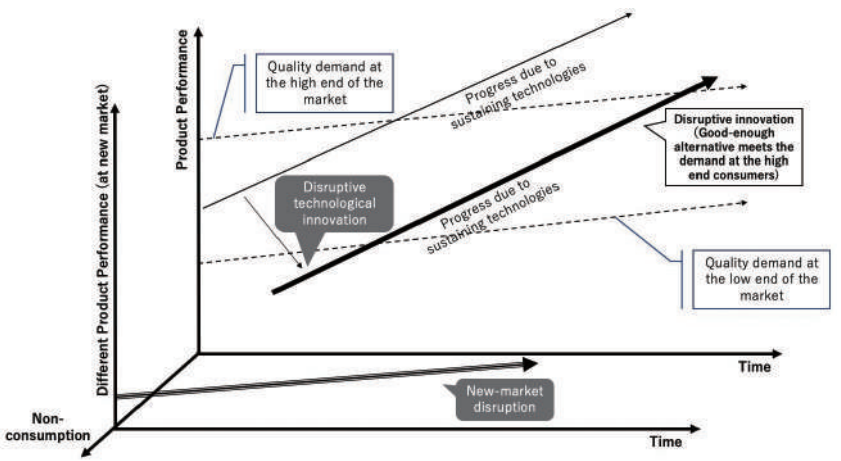
2.1.3. Clayton M. Christensen

In an approach that is different from the abovementioned classification, Clayton M. Christensen provides new dimensions of innovation categorization. He categorizes innovation into sustaining innovation and disruptive innovation in consideration of the sustainability of enterprises (Christensen 2013). Sustaining innovation is to sustain established trajectories of performance and/or quality improvement. Generally, leading companies pursue better and more products/services to satisfy those high-end consumers who have very strict evaluation criteria. So, such companies listen to consumers' voices very carefully and invest in

R&D for sustaining innovation.

On the other hand, disruptive innovation offers 'good-enough' alternatives to what customers in established markets want. In general, disruptive innovation utilizes packaged known and available technologies for products and/or services that are often simpler, cheaper, and lower quality, however it provides new and different values for less-demanding consumers in emerging markets (Christensen et al. 2006; Christensen 2013).

Even if products and/or services are low quality, low technology, and simple, they are gradually improved, and in the long run they can take customers from the high-end market. Although high-quality products makers or services providers also improve their quality to satisfy high-end market customers, their quality can be far beyond customer demand. In the long run, the high-end market customers will select good-enough products or services. This is the mechanism of disruptive innovation as Figure 6.2 shows. Since leading companies are usually not able to invest their resources for such low-tech and low-quality projects and/or services, and if they cannot rid themselves of the existing value network, they will lose their customers. Such innovations break the existing market dominated by big established companies. That is why this situation is called 'disruptive' innovation.



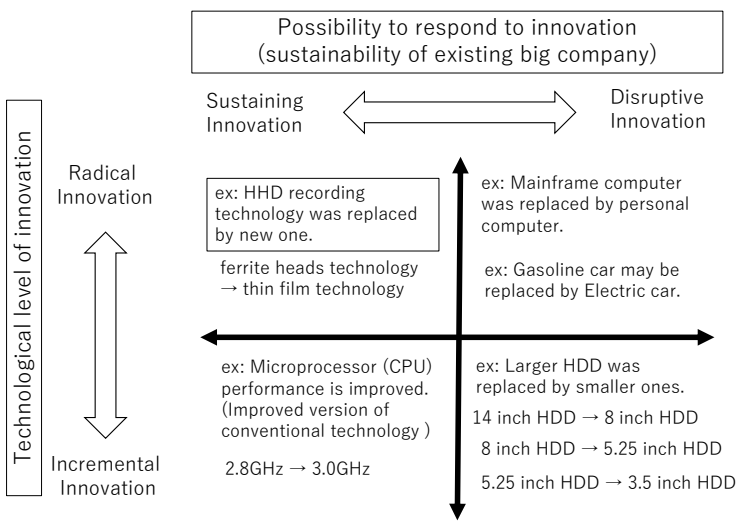
Source: Christensen (2013).

Figure 6.2. Impact of Sustaining and Disruptive Technological Change

In addition, disruptive innovation can be divided into low-end disruption and new-market disruption (Larson 2016). The main difference between the two types lies in the fact that low-end disruption focuses on over-served customers, and new-market disruption focuses on underserved customers, respectively.

- Low-end disruption refers to businesses starting to introduce 'good-enough' products and/or services at the bottom of the markets, and they are generally moving to more profitable markets by improving originally 'good-enough' products and/or services to the extent with which customers in upper markets are satisfied (Larson 2016);
- New-market disruption refers to businesses that compete against non-use in low-margin areas of industry. In other words, it creates a totally new market. Like low-end distributions, the products and/or services offered are generally seen as 'good-enough,' and emerging businesses are profitable at these low prices (Larson 2016).

Disruptive innovation and sustaining innovation are sometimes misunderstood as almost same as radical innovation and incremental innovation. However, they are different notions. The relationships between the definitions by Schumpeter and Christensen can be described as in Figure 6.3 (Sano 2004, 2011).

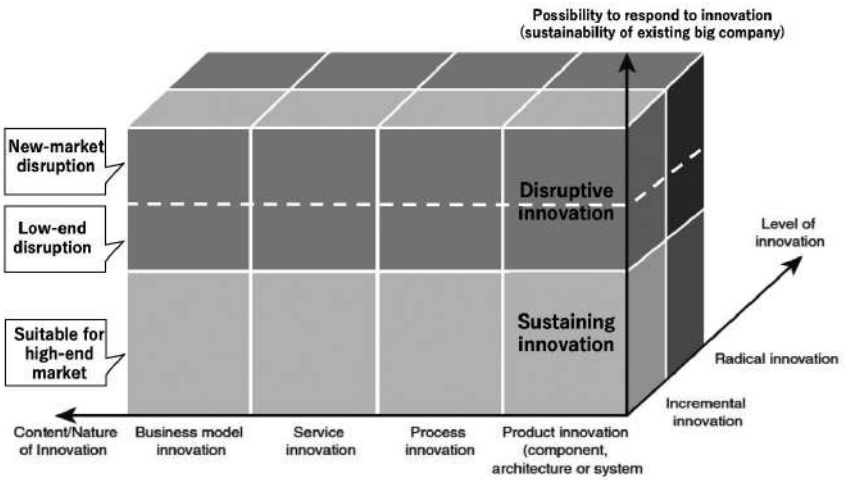


Source: Sano (2004, 2011).

Figure 6.3. Innovation Types by Christensen

2.1.4. Innovation classification

There are several ways to categorize innovation. It is reasonable to use the model by Chen and Yin (2019) in order to understand them clearly. They categorized various types of innovations according to three dimensions: (i) content/nature of innovation; (ii) level of innovation; and (iii) possibility to respond to innovation. Based on these dimensions, the classifications introduced so far can be described as in Figure 6.4.



Source: Adapted from Chen and Yin (2019).

Figure 6.4. Three Dimensions of Innovation Types

2.2. Innovation in Africa

Now, let us think about the first research question: 'What type(s) of innovation is most needed in Africa?' According to Figure 6.4, this question is answered from the three dimensions by answering sub-questions: (i) Which content/nature of innovation is suitable? (ii) incremental or radical innovation? and (iii) sustaining or disruptive innovation?

2.2.1. Which content/nature of innovation is suitable?

To consider the first aspect, it is reasonable to show 'What kinds of innovative business are growing up in Africa?' because they reflect market needs. As Table 6.1 shows, five 'unicorn' start-ups (A unicorn is a

private company with a valuation of over 1 billion dollars) have been born in Africa so far (as of September 2020).

Table 6.1. Unicorn Startups Born in Africa

Company	Country	Business
Promasidor Holdings	South Africa	Promasidor Holdings is a supplier of quality, nutritional, and affordable food products in more than 30 African countries.
Cell C	South Africa	Cell C is a mobile provider that offers a wide range of products and services, including voice, data, and messaging services to more than 18 million customers.
Interswitch	Nigeria	Interswitch is an Africa-focused integrated digital payments and commerce company that facilitates the electronic circulation of money.
Zipline International	Rwanda (United States)	Zipline International builds drones and runs delivery services, dropping crucial medical supplies to clinics and patients in critical need.
Jumia	Nigeria	Jumia is a leading e-commerce platform in Africa. It is built around a marketplace, Jumia Logistics, and JumiaPay. The marketplace helps millions of consumers and sellers to connect and transact.

Source: Created by the author from cbinsights.com and the websites of Jumia and Interswitch.

Of the five unicorn startups, except Promasidor Holdings that handles food products, four are start-ups providing services using new technologies such as mobile, digital payment, and drones. In fact, the potential of new businesses in Africa is highly related to technology. When it comes to investment for African start-ups, Table 6.2 lists the Top10 venture deals in Africa in 2019. This table also indicates that digital services are currently the most promising field in Africa.

All top 10 start-ups are not purely technology companies; but most of them utilize technology to provide their services. Considering the business of these African start-ups, it is not too much to say that most emerging businesses are not selling product but services, especially via technology. As Marc Andreessen (2011) says 'Software is eating the world,' many products and infrastructures are controlled by software. But, currently services are eating software (Bendor-Samuel 2019). Software is becoming to be not sold but used as a service like 'SaaS (Software as a Service).' For example, brick-and-mortar shops are replaced by Amazon.com, printed maps are replaced by Google Map, wallets are replaced by smartphones (mobile payment), taxi is controlled by Uber, etc. Not only

Table 6.2. Top10 Venture Deals in Africa 2019 (Unit USD)

Company	Description	Sector	Funding $	Investors
Interswitch	Payment Processing Company	FINTECH	200 Mn	Visa
Opay	Mobile Money & Payment Services	FINTECH	120 Mn	Meituan-Dianping, GaoRong, Source Code Capital, Softbank Ventures Asia, BAI, Redpoint, IDG Capital, Sequoia China and GSR Ventures.
Andela	Software Developer Training and Outsourcing Company	EDTECH	100 Mn	Generation Investment Management, Spark Capital, GV, CRE Venture Capital and the Chan Zuckerberg Initiative
Branch	Micro Lending & Loans	FINTECH	70 Mn	Foundation Capital, Visa, B Capital, Andreessen Horowitz, Formation 8, Trinity Ventures
Opay	Mobile Money & Payment Services	FINTECH	50 Mn	IDG Capital, GSR ventures
BBOXX	PAYG Renewable Energy Provider	CLEANTECH	50 Mn	Mitsubishi
Carepay	Mobile Health Finance Platform	HEALTHTECH	45 Mn	IFHA-II, Elma Investments, Dutch Ministry of Foreign Affairs (via PharmAccess Group)
SWVL	On demand Bus-Hailing Services	RIDE HAILING	42 Mn	BECO Capital, Endeavor Catalyst, MSA and Vostok Ventures, OTF Jasoor Ventures, Sawari ventures, Arzan VC, Blustone, Autotech, Michael Lahyani
Palmpay	Mobile Money & Payment Services	FINTECH	40 Mn	Transsion (Tecno)
LORI	Aggregator for cargo and truck owners	LOGISTICS	30 Mn	Hillhouse Capital, Crystal Stream Capital, EchoVC Partners

Source: WeeTracker (2019).

in developed countries but also in developing countries, services have begun to dominate much economic activity (Wooder and Baker 2012). In Africa, particularly, services with digital technology, such as M-PESA, e-soko, M-post, and so on, attract much more attention from investors

than traditional businesses. Even in the case of drones, the business is not manufacturing hardware technologies but drone-enabling services. While the primary and secondary industries are still important for national development and the African economy relies on agriculture, services with digital technology are also used to improve productivity and growth in these industries by introducing innovations such as agri-tech or smart agriculture (use of digital technology in agriculture) and industry 4.0 (use of digital technology in manufacturing). Looking at such a trend over the past few years, service innovation can be seen as the most notable and worthwhile field in Africa. Service innovation has much potential to benefit broader sectors and bring about wider impact.

