

Kaizen and Industrial Development

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26 April, 2017

Messages

1. *Kaizen* works for every business, big or small. Six Sigma and Lean do not. (12 min.)
2. *Kaizen* helps those who started business without knowing it. But they would fare much better if they knew it. (12m)
3. We heard something similar to 5S a million times from our mothers and still need 5S. (10 min.)
4. *Kaizen* is indispensable for industrial development today, even though it was not in the past. (2 min.)
5. Industrial development policies are effective when aligned into action in a proper sequence. (2 min.)
6. Japan's ODA has been outstanding in bringing industrial development to developing countries. (4 min.)

1. *Kaizen* works for every business, big or small. Six Sigma and Lean do not.

- A) Those who are experienced in *Kaizen* think that it is good for all businesses. But evidence has been missing.
- B) Recently, a number of randomized controlled trials (RCTs) of management have been conducted to present evidence that training improves management practices and business performance.
- C) My experiments featuring *Kaizen* obtained statistically significant impacts on MSEs in Vietnam and Tanzania.

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Table 1. Difference in growth in value added between the treatment and control groups in an RCT of Kaizen management training in Tanzania

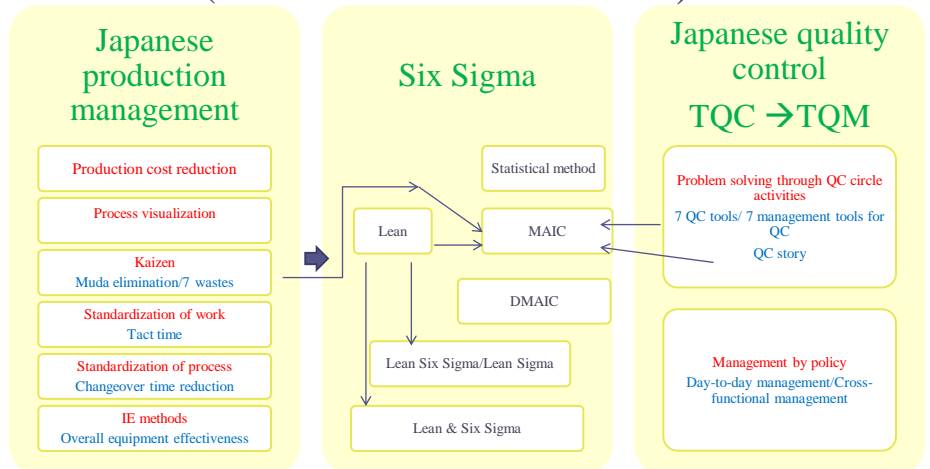
	Treatment A – Control	Treatment B – Control
2011	5,882	6,313
2012	17,257*	12,549*
2013	18,930**	14,129*

- A training program was provided for garment producers in Dar es Salaam in 2010. The largest sample enterprises had about 30 workers. On average an enterprise employed 5.5 workers.
- The program had classroom and onsite components
- Treatment group A was invited to both the classroom component and onsite component of the training program.
- Treatment group B was invited to only the onsite component of the training program.
- Growth in value added = annual value added (in USD) in 201x – that in 2009
- ** and * stand for statistical significance at the 5 and 10 percent levels.

D. Unlike *Kaizen*, 6σ focuses on large firms and its goal is unrealistic for SMEs in developing countries.

- ISO 18404:2015 is about “Quantitative methods in process improvement -- Six Sigma -- Competencies for key personnel and their organizations in relation to Six Sigma and Lean implementation.”
 - It “defines the competencies for the attainment of specific levels of competency with regards to Six Sigma, Lean, and "Lean & Six Sigma" in individuals, e.g. Black Belt, Green Belt and Lean practitioners and their organizations.”
 - An expert says that it can be applied to small-scale firms, such as firms employing 150 workers.
 - The 6σ quality performance means that long-term defect rate is below 3.4 defects per million opportunities.
- D’ Probably, Six Sigma and Lean are more of top-down decision making than *Kaizen*. Which do your compatriots prefer?

Figure 1. Six Sigma, TQC/TQM, and Kaizen
(Arrows indicate influences)



Adopted from a presentation material made by Mr. Kazuo Ishiyama, a Six Sigma expert. He made a presentation a seminar on ISO 18404 held by the Japanese Standards Association on February 10, 2017 in Tokyo. I was given a Japanese version of this figure from a seminar participant, Dr. Tsuyoshi Kikuchi.