2.2.2. Incremental or radical innovation?

Secondly, it is true that suitability of innovation type depends on resources of companies. 97 per cent of Sub-Saharan African enterprises are microenterprises. In other words, they have less than 10 employees and less than 1 per cent of the world's billion-dollar companies are in Africa. But, small-and medium-enterprises (SMEs) and start-ups are the common players and vital sources of innovation (African Development Bank 2019). Considering this fact, innovation which requires long-term R&D and investment is not suitable for most African countries. In other words, it is not reasonable for most African companies to aim at radical innovation. While radical innovation needs R&D, it takes a long time, like eight to ten years, to materialize (Chen and Yin 2019). In Africa, the report *Global Innovation Index 2020* points out that the resource for R&D relies on foreign donors and low levels of science and technology activities (Cornell University et al. 2020). Of course, it is necessary for African governments to invest in R&D as a long-term strategy; but it is not reasonable for most African companies to set such high goals as the main target. Therefore, it seems that incremental innovation is more suitable than radical innovation in Africa at least as a short-term strategy.

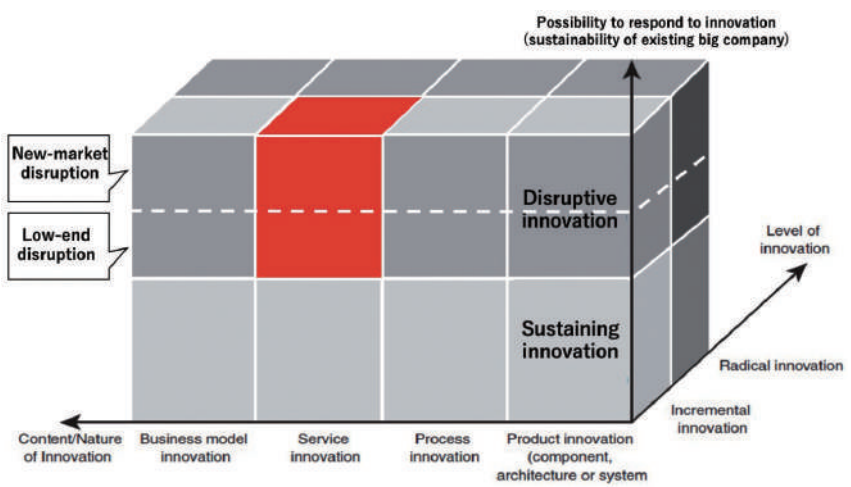
2.2.3. Sustaining or disruptive innovation?

Thirdly, sustaining innovation may not be suitable for most African companies because large companies are better at sustaining innovation since they have more resources and a greater ability than SMEs to produce higher quality products or services in established and mature markets (Christensen 2013). On the contrary, disruptive innovation is materialized

by utilizing simple and conventional technology if it can meet customers' real needs—'good-enough' for low cost. This indicates that there are many more chances for African SMEs and start-ups that know the local reality and context. Even in the developed countries, generally, disruptive innovation does not utilize the latest cutting-edge technology as a minicomputer uses lower technology than a mainframe and a personal computer uses lower technology than a minicomputer (Christensen 2013).

In addition, the target of disruptive innovation is not high-end markets (people wanting better quality and more functions) but low-end markets or completely new markets. The majority of African markets are low-end compared to the ones in developed countries, and there is much potential for new markets since there is still a lack of the necessary economic and social infrastructure.

In summary, service, incremental, and disruptive innovation can be the most suitable types of innovation (Figure 6.5) although the term 'disruptive' may not fit the context of African markets because they are more likely to be 'blue ocean' where there are no existing large companies to be disrupted.



Source: Adapted from Chen and Yin (2019).

Figure 6.5. Suitable Type of Innovation in Africa

In Africa, of course, there are many companies doing innovative business in the primary and secondary industries, and there are some large

enterprises which can invest enough resources to bring about the other types of innovation. However, this chapter focuses on the promising potential in innovation that the majority of African companies can pursue.

3. *Kaizen* and Innovation in Africa

3.1. Definition of Kaizen

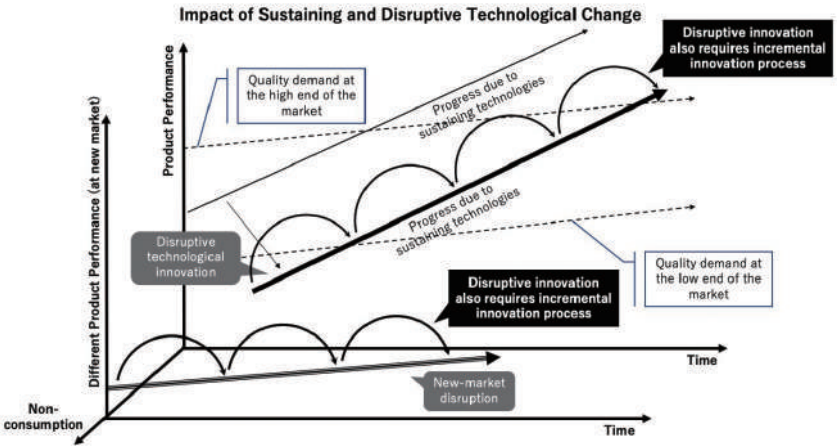
The typical image of *Kaizen* might be tools and methods for productivity improvement, especially in production lines at factories in the manufacturing sector represented by the automobile industry. However, *Kaizen* is a broader concept than just tools and methods. It is used not only in the manufacturing sector but also in the broader sectors such as health and public services (e.g. water supply, electricity). The JICA *Kaizen Handbook* (2018) defines the concept as follows:

> The core value of "Kaizen" is placed in creating the attitude shared among all members of an organization who consistently pursue advanced levels of quality and productivity, and not just applying its management method. Hence, Kaizen is a comprehensive knowledge that consists of broad technologies such as 5S, 7QC tools, TQM, TPS, Lean Production System, etc. to pursue activities under this core value. (JICA 2018, 1-1)

3.2. Kaizen and innovation process

Before discussing the second question 'How does *Kaizen* contribute to the innovation process in Africa?' it is necessary to understand the relationship between *Kaizen* and innovation.

It seems that the practical methods (e.g. quality deployment), systems (e.g. TQM, TPS, TPM), and tools (e.g. 7QC tools, IEs) of *Kaizen* are highly related to work process improvements in a factory in the manufacturing sector although *Kaizen* is applied in other sectors. Even if the staff of IT start-ups learn about *Kaizen*, it seems that they may not be able to apply them to their own digital business. In fact, Masaaki Imai insists that *Kaizen* is an opposite concept to radical innovation (JICA 2018). On the other hand, some scholars (Drucker 1990; Lindberg and Berger 1997) insist that *Kaizen* can contribute to incremental innovation. Why is there such understanding gap about the relation between *Kaizen* and innovation? It



Source: Adapted from Christensen (2013) and Sano (2004, 2011).

Figure 6.6. Relationship between Disruptive and Incremental Innovation

is because of the various definitions of innovation as mentioned above.

As the '2.2. Innovation in Africa' section showed, the most important and desirable innovation in Africa is similar to disruptive innovation with digital technologies in the service innovation field, as the author believes. The disruptive innovations embrace incremental innovation in the quest to improve the quality of processes, products, and services so that they will be accepted by their consumers. As Figure 6.6 shows, when disruptive innovation occurs, the quality level is below the requirement expected by consumers (Christansen 2013). Then, an incremental innovation process is required to improve the quality to meet consumer demand and other requirements, for instance, improvement of usability (user interface, operability, localization, customization, and so on), optimization of production and delivery, and increasing the sophistication of a business model that should be sustainable.

Considering the characteristics of these improvements, it is obvious that *Kaizen* is very useful in promoting incremental innovation. A rough innovative idea can be transformed to disruptive innovation through the accumulation of such incremental innovations. This improvement process is effectively assisted by *Kaizen*. Just coming up a good idea does not necessarily mean that it will succeed after implementation as innovation (Christensen et al. 2006). For instance, standardization for

work process is necessary to scale up and sustain a good idea as business so that the business can be expanded from one location to another location. Otherwise, it is impossible to attract investors for scaling up. However, it is too much to say that *Kaizen* can bring about disruptive innovation. Even though business development (from 1 to 100 phase) resembles the *Kaizen* process, the first step of business ideation with creative ideas (from 0 to 1 phase) is not like the *Kaizen* process.

3.3. Case study—M-PESA in Kenya

Is the abovementioned relationship between *Kaizen* and innovation true? Here, it is examined by reviewing the successful innovation process of M-PESA in Kenya, which is a famous innovation example considered as a trigger of the current innovation for development trend. M-PESA can be categorized as disruptive innovation, especially new-market disruption since it creates a new market of financial services for people who have not been considered as the target customers for such services.

3.3.1. Background

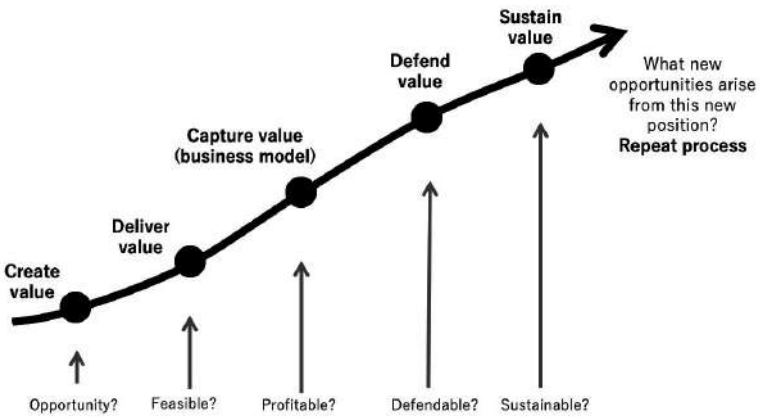
M-PESA was started in 2007. Vodafone and Safaricom implemented this mobile money pilot project in collaboration with a local microfinance institution (MFI) by using funds from the United Kingdom (UK)'s Department for International Development (DFID). The original purpose of this new service was to assist MFIs to collect money from their borrowers who mainly live in remote areas by utilizing the short message service (SMS). The main functions provided are as follows (Wooder and Baker 2012):

- Paying bills, e.g., utility bills;
- Receiving payment, e.g., salaries; and
- Micro-finance services, receiving and repaying loans.

After the pilot project, they shifted the target from MFIs to workers from rural areas to those in the cities because there is much more critical demand for these people to transfer money to their families in a safe way. The service has been rapidly disseminated in the country since then, and about half of the population amounting to 22.6 million people currently use the service as of 2019 (Safaricom 2019).

3.3.2. Incremental innovation of M-PESA

According to Schrempf et al. (2013), through a series of small incremental innovations, M-PESA has met with great success, responding quickly and effectively to the needs of the overwhelmingly poor. In addition, Joshua Nguku (2015), a principal engineer at Safaricom, mentioned that 'The Japanese concept of continuous improvement of a product or *Kaizen* is one other strategy that Safaricom has employed in gaining competitiveness for the product' (Nguku 2015, 62). To understand this in more detail, it is worth examining the research by Wooder and Baker (2012). Stella Wooder, who worked for M-PESA as a director of their external consultant Sagentia (a Cambridge based consulting firm), analyzed M-PESA by using their own service innovation framework in which key innovation stages are mapped to identify factors at each phase for value creation, as shown in Figure 6.7 (Wooder and Baker 2012).



Source: Wooder and Baker (2012).

Figure 6.7. An Outline Service Innovation Framework

Through observing the process of M-PESA service creation according to this framework, several elements of *Kaizen* and incremental innovation are uncovered in each step as follows:

(1) Create value

First, ensuring a clear market-validated proposition is a key step for innovation. Vodafone's product manager spent a lot of time in the field in Kenya, discovering the important valuable point: the need to keep it

simple (Hughes and Lonie 2007). In fact, simplicity is considered as the critical success factor of M-PESA by other scholars (Patrício and Fisk 2013). M-PESA is an excellent example of how an existing technology application can create an innovative service. The new short message service (SMS) is now seen as an 'old' technology in western markets; however 'recycling' this old technology in Kenya allowed a new service to develop (Wooder and Baker 2012).

Elements of *Kaizen*

The *Kaizen* method also puts priority on careful observation in the workplace (called *'Gemba'* in *Kaizen*). To keep it simple and to 'recycle' old technology are also similar to *Kaizen*'s philosophy of removing waste (called *'Muda'* in *Kaizen*) and applying available technology instead of purchasing or inventing new technology.

(2) Deliver value

At the second phase, there are two success factors in M-PESA. One is to use Safaricom's existing airtime reseller network since there were many resellers who could work as M-PESA agents. Successfully establishing customer trust in M-PESA agents is very important because once an agent does not operate the service effectively or keep enough cash to provide for customers, they will not use this service anymore. To avoid such a failure, intensive and repeated training was organized for newly appointed M-PESA agents. Vodafone's product manager spent long hours each day, visiting agents' stores to help them operate and work the M-PESA service (Wooder and Baker 2012).

The other factor is to start the pilot with a small budget for quick implementation. M-PESA was putting a relatively small amount of 'seed' funds into the 'crack' team, which quickly ensured its prominence. Although it usually takes a long time for big established companies to make huge investment decisions for big projects, Vodafone used a small amount of money to get something done quickly (Wooder and Baker 2012).

Elements of *Kaizen*

In the case of *Kaizen*, managers also put more priority on working place '*Gemba*' for process improvement and are encouraged to frequently visit '*Gemba*' for observation. Regarding the quick start with small budget, such a strategy is also relevant to *Kaizen*'s problem-solving method.

Kaizen activity encourages quicker action with available but perhaps limited amounts of input/resource to acquire results even for smaller improvements/successes.

(3) Capture value

A key factor in introducing a money transfer service is the scope of emerging markets, especially in remote and impoverished areas. How should service providers equip their agents with appropriate point of sale (POS) devices to serve their customers? Traditional POS devices are expensive to acquire and maintain and difficult for many agents to purchase. The solution that M-PESA took was to provide a mobile phone with a customized menu relevant to their needs. A basic mobile phone is a low-cost solution that allows the existing resellers to work as M-PESA agents (Wooder and Baker 2012).

Elements of *Kaizen*

Here again, there is similarity to *Kaizen* in making a solution with available technology and relatively small amounts of input/resource instead of procuring new machines and devices.

(4) Defend value

M-PESA was originally designed for MFIs to collect money from their customers (e.g. farmers in rural areas). However, partner MFIs did not decide to use it because mobile money transfers may reduce physical contacts with customers. MFIs usually need to have meetings with them for advocacy activities. On the other hand, the M-PESA organization observed how and who used this service and discovered the greater needs of workers in a city than those from remote areas. Then, M-PESA shifted their target to those who usually send money through informal and unsafe systems (e.g. asking long distance bus drivers to deliver money) to their families living in rural areas. M-PESA's famous slogan 'Send Money Home' was created through this process.

Elements of *Kaizen*

The abovementioned effort by M-PESA indicates that realizing the true value of innovation requires testing, refinement, and iteration. Significant work for observation of local reality and collection of feedback on the ground and subsequent adaptation needs to be undertaken (Wooder and Baker 2012). Such continuous improvement is also similar to *Kaizen* activity as the Plan-Do-Check-Act (PDCA) cycle. One of the typical

examples is the concept of Total Quality Management (TQM) which adopts the idea of continuous improvement through PDCA cycles.

(5) Sustain value

Compared to the beginning of the M-PESA service, there have been several improvements in its service quality. For example, to complete a real-time transaction, a new transaction system was developed. The new system realizes a number of processes (e.g., to establish a connection with the airtime interface, checking the authenticity of the transaction) to clarify the right of users to make requests, the validity of a users' account, the amount of credit, the limitation of transactions on a daily basis, and so on. Incremental innovations have been made to minimize these processes as much as possible for customer satisfaction. Another example is a dynamic mobile menu that displays information on a screen based on user accounts. In the older version of M-PESA, the menu was controlled by the SIM application. Therefore, different types of SIMs were distributed to different types of customers (customer or agent sellers). However, this was later changed to allow a user to use the same SIM. When the user first accesses the M-PESA service, the application will be configured, and the user will receive the appropriate handset menu for them. Wooder and Baker (2012) considered these improvements for better usability as incremental innovations.

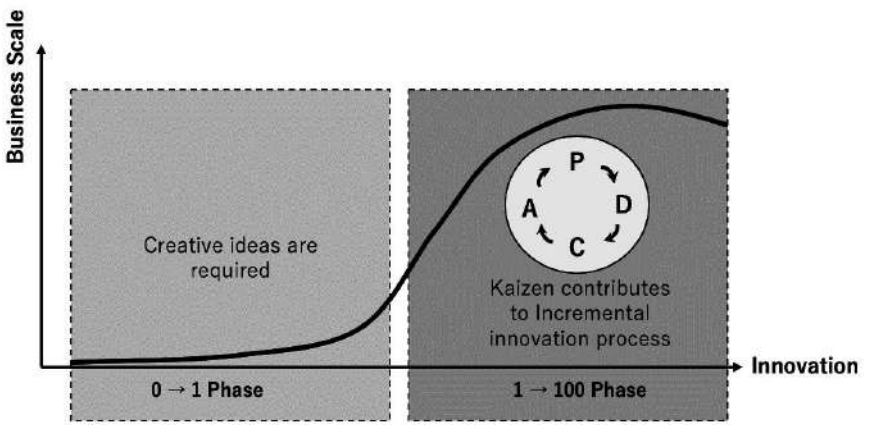
Elements of *Kaizen*

These processes are similar to what Japanese companies are good at based on *Kaizen*. That is, to improve the quality of products and/or services through the accumulation of small improvements in consideration of very minor detail to increase user satisfaction.

M-PESA may be considered an amazing innovation directed by a brilliant idea and technological breakthrough. However, it is 'a classic example of how the application of existing technology can create an innovative service' (Wooder and Baker 2012, 16). As described, the success of M-PESA seems to be built up from many small improvements. In the service innovation process of M-PESA, there are close similarities to *Kaizen* such as the importance of '*Gemba*,' removing '*Muda*,' small but quick actions with limited resources, and PDCA to brush up the usability of the service. In addition, similarity of the concept to *Kaizen* such as 'customer first' and 'value creation' is also observed over all the phases. There can be no innovation without creative ideas. But creativity is different from

innovation, in that the former is a proposal based on creative ideas, while the latter is a more practical and long process to materialize and commercialize the ideas (Chen and Yin 2019). Innovation is the proposal and commercialization of creative ideas, and *Kaizen* is able to contribute greatly to the materialization and commercialization of the creative ideas.

In addition, Wooder and Baker (2012) point out that during the life cycle of a service, the project organization and processes will need to change, from a fast-moving, lean entrepreneurial structure (and culture) to a more mature structure, to implement a fast-to-market service. This means that different competencies are required during the former and latter phases of the innovation process and that the combination of several (service and organizational) innovations created through *Kaizen*-type practices can help an organization to transform so that it can take suitable actions for sustaining value. Figure 6.8 shows this relationship between *Kaizen* and innovation.



Source: Adapted from Maru and Obara (2019).

Figure 6.8. Integral Relationship between *Kaizen* and Disruptive Innovation

Even if technologies are born, many of them are not connected to business. In general, it is said that about 80 per cent of technical information in America is found only in patents (Asche 2017) and that many of these patents are not practically applied in business. It is true that ideas which succeed as a business can be called 'innovation' while an innovative idea is not called 'innovation' if it is not successfully implemented. It seems

that innovation is the result of repeated trial and error with continuous effort and guts. In fact, Michael Joseph, who was the founding CEO of Safaricom Limited, mentioned the reason of M-PESA success as follows:

> It has to do with determination, dedication, passion, trust, brand loyalty, and, most of all, willingness to take the risk of rolling out a massive dedicated and disciplined agency network. (Joseph 2012)

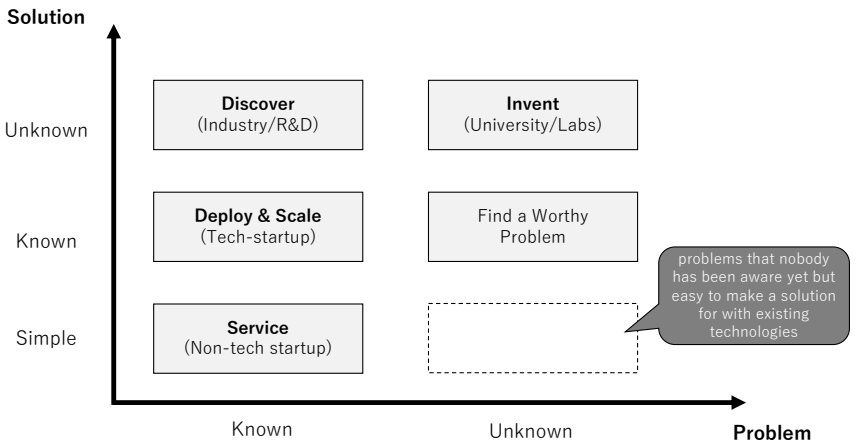
Even if a disruptive innovation like M-PESA seems to stem from a genius idea and technological breakthrough, it actually consists of *Kaizen*-type tremendous effort and continuous improvement (=incremental innovation) with strong leadership and passion.

3.4. Kaizen and innovation are not opposite but integral

As the case study of M-PESA shows, it is true that *Kaizen* contributes to not only incremental innovation but also disruptive innovation. Now let us think more deeply about where and how *Kaizen* can contribute to the entire innovation process. According to the service innovation framework, the first step is to 'Create value.' It is to discover the new needs of a market, in other words, to find out problems worthy enough to be solved. Although this is the very first phase of innovation, *Kaizen* has the potential to contribute to the strengthening of such insights.

Ramesh Rasker (2019) from the Massachusetts Institute of Technology (MIT) Media Lab posted on Facebook an interesting figure outlining the choices of innovators, to illustrate the kinds of problem-solving categories according to levels of solution and problem (Figure 6.9).

Certainly, there are economic and social problems in African countries; but there are also opportunities. The most important opportunity is that it is possible to solve local problems with existing technologies (Ochiai 2019). There are cheap and easy ways to utilize technologies. Many solutions can be created by using mobile and web applications; thus it is not necessary to build a complicated system from scratch. Cloud services provide various kinds of reliable platforms. Even if you are not good at programming, you can easily create web services. In this context, what is more important is to discover the unknown problems and visualize them so as to ideate solutions. The ability to find a worthy problem is critical.



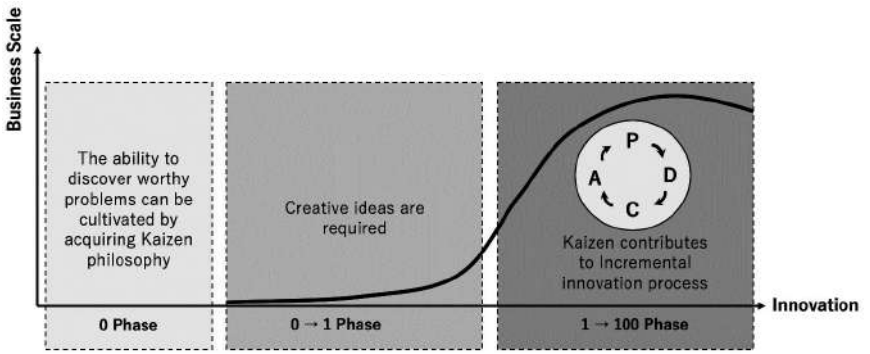
Source: Rasker (2019) with additional information by the author.

Figure 6.9. Choices for Innovators

One of the interesting examples is Haier, the Chinese household appliance manufacturer, whose products are widely available in both developing and developed countries. When Haier observed a farmer in rural China complaining that his washing machine had a problem when he was using it to wash his potatoes, they modified the washing machine design and this company now offers a washing machine that can be used for washing both clothes and potatoes. Furthermore, when Haier noticed that many rural households kept their washing machines outside, they manufactured another model from plastic material so as to prevent it from rusting. Such careful understanding and sensitivity to local conditions, different from its Western competitors, have contributed to Haier's global expansion (Schrempf et al. 2013).

The ability to discover local needs and worthy problems can be cultivated by learning the philosophy of *Kaizen* because it involves a series of quick actions to find out and change something problematic with limited resources. For example, basic *Kaizen* such as 'Repeating why five times' and '*Gemba* visit' are processes that staff can use to think deeply about inconvenient situations. This attitude allows them to find out users' unknown worthy problems and also to attempt to take action quickly without hesitation. Such insights and attitudes can be improved by acquiring *Kaizen* philosophy.

Considering the discussion about *Kaizen* and innovation so far, it is possible to say that *Kaizen* and innovation are not opposite but integral as Figure 6.10 illustrates. In other words, if innovation is not regarded as one-shot breakthrough, but as a series of continuous efforts from discovering a problem to brushing up an innovative idea to be a sustainable business model, *Kaizen* is an integral part of the innovation process.



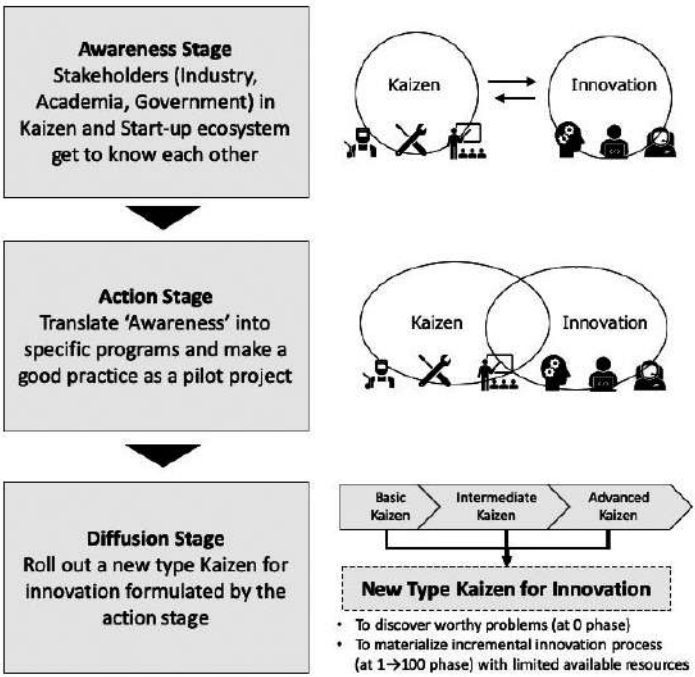
Source: Created by the author based on Maru and Obara (2019).

Figure 6.10. Integral Relationship between *Kaizen* and Disruptive Innovation (Full Version)

4. How to Harmonize the Effect of *Kaizen* for Innovation in Africa?

As discussed so far, it is fair to say that *Kaizen* can contribute to promoting innovation in Africa. Traditionally, *Kaizen* is seen as a set of tools for productivity improvement. However, there is more potential in applying *Kaizen* to promote the innovation process and its output. Finally, in this section, let us think about the last question, 'How to harmonize the effect of *Kaizen* for innovation in Africa?'

This section attempts to answer the abovementioned question by referring the concept of translative adaptation. Based on the translative adaptation approach shown in case studies of Chapter 2, a system to apply *Kaizen* for innovation is proposed which consists of three stages (Figure 6.11).



Source: Created by the author.

Figure 6.11. Approach to Apply *Kaizen* for Innovation

4.1. Awareness raising

First, awareness raising is necessary. It seems that there is a wide gap between stakeholders working or studying for *Kaizen* and innovation. Although some scholars and practitioners are aware of the coherence between *Kaizen* and innovation, there is a general notion that *Kaizen* and innovation is opposite as Table 6.3 shows.

While Chapter 2 indicates the importance of grass-root awareness raising and participation, in order to adapt *Kaizen* to innovation process, this awareness raising should aim at filling such gaps. In addition, as Chapter 2 mentions, the industry-academia-government partnership is also a key element. In this context, it is a good starting point that each stakeholder from industry, academia, and government should reconsider the relationship between *Kaizen* and innovation to create mutual understanding of this through a serious of meetings and discussions.

In addition to understanding the integral relation between *Kaizen* and

Table 6.3. Comparison between *Kaizen* and Innovation

	Kaizen	Innovation
1. Effect	Long-term and long-lasting but undramatic	Short-term but dramatic
2. People	Small steps	Big steps
3. Timeframe	Continuous and incremental	Intermittent and non-incremental
4. Change	Gradual and constant	Abrupt and volatile
5. Involvement	Everybody	Select few champions
6. Approach	Collectivism, group efforts, systems approach	Rugged individualism, individual ideas and efforts
7. Mode	Maintenance and improvement	Scrap and build
8. Spark	Conventional know-how and state of the art	Technological breakthroughs, new inventions, new theories
9. Practical requirements	Requires little investment but great effort to maintain it	Requires large investment but little effort to maintain it
10. Effort orientation	People	Technology
11. Evaluation criteria	Process and efforts for better results	Results and profits
12. Advantage	Works well in slow-growth economy	Better suited to fast-growth economy

Source: Imai (1986, p.25). Cited by Ohno et al. (2009).

innovation, one of the potential goals of mutual understanding is to set *Kaizen* as the necessary competency for innovation. The philosophy of *Kaizen* should be set as core of analog competency that everyone should learn. According to the World Development Report (WDR) 2016 *Digital Dividends*, the World Bank (2016) insists that analog foundation is becoming more and more important when utilizing digital technology. In 2016, the World Economic Forum released the report *The Future of Jobs* and describes in its website the top 10 necessary skills that the future workforce will need in the Fourth Industrial Revolution. The top 3 are: (i) Complex Problem Solving; (ii) Critical Thinking; and (iii) Creativity (World Economic Forum 2016). Similarly, the WDR 2019, *The Changing Nature of Work*, proposes the necessary skillset for workers in the digital era as follows (World Bank 2019, 3):

- Advanced cognitive skills such as complex problem-solving;
- Socio-behavioral skills such as teamwork; and
- Skill combinations that are predictive of adaptability such as reasoning and self-efficacy.

Though digital skills are important, how to utilize digital technology and for what purposes is more important. Since digital technology can replace human beings in conducting simple and easy tasks, what we should do is to find out and set up issues and problems to be solved in this way. While

AI does not do something unless a human being orders to do, human problem-solving skills should be one of the analog competencies required in the digital era. Without such competency, workers who just conduct ordered tasks will be replaced by AI. There is a close relevance between the above-mentioned skillset and the philosophy of *Kaizen*. *Kaizen* enables all workers to discover and solve problems. Even if it is a small activity during the implementation of a PDCA cycle, they are encouraged to have self-efficacy. Moreover, the *Kaizen* approach such as Quality Control (QC) circles fosters this sense of teamwork.

Many governments set national policy to promote innovation, including human resource development, with skillsets such as digital literacy, creativity, problem solving skills, and so on. WDR 2019 also insists on the importance of investment in human capital (World Bank 2019). Setting a curriculum to learn the philosophy of *Kaizen* from primary to higher educational institutions can be one of the valuable measures taken not only for productivity improvement but also for promoting innovation.

4.2. Action stage

The next step is to translate 'Awareness' into specific programs and make good practice as a pilot project. One of the potential programs is to support local start-ups to be a 'producer of innovation.'

Why do many governments pursue innovation? It is because innovation promotes economic growth and development. Currently, some of technological innovations, such as AI, IoT, 3D printing, blockchain, and so on are key drivers for development. In 2019, the African Development Bank issued the report, *Potential of the Fourth Industrial Revolution in Africa*, to grasp the current situation about the readiness for 4IR in Africa. The report also proposes three kinds of scenarios that Africa might consider in the 4IR context (African Development Bank 2019, 17):

- The first would be to maintain the status quo and miss out on the revolution, as Africa did for the previous three industrial revolutions;
- The second would be to bypass other stages of development and leapfrog directly to the 4IR. Even though this path is paved with challenges to be overcome, Africa has more to benefit than to lose from taking the necessary steps to unlock 4IR; and
- The third would be for Africa to become a producer of 4IR technologies.

> This path is, perhaps, too ambitious for Africa as a whole and not foreseeable in the medium term (i.e. within five years).

The report proposes recommendations for related stakeholders based on the second scenario because the first one should be avoided and the third one is too difficult to achieve at present mainly due to lack of human capital.

Yes, this seems a very reasonable choice. The third option, to be a producer of 4IR technologies (this means for Africa to invent brand-new technologies), seems to be very difficult since it requires much time and investment for R&D. However, why not aim at becoming a producer of innovative services with 4IR technologies? While it is very difficult to be a producer of 4IR technologies, it seems much easier to be a producer of innovative services. In comparison with the developed world, there are more local problems to be solved by a solution with existing technologies in Africa. Additionally, there are not so many legacy systems that would be an obstacle to the implementation of new systems in terms of physical infrastructure and regulatory systems in Africa. If local companies improve their capacity of problem-solving (including the ability to find out the worthy problems) and of business development to improve their business ideas to sustainable business models (from 1 to 100), they will be able to be the producer of innovative services with 4IR technologies.

Furthermore, there is potential that their solutions can be sold for developed counties as 'Reverse Innovation.' In the world, there are many examples of 'Reverse Innovation,' in which an innovative product or service created in developing countries are transferred to developed countries (Table 6.4). Africa has the potential to make such innovative services that can also serve people in developed countries.

However, who are the owners of such reverse innovation so far? The answer is not local companies but large multinational companies. For instance, in India, Philips and General Electric (GE) are among the top patent filers. In 2015-16, Philips filed the second highest number of patents by foreign firms (949), while GE was fifth (446) (Cory 2017). The term 'Reverse Innovation' is widely recognized by the book written by Vijay Govindarajan and Chris Trimble (2012). This book introduces many examples of reverse innovation. But, most of them are made by big companies such as GE, Proctor and Gamble (P&G), EMC Corporation,

Table 6.4. Examples of Reverse Innovation

Company	Overview
General Electric (GE) Healthcare	While the price of a general electrocardiogram (ECG) machine is from 3,000 to 10,000 USD in developed countries, GE Healthcare produced the portable ECG (MAC400) for 40,000 Rs (about 500 USD) by squeezing the features in India. It was also sold to rural hospitals in America.
Proctor and Gamble (P&G)	P&G produced a new sanitary napkin (Naturella), which has different characteristics from P&G's major product in developed countries. But it was successfully sold in Mexican markets and in more than 30 other countries.
Unilever, Nestle	Unilever and Nestle discovered that many customers in developing countries could not afford to buy standard sizes of products such as coffee, toothpaste, or shampoo, but could afford to buy a single-use-package with cheaper price. The same approach also works well for low-income consumers in developed countries.
Philips	Philips developed a software solution named 'Mobile Obstetrics Monitoring (MOM)' It allows community healthcare workers to conduct antenatal risk stratification, receive diagnostic assistance, and assess a patient's progress via a mobile device to improve maternal care in rural areas. It was also used in Indonesia and is expected to be sold in other countries.
Coca-Cola	Coca-Cola developed a solar-powered cooler box called the 'eKOCool' to sell Coca-Cola in rural India, where electricity supply is unstable. eKOCools were sold in India and around the world in many situations where electricity is not available, such as in the case of disasters and outdoor activities

Source: Elaborated by the author, based on Govindarajan and Trimble (2012), Ramamurti (2012), Sengupta (2012), and Cory (2017).

Nokia, and so on. Even the most famous innovation in Africa, M-PESA, was initiated by British telecom giant, Vodafone, which has a 40 per cent share of Safaricom. Although the poor people in developing countries (Base of the Pyramid) can receive good-enough products and services which solve their problems, who get the most profit? The answer is big companies in developed countries.

Similarly, in Africa, some innovative services are also managed by foreign companies such as ZIPLINE from America and Babylon Health from the UK in Rwanda. The African market has a good advantage in generating innovative services because of plenty of needs, no strict regulation, and no legacy system compared to developed countries. Large multinational companies are also interested in collaboration with African start-ups. For example, a research project supported by the United States Agency for International Development (USAID), IBM Research, SweetSense, Inc. and other partners has been implemented in Kenya and Ethiopia to utilize new technology such as IoT sensor and blockchain models for underground

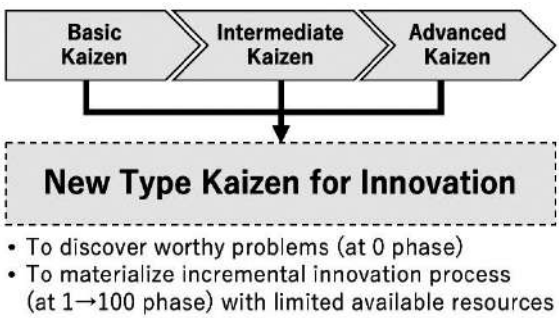
water management. IBM has a strategy that the experience in Africa will also be used for ground water management in California (IBM 2019).

This situation seems welcome at a glance. But, is this the best scenario for Africa? Of course, collaboration with multinational big companies is one of the possible strategies to secure the necessary investment and financial resources to boost local economies. Thus, many policy documents recommend generating foreign direct investment. One of the goals of start-ups is buy-out to such big companies. However, it is also necessary to incubate local enterprises strong enough to elaborate their services to scale up on their own so that they will be able to expand their market toward other countries including developed ones in the long run. It should be local companies that can find out local problems that multinational huge companies have not become aware of yet, but are easy to make a solution for with existing technologies. 'Reverse Innovation' should be handled by African local companies not by multinational big companies.

Nevertheless, there will be still a lack of capacity in local start-ups to elaborate their services to be sophisticated enough to scale up even if they have innovative business ideas. To realize the best scenario, governments should implement human resource development as well as capacity building for start-ups. Although many African governments have both a policy to strengthen national innovation ecosystems and to improve the productivity of SMEs (some countries have already introduced *Kaizen* for this purpose). However, both are not closely integrated. *Kaizen* should be integrated into national innovation ecosystem initiatives. For example, the innovation process consists of: (i) finding problems; (ii) applying technology; and (iii) brushing up. Here, (ii) could be done by utilizing the technology and funds of large multinational and/or foreign companies. But (i) and (iii) should be led by African companies; (i) can be promoted by improving the core competency including *Kaizen* philosophy as mentioned in section 4.1. Then, (iii) is incremental innovation for customizing and localizing technologies by developed countries to fit the local context, and *Kaizen* can be effectively utilized. Referring to Chapter 2, possible activities in the action stage are the establishment of training and consulting programs for start-ups and to implement some trial projects to apply them with intended stakeholders. JICA may be in a good position to support such a pilot program to formulate good practice in innovation creation by integrating *Kaizen* and national innovation ecosystems because JICA has implemented projects in both fields in several African countries.

4.3. Diffusion stage

Thirdly, the final step is to roll out good practice and lessons learned from the action stage. Through communication and co-working for some trial projects between the stakeholders of *Kaizen* and innovation, there may be ideas about a new type of *Kaizen* for innovation, within which new indigenous standard training and consulting programs can be elaborated (Figure 6.13). For instance, it is not reasonable to teach all the practical methods of *Kaizen* for promoting innovation because some of them are too specific for the manufacturing process at the factory level. For example, Toyota established the Kanban and Just in Time systems based on the philosophy of *Kaizen*, which are suitable for manufacturing companies where the improvement of the production process is critical. For different business fields and contexts, there should be customized and localized *Kaizen* methods. A new type of *Kaizen* may be formulated from a variety of methods and tools among basic, intermediate, and advanced *Kaizen*.



Source: Created by the author.

Figure 6.13. Formulation of New Type *Kaizen* for Innovation

At this stage, what is important is not only to formulate new types of *Kaizen* but also to ensure that there is national commitment and appropriate institutional infrastructure to disseminate them to develop the capacity of start-ups to promote innovation. As Chapter 2 indicates, national commitment and institutional infrastructure are indispensable.

5. Conclusion

5.1. Summary of the discussion

This chapter reconsidered the relationship between *Kaizen* and innovation

in the context of Africa. There are different opinions related to whether and how *Kaizen* promotes innovation. This chapter revealed that the most suitable type of innovation in Africa is the service, incremental, and disruptive innovation. Then, it discussed how *Kaizen* can contribute to promoting such innovation in two ways. First, disruptive innovation also involves incremental innovation within itself, and *Kaizen* contributes to this incremental innovation process during the period of business development. Second, the first step of innovation is to discover worthy problems and this ability can be cultivated by acquiring the philosophy of *Kaizen*. So, we can conclude that *Kaizen* and innovation are not opposite but integral to each other. Finally, the way to harness the effect of *Kaizen* for innovation in Africa was proposed based on the translative adaptation approach.

5.2. Way forward

In Japan, there are more companies that have lasted over 50 years than in any other country. These companies have been continually transforming to accommodate necessary changes required by the world, such as change in economy, society, and technology. The philosophy of *Kaizen* is not only to respond to changes but also to influence approaches to change such as new ways of thinking, ways of organizing and operating production, marketing, managing business, and so on. It is one of the useful ways for companies as well as nations to evolve and develop as Charles Darwin's theory of evolution indicates:

> It is not the strongest of the species that survives, nor the most intelligent, but the one most responsive to change. (Charles Darwin)

Recently, the emerging technologies, especially the 4IR technologies, are rapidly developing. Africa has advantages in utilizing such advanced technologies because there is no legacy system and no strict regulations that are obstacles to the introduction of new technologies. Reviewing the dissemination pace of mobile phones and mobile money, Africa has the potential to be an early adapter in utilizing new technologies in new ways. In fact, some African countries attract western companies as a 'sandbox.' In Rwanda, for instance, the government encourages digital services, and then the regulatory testing environment (which is called 'sandbox') is provided for start-ups and companies where experimental activities are

allowed. Since African countries have various social issues and a lack of public and private services, there are more business opportunities than in developed countries.

Africa is the place where more and more businesses will be developed. Even if new technologies are invented in developed countries, they may not benefit those living in developed countries so smoothly. This is because they have legacy systems and obstacle regulations even though their well-developed infrastructure and available resources may be advantages for developed countries when trying new ideas. Additionally, they do not have many worthy 'sexy' problems to be solved. Please imagine which one is more worthy, to develop a new service to squeeze profit for the rich in Japan, or to provide better medical treatment, education, agricultural productivity, and so on in Africa. Considering the earth as one ecosystem, Africa can make the most use of her advantages and benefit from new technologies as a place of such worthy problems, in other words, new business opportunities.

However, without human resource development to equip the people with ability to discover worthy problems and ideate solutions, most of the profit of new businesses is taken up by giant multinational companies. In the near future, it will be necessary for Africa to get out of its current position as a 'sandbox.' To learn and digest the philosophy of *Kaizen* as well as Japanese companies' experience of long-term survival can contribute to such human resource development. *Kaizen* is generally considered to be methods for productivity improvement. However, it has the potential to be used widely for human resource development and to lead innovation as well as methods for start-ups to promote indigenous innovation. Innovation is not created by PhD holders only but by the people in the field, and investing in R&D is not the only way to promote innovation. It is important to consider placing *Kaizen* into the national innovation policy, especially the philosophy of *Kaizen* as one of the necessary competencies for innovative personnel.

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CHAPTER

7

Development of Non-cognitive/ Socio-behavioral Skills through *Kaizen* in the Era of Digital Transformation

Kimiaki Jin

1. Introduction

In previous articles regarding *Kaizen* promotion in Africa, the author explored the relationships between technical capacities and core capacities in the context of capacity development theory and emphasized the positive effects gained from developing core capacities through practice (Jin 2018, 2020). Core capacities are the central force in determining an organization's ability to handle issues such as the discipline, will, attitude, leadership, and management capability needed to produce desirable results through the use of technical capacities, according to the capacity development theory promoted by the Japan International Cooperation Agency (JICA) (JICA 2008). This theory was developed in line with the capacity assessment theory of the United Nations Development Programme (UNDP) (UNDP 2008).

The discussions on core capacity development cover issues found at both individual and organizational levels. In addition to the organizational core capacities, at the individual level arguments on skill development can provide more specific frameworks that refer to non-cognitive skills, socio-emotional skills, and socio-behavioral skills. These are also called soft skills and are similar in concept to the core capacities of an individual. The author also argues that *Kaizen* activities have an impact on the mindset of the people who practice them (Jin 2018, 2020).

These non-cognitive skills and mindsets may play important roles in skill development and task management. In this chapter, the relationships between core capacities and non-cognitive skills, how these capacities/ skills can be developed by *Kaizen* practice, and how they affect the use of new technologies and the creation of new ideas in digital transformation are discussed.

2. Review of the Arguments on Non-cognitive Skill Development

2.1. Non-cognitive skills

Before going into details, definitions of capacity, capability, and skills are briefly discussed. According to the Merriam-Webster Dictionary, capacity is the potential or suitability for holding, storing, or accommodating, or an individual's mental or physical ability. Capability is the quality or status of having attributes (such as physical or mental power) required for performance or accomplishment. Skill is a learned power of doing something competently, which means it is something that can be developed. Skill is part of capability and capability constitutes capacity in a simplified sense, although there are some exceptions. Therefore, discussions on skills can illustrate details of the concepts of capacity and capability.

Skills are largely divided into cognitive skills and non-cognitive skills. Cognitive skills include literacy, numeracy, and problem-solving skills. Non-cognitive skills are, according to Kautz et al. (2014), 'the personal at-tributes not thought to be measured by IQ tests or achievement tests. (13)' They include the attributes named as soft skills, personal traits, non-cognitive abilities, character skills, and socio-emotional skills in non-cognitive skills.

Among the arguments on skill development, importance of non-cognitive skills has been increasing although there are several definitions of non-cognitive skills. Zhou (2016) reviews these definitions and classified them in three skills that are: (i) perseverance/GRIT; (ii) self-control; and (iii) social skills. In his reviews, by quoting some references, he explains that perseverance/GRIT is a trait that helps us to meet long-term or higher-order goals in the face of challenges and setbacks. Self-control is the capacity for altering one's own responses, especially to bring them into line with standards such as ideas, values, morals, and social expectations, and to support the pursuit of long-term goals. Social skills are the ability to establish compatible and effective relations with others, or an ability to use appropriate social behaviors that are pleasing to others in interpersonal situations. However, his conclusion is that 'there's no standard established to track non-cognitive skills development in different stages. Non-cognitive skills assessment cannot be used as a tool to demonstrate accountability (Zhou 2016, 10).

Mindset is a mental inclination, tendency, or habit of a person. Carol Dweck (2006) published a book titled *Mindset* in which she claims that there are two different types of mindsets of people. One is a fixed mindset, and another is a growth mindset. People with fixed mindsets believe that the abilities of people are fixed and fundamentally unchangeable. On the other hand, people with growth mindsets believe that abilities can be developed and improved through one's own effort and knowledge of the environment. She emphasizes that people's attitudes toward learning, practicing and even relationships with others are affected by these mindsets. That means people with growth mindsets can strengthen perseverance/GRIT and self-control and overcome their own failures better than those who have fixed mindsets.

Daniel Pink published a book about motivation (Pink 2009) and argues that self-direction is at the heart of our intrinsic motivation towards creativity. He refers to the self-determination theory of Deci and Ryan and considers that 'human beings have an innate inner drive to be autonomous, self-determined, and connected to one another' (7th para. of Chapter 3). He also categorizes Motivation 2.0 that is fueled by extrinsic desires (external rewards) more than intrinsic ones and that Motivation 3.0 is fueled by intrinsic ones. His conclusion is that autonomy leads to engagement that strengthens Motivation 3.0 for higher commitment, growth, and creativity.

GRIT is known as a positive, non-cognitive trait on an individual's perseverance of effort in psychology. Duckworth (2016) points out that GRIT is combination of passion and perseverance that makes high achievers special. GRIT is mutable, not fixed and growable. And GRIT can be developed through two ways; one is by own efforts, and another is by putting oneself among people who have strong culture of GRIT. Interestingly, she supports the interaction between *Kaizen* and strong GRIT in her book. She writes:

> Kaizen is Japanese for resisting the plateau of arrested development. Its literal translation is: "continuous improvement." A while back, the idea got some traction in American business culture when it was touted as the core principle behind Japan's spectacularly efficient manufacturing economy. After interviewing dozens and dozens of grit paragons, I can tell you that they all exude

> kaizen. There are no exceptions. (Duckworth 2016, 4th para. of Chapter 7)

The World Development Report published in 2015 *Mind*, *Society*, and *Behavior* (World Bank 2015) focuses on behavioral economics. The report shows that 'Policies that expose individuals to new ways of thinking and alternative understandings of the world can expand the available set of mental models and thus play an important role in development' (13). It further says that 'Automatic thinking, social thinking, and thinking with mental models also play a large role in worker motivation and the investment decisions of farmers and entrepreneurs' (16). A part of the conclusions is that 'So is the realization that a more complete consideration of the psychological and social factors involved in decision making may offer 'low-hanging fruit' – that is, policies with relatively large gains at relatively low cost' (20).

These arguments illustrate that academics in education, behavioral science, business management, and behavioral economics are showing increasing interest in non-cognitive skills that are argued using psychology and mental models.

2.2. Digital technologies and human skill

The impact of digital technologies such as information technology (IT) and artificial intelligence (AI) on job opportunities are analyzed and discussed in many papers in recent years. Frey and Osborne (2013) conclude that 47 per cent of workers in the United States (US) are in an occupation at the risk of substitution by digital technology in the next 10 to 20 years. However, Arntz et al. (2016) re-simulate the impact based on the tasks of occupation instead of the occupations and conclude that only 9 per cent of jobs in the 21 member countries of Organization for Economic Cooperation and Development (OECD) can be automated. Regarding the relation between tasks and occupations, an occupation consists of jobs, a job consists of tasks, and a task matches with the specific skills of people. In this sequence, skill development can contribute to the performance of tasks and task performance secures jobs even in the environment of digital transformation (JICA and JIN Co. 2021).

Meantime, several writers have pointed out the importance of non-cognitive skills in the coming digital transformation age. For example, the

Asia Development Bank Institute has published a report that comments as follows:

> The learning outcomes in the present and future context require not only visible cognitive knowledge and skills to be acquired by learners but also non-cognitive ones, such as interpersonal, problem-solving, critical thinking, conflict-managing, and emotion-managing skills; these are often referred to as soft skills or 21st century skills. (ADBI 2019, viii)

Banga and te Velde published a series of papers regarding the impact of digital technologies in developing economies and write as follows:

> In the context of the digital economy, the study identifies core skills that can directly increase competitiveness of workforce, and ancillary skills that either remain relevant or support the digital economy, but do not directly contribute to it. Core skills that need to be developed include: a) job-neutral digital skills; b) job-specific digital skills; and c) job-neutral soft skills such as communication, management, analytical and critical thinking and creativity. Ancillary skills that can support the digital economy include: a) physical skills that require dexterity; and b) socio-emotional and interpersonal skills for service and sales occupations.' (Banga and te Velde 2018, 29)

The World Development Report 2019 *The Changing Nature of Work* argues similar issues. The report states 'three types of skills are increasingly important in labor market: advanced cognitive skills such as complex problem-solving, socio-behavioral skills such as teamwork, and skill combinations that are predictive of adaptability such as reasoning and self-efficacy' (World Bank 2019, 3). Socio-behavioral skills mentioned in the report are: 'teamwork' (3), 'managing and recognizing emotions that enhance teamwork' (23), 'positive attitude and good communication skills, ability to work independently and as part of a team' (23), 'an aptitude for teamwork, empathy, conflict resolution, and relationship management' (50), 'creativity and curiosity' (70), 'commitment to work' (72), and 'teamwork, resilience, self-confidence, negotiation, and self-expression' (80). The report says that socio-behavioral skills are acquired

in one's early childhood and shaped throughout one's lifetime (10).

These arguments are created because routine tasks using middle-level skills such as machine operation, clerical work, and tasks in assembly-lines can be easily codified and can be performed by digital technologies but tasks related to non-cognitive skills and socioemotional skills are, in addition to high-level cognitive skills, less likely to be performed by digital technologies (Banga and te Velde 2018).

JICA and JIN Corporation[1] (2021) conducted a study of the firm level impact of digital technologies in Ghana and South Africa. The study finds that, in the current situation, firms introduce digital tools and systems for (i) accounting and administration; (ii) marketing and sales; and (iii) IT tools as major technologies. They expect to introduce tools/systems for (iv) manufacturing technologies and (v) products management within three years. And the study observes that, as consistent with the theory of capital-and-labor-productivity-optimization-behavior and local business norms, almost all managements of the 37 firms surveyed do not layoff labor when they introduce digital technologies. Instead, the management reallocate to other tasks in the intrafirm value-chain. In this sense, the skills of labor matter in the adjustment. The outline of the survey and its findings are explained in the next section.

Table 7.1 shows the comparison between core-capacities, non-cognitive skills, and socio-behavioral skills. There are several subskills that are common in these skill definitions although no standard definitions of them exist.

Considering these arguments, how to strengthen the non-cognitive skills that include mental and psychological factors of people is an interesting and practical issue to be discussed, although definition of non-cognitive skill is still not truly clear. This study focuses on Zhou's classification and the components of each class, namely (i) perseverance/GRIT: passion and motivation; (ii) self-control: ideas, values, learning attitude, creativity, and curiosity; and (iii) social skills: teamwork, communication, leadership, and other interpersonal skills. Perseverance/GRIT and self-control seem to

[1] The name of the consulting firm who conducted the study is the JIN Corporation coincidentally. The author of this chapter does not have any personal relationships with this Corporation.

Table 7.1. Comparison of Core Capacities, Non-cognitive Skills, and Socio-behavioral Skills

Core capacities argued by Jin (2020)	Non-cognitive skills by Kautz et al (2014)	Non-cognitive skills by Zhou (2016)	Soft and its ancillary skills by Banga & te Velde (2018)	Sociobehavioral skills by World Bank (2019)
		• **Perseverance/ GRIT** (passion, motivation)		• Resilience • Self-confidence
• Will • Mindset • Attitude • Learning attitude	• Soft skills • Non-cognitive attributes	• **Self control** (ideas, values, morals, social expectations)	• Analytical and critical thinking	• Creativity • Curiosity
• Management capabilities	• Personal traits • Character skills		• Management • Creativity	• Emotion
• Leadership • Teamwork • Communication	• Socio-emotional skills	• **Social skills** (ability of establishing relations with others, ability to use appropriate social behaviors in interpersonal situations)	• Communication • Socio-emotional and interpersonal skills	• Teamwork • Communication • Self-expression • Negotiation • Empathy • Relationship management, • Conflict resolution

Source: Created by the author.

have similarities and are overlapping. The interpretation is that former is a trait used to go through challenging conditions and the latter is one that includes broader values. Development of non-cognitive skills is mainly argued in the context of education. And many literatures say that early child education is an important process for developing non-cognitive skills (World Bank 2019). However, the importance of how to develop the non-cognitive skills of adults who have already started their career should be stressed. The adults also have to adopt new skills and perform new tasks in the coming digitalized era.

3. Analysis of Impact of *Kaizen* on Skill Development

3.1. Kaizen mindset

Kaizen is a well-known concept of quality and productivity improvement (QPI) with a set of systems, methodologies, and tools. Development of this concept started with learning Statistical Quality Control methods and applying data based on a scientific approach. Collection of data and

analysis of cause and effect are basics of the approach. Identification of a vital cause that can bring total optimization, applying countermeasures, and monitoring key performance indicators (KPIs) are some of standard approaches of *Kaizen*. Through these practices, workers and management can learn technical skills, such as accurate data collection and logical ways of thinking, that we call learning by doing. Therefore, there is no doubt that practicing *Kaizen* contributes to technical skill development. But, how about soft skills?

Masaaki Imai (2012) shows that, in contrast to innovation, *Kaizen* emphasizes human efforts, morale, communication, training, teamwork, involvement, and self-discipline, and is a commonsense, low-cost approach to improvement.

According to the *Kaizen Handbook* published by JICA (2018), the approach is a set of tools and methodologies for QPI that have the characteristics of: (i) participatory; (ii) continuous; (iii) data based and scientific; (iv) economical or efficient; and (v) universally applicable practices in their implementation process. *Kaizen* can also produce many outputs/outcomes in the workplace according to the Handbook, such as: (i) improving quality, productivity, and service level and reducing cost and delivery time; (ii) changing the mindset of managers and workers; (iii) fostering personnel who can think and act by themselves; (iv) building teamwork and enhancing communication; (v) creating strong organizations that keep evolving and developing; and (vi) creating safe and comfortable work environment (JICA 2018, 1-1). Although the outputs/outcomes need to be examined, measured and analyzed because some of the descriptions are not based on academic research findings, they are aspects drawn from shared understanding among practitioners through their long working experiences. We may say they are based on the tacit knowledge of practitioners.

Of the above six outputs/outcomes, (i) improvement of quality and productivity has been verified by various research activities that have used a series of KPIs such as cost of production, defect rate, and/or the lead time of products. The safe and comfortable work environment listed as (vi) is also monitored by the rate of accidents and the voices of workers through interview questionnaires or discussion. However, the creation of a strong organizations that keep evolving and developing as listed in (v) is an ambiguous explanation that is difficult to measure and verify.

This may relate to the continuation of *Kaizen* practices, but may only be examined if we can monitor the differences in the survival rate of with or without *Kaizen* organizations under changing business environments caused for example by the COVID-19 pandemic or digital transformation.

The remaining three outputs/outcomes, namely: (ii) the changing mindset of managers and workers, (iii) fostering personnel who can think and act by themselves, and (iv) building teamwork and enhancing communication, are related to effects on individuals. These effects are considered as changes in non-cognitive skills, as mindset and 'think and act by themselves' relate to perseverance and self-control, and 'teamwork and communication' relate to social skills. Although these traits are not easily monitored and evaluated as Kautz et al. (2014) write - 'not thought to be measured by IQ tests and achievement tests, (13)' improvement of these skills are often pointed out by *Kaizen* practitioners. In addition, JICA's *Kaizen Handbook* declares 'the core value of '*Kaizen*' is placed in creating the attitude shared among all members of an organization who consistently pursue advanced levels of quality and productivity, and not just applying its management method' (1-1). This is the shared attitude to consistently pursue an advanced level *Kaizen* mindset.

3.2. Cases in Ethiopia

In Ethiopia, the author conducted a questionnaire survey in 2018 to analyze the impact of *Kaizen* and collected 38 replies[2] from 33 *Kaizen* promoting companies/organizations. Respondents to the survey are *Kaizen* leaders or the management of companies/organizations. In response to the question on what kind of positive changes, if any, have been created by *Kaizen* activities, 33 respondents selected the mindset of workers. This was followed by material flow (30 respondents) and efficiency of machinery (25 respondents), based on multiple choice answers (Jin 2020). Out of the 33 who chose the mindset change, 29 selected improvement of teamwork, 25 selected communication and 23 selected learning attitudes as their breakdown of mindset change.

In the same survey, 22 respondents answered that they observed spillover effects outside of their company such as at the residences of their workers

[2] In a large company/organization, *Kaizen* officers in different departments who organize activities for different issues and timing replied.

and at the workplaces of business partners. One concrete case of spillover effect is observed in a sugar factory in a large-scale plantation in Ethiopia. The frontline workers who were impressed by the participatory nature of the approach, particularly 5S and the activities of the Kaizen Promotion Team (KPT- the customized version of Quality Control (QC) Circle[3] in Ethiopia) at their own workplace started organizing communal cleaning activities at their residential area and tackling local crime through community policing (Jin 2020, 102-03).

This case shows an interesting spillover of practices because the technical skills that workers obtain through 5S and *muda* elimination at the workplace are not directly related to the cleaning activities of the community, such as cutting grass and cleaning out mud from a drain but are related to the value of the living environment and the initiative to promote collective actions. These communal activities in the residential areas require a mindset oriented towards creating positive change, promoting collective work, and communication and teamwork. We may assume that KPT activities can influence the organization of collective work because both require communication and consensus building among members in addition to the move towards improvement. Therefore, measurement of the spillover effect of *Kaizen* in the activities that are not directly-linked with technical/cognitive skills can show effects on non-cognitive skills of workers, such as will and motivations, since the technical and cognitive skills are not triggering factors of the activity.

3.3. Kaizen and the COVID-19 pandemic

Regarding responses on the impact of the COVID-19 pandemic, there are many countermeasures applied in infection control by the government, public and private organizations as well as by individuals. The government introduced lockdown and restrictions on the movement of people. Many organizations have introduced work shifts, remote work, and extra hygienic practices of handwashing, wearing masks, and keeping social distance from their own workers and customers in the workplace. The effectiveness of these measures depends on whether people are disciplined and keep rules. For the introduction of new workstyles such as remote work and new production systems, how people are willing to

[3] QC circle is a small group activity formed at the workplace to improve work at the production floor.

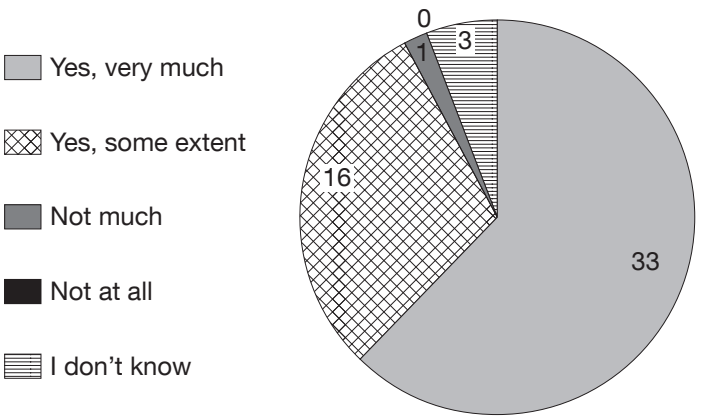
accept new systems is a key variable.

At the occasion of the online Africa Kaizen Annual Conference held in September 2020, the author collected replies to a questionnaire regarding the effectiveness of *Kaizen* activities for COVID-19 responses from 53 participants at the conference. In response to the question asking if *the approach* is effective in overcoming challenges caused by the pandemic, 33 selected 'yes-very much,' 16 selected 'yes-some extent,' 1 selected 'not much,' and 3 selected 'I don't know,' out of the five choices[4] (see Figure 7.1 (1)). In response to a question asking how a *Kaizen*-type mindset influences coping with COVID-19, 26 respondents made descriptive comments that included multiple factors. Among these 26 respondents, 12 mentioned a mindset toward proactiveness to find/accept new things is useful, followed by 9 who mention the communication system of organization and skills of individuals are positively influenced. 6 respondents refer to a mindset to keep rules/discipline, another 6 picked teamwork, and 4 mentioned that leadership is influential (see Figure 7.1 (2)).

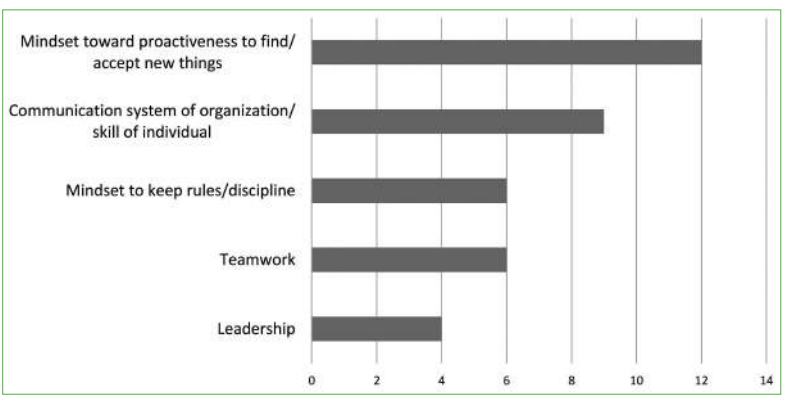
One of the key arguments presented by a Japanese *Kaizen* consultant in the form of video lecture series entitled: 'How to cope with COVID-19 by utilizing *Kaizen*' is that there is a chance to turn adversity into opportunity (JICA and AUDA-NEPAD 2020). On one hand, it encourages managements and workers to review their own costs of operation and reduce waste to make the company more resilient in crisis situations. On the other hand, it is important to advise audiences to analyze changing demand in the market that a company wants to target, examine own business capacity and potential, then try to identify potential products/services that the company can produce. By connecting own strength of value creation with the identification of potential demand in a market, the marketing story can be visualized. In actual practice, it is also important to proceed properly with verification by applying the PDCA cycle. Problem analysis, visualization, and verification require high-level cognitive skills consisting of data collection and analysis. This may be called a problem-solving skill that is a complex of literacy, numeracy, and data analysis. However, there are also of non-cognitive skills such as communication, self-control to proactively, and perseverance to move to new frontiers in adverse circumstances.

[4] Choices are 'yes-very much,' 'yes-some extent,' 'no-not much,' 'no-not at all,' and 'I don't know.'

(1) Answers to the Question 'Is *Kaizen* effective in overcoming challenges caused by the COVID-19 pandemic?'



(2) Multiple Descriptive Answers to the Question 'How does the *Kaizen*-type mindset influence coping with COVID-19?'



Source: Author.

Figure 7.1. Effectiveness of *Kaizen* Activities for COVID-19 Response

3.4. Kaizen and digital transformation

Digital technologies are easily to copy and quick to expand without degradation while analogue technologies are time consuming to replicate and are degraded through copying. The changing nature of work under technological innovation demands that people develop IT-related skills as well as non-cognitive/socio-behavioral skills. The combination of

digital technologies by machine and analogue skills of humans will be the mainstream of job systems in the era of digital transformation. Digital technologies can accelerate the speed of change by using mass data and information and analogue skills of people can improve the quality of products and services through communication and customization.

If we interpret the above argument in the context of *Kaizen* promotion in developing countries, the cognitive skills relate to methods for utilizing IT and AI in *Kaizen* processes, such as electric *Kanban*, digital inventory and online QCCs. The non-cognitive skills are those that cannot be replaced by IT and AI because of the difficulty to measure, calculate, and simulate them by algorithms in digital technologies. These non-cognitive skills may create new jobs for people that can be a more human oriented value addition in combination with digital technologies, such as the improvement of products/services based on feedback from customers to improve customer satisfaction and promote custom-made production.

For example, a possible story is furniture production. Banga and te Velde (2018) suggest that the cost of robots in furniture manufacturing will be cheaper than that of labor in Kenya in 2033 and in Ethiopia in between 2038 and 2042. This means the craftsman in the furniture industry in these countries may lose their jobs if they cannot create further added value in furniture. One possibility to respond may be made-to-order furniture based on customer request and feedback. Currently most furniture available in the market is ready made. However, if communication networks are well developed, most furniture may be custom-made in order to add value to their business. Creation of these new ideas and values will rely on the social skills of workers that cannot be replaced by digital technologies but can be complementary to them. And the actual creation of new products and services requires tireless efforts of trial and error based on strong perseverance/GRIT. That is a reason why non-cognitive skills are more and more important in the digital era.

Regarding the impact of digital technologies, the JIN Corporation interviewed a total of 37 companies in Ghana (22 companies) and South Africa (15 companies) based on a questionnaire about firm behavior in the past and future (in the coming three years) (JICA and JIN Co. 2021). The survey was conducted from late 2020 to early 2021, in the midst of the COVID-19 pandemic through remote connection. Managers of the companies responded that workers in their company have been replaced

or will be replaced by the introduction of digital technologies but not dismissed. The workers are assigned to new posts in the companies and perform new tasks. Because the utilization of digital technologies requires investment, almost all firms perform at higher productivity levels and expand their business activities. In this context, the digital technologies show a substitution effect for workers but also complementary effects to expand businesses that creates new jobs. However, the actual profitability of each firm depends on competitiveness in the market of respective products/businesses. If the market is not competitive and has room for further expansion, the company grows its own business. If the market is highly competitive, it is not easy for the company to expand its own business.

Under such circumstances, the company makes efforts to improve the quality of products to improve competitiveness or develop new products and enter into new markets. Through these efforts, most of the interviewed companies identified complementary effects between the digital technologies and job opportunities. In addition, most of the managers of these companies emphasize the importance of human resources development. Because of rapid digitalization, the companies increasingly want to secure high-skilled and experienced workers. Because the supply of such workers in the local labor market is not always sufficient, the company wants to keep labor and develop their sense of belonging to the company. Therefore, even under the COVID-19 pandemic, the managers sent messages to the workers that the company care about them and that they will not be laid off (JICA and JIN Co. 2021).

These observations imply two issues in relation to *Kaizen*. One is the skill development of workers. Through *Kaizen* activities, workers are encouraged to acquire multiple skills as one of the basic approaches where a skill matrix that indicates the skills each worker has in the workplace can be observed. Through multi-tasking based on multi-skills, workers can support the productivity performance of each task mutually and troubleshoot at workplace level. And such multi-tasking helps labor adjustment under the impact of digitalization. Another relates to the nature of the bottom-up and participatory approach of such activities. Practitioners know that management do not make surplus workers redundant when they are generated by its activities because it obviously kills motivation and the sustainability of the activities. The right way of labor saving is to pick out excellent workers from the production floor

and assign them to more creative tasks (Jin 2020, 107). Thus, the *Kaizen* approach seems effective in accommodating the introduction of digital technologies.

4. Discussion

4.1. Kaizen and non-cognitive skills development

Based on Zhou's classification of non-cognitive skills that consists of perseverance/GRIT, self-control, and social skills, this chapter now discusses how non-cognitive skills can be developed through *Kaizen* practices.

First, social skills that are defined as the ability of establishing compatible and effective relations with others, the ability to use appropriate social behaviors that are pleasing to others in interpersonal situations are reviewed. Although *Kaizen* is defined as the tools and methodologies for QPI, one of the essences of the approach is human resource development as many practitioners and researchers point out (Imai 2012; JICA 2018; Garcia-Alcaraz et al. 2018). Participatory practices that are incorporated into the tools/methodologies such as 5S and QC circle activities influence the development of social skills. The QC circle is a typical small group activity based on collective actions. 5S is also based on group work that starts by asking individuals to identify items to be disposed of but proceeds to discussion among the group on what item should be finally discarded. And it ends with developing consensus on how to keep the workplace in good condition among participants in the 5S process. Hence, through these practical experiences of group work and communication with coworkers, social skills can be developed.

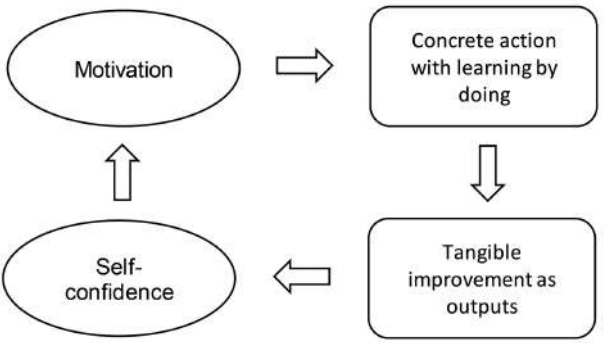
Second, self-control is defined as the capacity to alter one's own responses, especially to bring them into line with standards such as ideas, values, morals, and social expectations, and to support the pursuit of long-term goals. This self-control may relate to the mindset argued by Dweck (2006). If we can change our mindset from a fixed one to a growth one, we can be more skillful with self-control. Among others, the suggestions system is one of practices that can influence the development of mindsets. Imai writes in the revised edition of his book *Gemba Kaizen* as follows:

> The *suggestion system* functions as an integral part of individual-oriented *kaizen* and emphasizes the morale-boosting

> benefits of positive employee participation. [...] They do not expect to reap great economic benefits from each suggestion. Developing *kaizen*-minded and self-disciplined employees is the primary goal. This outlook contrasts sharply with that of Western management's emphasis on the economic benefits and financial incentives of suggestion systems. (Imai 2012, 10)

Imai's argument focuses on self-discipline and intrinsic motivation. Successful group work can strengthen the value of activities that contribute to the development of social skills. However, if we cannot create tangible improvements of quality and productivity through group work, the motivation/morale of members and the momentum of activities may be negatively affected.

Regarding the relation between motivations/morale and tangible outputs, cause-and-effect may be an arguable point. Clarification of causal relation is one of important approaches to analyse the root cause of problems. In a simplified understanding, high motivation and morale creates better outputs. However, this way of thinking is sometime oversimplified, illustrates only one side of the coin, and is problematic for skill development because it does not address the issue of how to develop the intrinsic motivation of people. The reality is that successful experience also stimulates motivation through enhancing self-confidence. The author argues that motivation and results are in a circular relationship like chicken and egg, and they are mutually enforceable (see Figure 7.2). There are many issues that we cannot know that define this relation of linear cause and effect. The relationship between poverty and environmental degradation is one of them as the *Report of the World Commission for Environment and Development: Our Common Future states*: 'Poverty is a major cause and effect of global environmental problems' (UN 1987, para. 8). The relation between motivation strengthened by self-confidence and creation of tangible improvement of QPI is similar issue. And this circular relationship is one of the reasons why *Kaizen* is a continuous process. If we can strengthen our motivation by experiencing small successful results, this will be good start to the cyclical process of mutual reinforcement. And if we can have strong intrinsic motivation as Pink (2009) argues, people can be proactive to make further actions. Therefore, a practical question is how we can strengthen both the motivation of people and creation of tangible improvement of QPI.



Source: Author.

Figure 7.2. Circular Relation of Motivation and Outputs

Third, perseverance/GRIT can be disaggregated[5] to passion and perseverance according to Duckworth (2016). She presents a GRIT Scale that consists of ten questions to measure one's GRIT and argues that continuation of deliberate practices can strengthen GRIT. She added that there are two ways to strengthen GRIT, the first is by one's own tireless efforts and the second is by putting oneself in a group of people who have strong GRIT. Group work can support one's efforts like the *Kaizen* approach.

For developing non-cognitive skills in adults, there are not many arguments on how to this. Although GRIT and mindset can be changed through efforts, its methodology varies in each subject. And because it includes social skills, it is important to create enabling environment or group of people to mutually strengthen the efforts, as Duckworth writes, by quoting the sociologist Chambliss, 'use conformity - the basic human drive to fit in - because if you're around a lot of people who are gritty, you're going to act grittier.' She also writes, 'If you want to be grittier, find a gritty culture and join it. If you're a leader, and you want the people in your organization to be grittier, create a gritty culture' (Duckworth 2016, 2nd section of Chapter 12). This is similar to 'creating the attitude shared among all members of an organization who consistently pursue advanced levels of quality and productivity,' written in the *Kaizen Handbook* (JICA 2018). This implies that *Kaizen* type participatory practices or group work are effective in the development of perseverance/GRIT.

[5] Thaler and Koval (2016) write that GRIT stands for guts (G), resilience (R), initiative (I), and tenacity (T) in their book titled *GRIT to Great*.

4.2. Continuity as the essence of Kaizen

In Japanese, *Kaizen* is a general term that means change for better, or improvement. When Imai analyzed factors behind the success of Japanese manufacturing industry in the 1980s, he successfully picked up the word *Kaizen* and used it as an icon for a set of methodologies and tools. Although *Kaizen* is used as a technical term in industry and business in English, there are many activities called '*kaizen*' in Japan as it is a general term in every workplace and even in daily life. When people find something not going well or there is room for improvement, they may ask themselves what is necessary *kaizen*? When the word is used in the future tense, it means not only an action to be taken but people's will and motivation to make things better. Therefore, the way of thinking and mindset of people in promoting *Kaizen* always includes some sense of passion, motivation, and self-control to create change for the better. And if she or he is in a group or community, social skills are requirement to promote *Kaizen*.

Efforts to create change is always challenging compared with actions to maintain routine activities and is known as status quo bias. We need additional power to create changes. Continuity of small changes is a practical approach to encourage people to be positive to because radical and drastic changes are not accepted easily.

In relation to the development of digital technologies, market demand and their related technologies keep changing. When we focus on particular demand or product, we may adapt ourselves to specific technologies and skills. Adaptation can be one of key strategies for success. However, we have to recall the words of an American organizational theorist that 'adaptation can preclude adaptability' (Weick 1979). When we make a success in a particular niche or environment, we adapt ourselves to such niche/environments and lose our adaptability in other environments. As Christensen notes in his famous publication *The Innovator's Dilemma* (1997), when we have successful experience in one field, we may deepen our efforts to be more successful in the same field and that gives us comparative advantage but deprives flexibility to change.

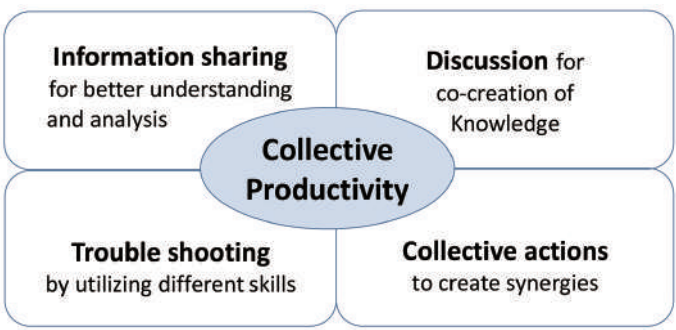
Under the current changing situation of technologies and global network, we need to keep our adaptability while adjusting to new situations. Although it seems to be a trade-off, continuity of *Kaizen* can be one of the answers to maintaining adaptability while adjusting actions. It can

give us opportunities to review another market if we maintain a broad-enough view to adjust the overall situation and compete in other market. Indication of the output '(v) creating strong organizations that keep evolving and developing' written in the *Kaizen Handbook* is an expression of the will and confidence of those practitioners who wrote the handbook.

With the concept of *Kaizen*, people can try many things to realize change for the better. Therefore, if a company or organization can create a *Kaizen* mindset-type culture with continuous effort, the organization can become more resilient and adaptable to change. And continuity may ensure that the organizations keep adaptability while adjusting to the new situation in the changing business environment.

4.3. Pros and cons of group work

Aristotle stated that 'the whole is greater than the sum of its parts.' In this context, based on our empirical knowledge, we can assume that we create better collective productivity through group work than if we simply summed individual productivity. One of these situations is information sharing to reduce the cost of information. Knowledge co-creation through discussion and exchange of views from different perceptions is another. Synergies through collective action and troubleshooting through mutual support of workers are also expected (see Figure 7.3).



Source: Author.

Figure 7.3. Image of Collective Productivity

Because *Kaizen* practices include group activities, productivity improvement as their output may result from the collectiveness of work. However, it is not easy to measure and compare collective productivity

with the sum of individual productivity. And also there are some risk factors in the group approach that include (i) overpressure by the group members or management; and (ii) group thinking that makes irrational decisions if pressure for harmony is overwhelming. In this context, research on *Kaizen* is not enough to understand and further improve working conditions.

Regarding team building in a company, Duhigg (2016) reports on an interesting analysis based on research of groups in Google. He points out that two behaviors are shared among good teams: (i) equality in distribution of conversation turn-taking; and (ii) high average social sensitivity. These are aspects known as psychological safety - a group culture of 'shared belief held by members of a team that the team is safe for interpersonal risk-taking.' Learning from research on team building in the USA, we need to analyze the impact of *Kaizen* promotion in each location where the social and cultural contexts are different.

5. Conclusion

The impact of this approach on the development of non-cognitive skills may not be so tangible at the beginning of *Kaizen* activities. However, as a continuous and cyclical process, non-cognitive skills can be strengthened so that people can become GRIT paragons as Duckworth pointed out. It is important to practice successful *Kaizen* repeatedly, which can cyclically strengthen motivation and self-confidence. Mindset change is a low hanging fruit as the World Bank report says because less physical investment is required. However, it is not stable because it is always influenced by the environment. That is why the creation of attitudes that can be shared among all members of an organization is important. Development of non-cognitive skills is a process to strengthen our capability to enrich the value of human relations (social skills), creativity and morale (self-control), and the perseverance to achieve something, which are the essence of the philosophy of *Kaizen*, if I may say.

There are many proverbs and wisdom to encourage our challenging spirit, and the perseverance and creativity to break through the status quo as necessary. These wisdoms include the mindset of 'Kites rise highest against the wind' by Winston Churchill, or 'in the middle of difficulty lies opportunity' by Albert Einstein, or 'Imagination means nothing without doing' by Charlie Chaplin. How we can make ourselves and others to

have such mindsets is an interesting agenda for capacity building, social capability, and skills development.

How to measure non-cognitive skills development through *Kaizen* promotion is a point to be discussed further. Although we cannot measure the development of overall non-cognitive skills precisely, as Zhou pointed out, we can implicitly recognize the concrete improvement of individual skills when we experience *Kaizen* promotion in the workplace. And we can pick up specific skills and measure their development before and after *Kaizen* while measuring the KPTs of business. The GRIT scale can be used to measure perseverance. And scales for teamwork and interpersonal communication in different academic disciplines are also available that can be modified to measure the impact of *Kaizen*.

Kaizen concept is a set of methodologies and tools to improve quality and productivity from the viewpoint of industry and the service sector. However, from a different angle, *Kaizen* is a process of skill and capability development of people that is part of the process of career development and self-actualization. How you understand *Kaizen* depends on what you want to achieve through it. When you see the skill development of individuals achieved through its activities, you value not only profit and success of your business or organization but also the wellbeing of individuals in contact with it.

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