D. International standard of Six Sigma has been developed. What will be the influence on us?

- I agree with Dr. Kikuchi
- 1) Responding to ISO 18404, JICA should advance a unified view on the difference between *Kaizen* and Lean & Six Sigma.
- 2) Industry, government, and university will have a study group to deliberate the unified view.
- 3) Consider developing an international standard of *Kaizen*, taking it into account that obtaining international certification is not easy for MSMEs

2. *Kaizen* helps those who started business without knowing it. They'd fare much better if they knew it.

- A. So many people start their businesses without knowing market, management, and technology because entry is easy, especially in industrial clusters.
- B. Different industries in different countries share similar processes in which industrial clusters get started, grow, and get matured. (See Figure 2)
- C. The injection of the knowledge will help industries struggling for survival and may be able to turn them into dynamically growing ones.
- D. If the knowledge is injected in an earlier stage, the likelihood of successful industrial development will be even higher. (See Figures 3 and 4 and Table 2)

Figure 2. Process of Cluster- Based Industrial Development

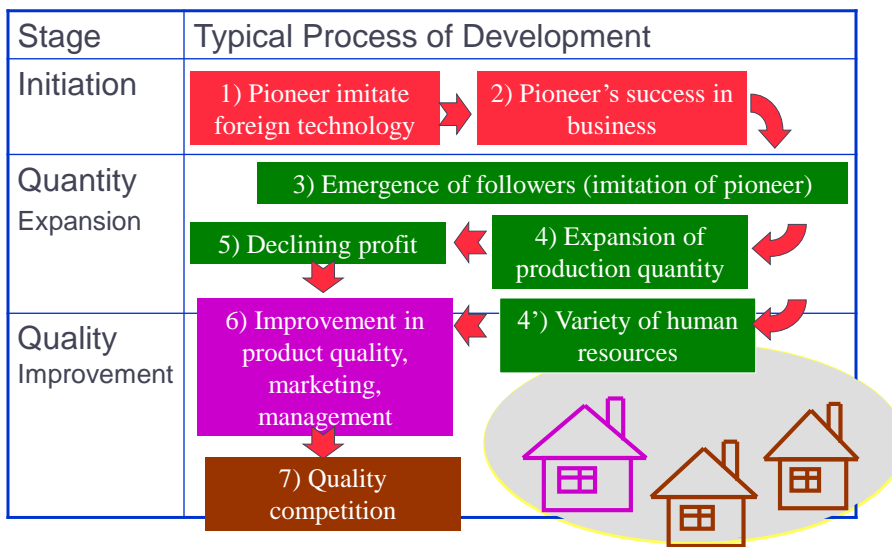


Figure 3. Motorcycle production by country

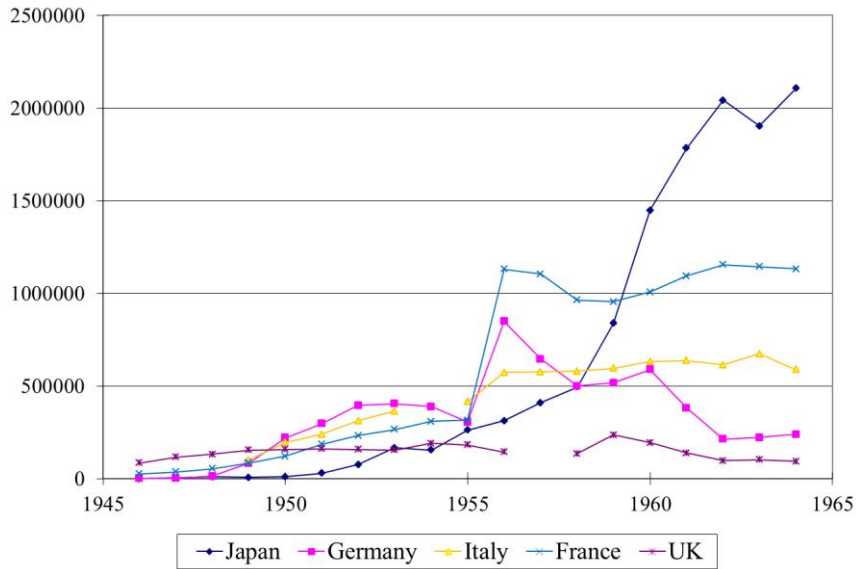


Figure 4. Motorcycle Producers in Japan

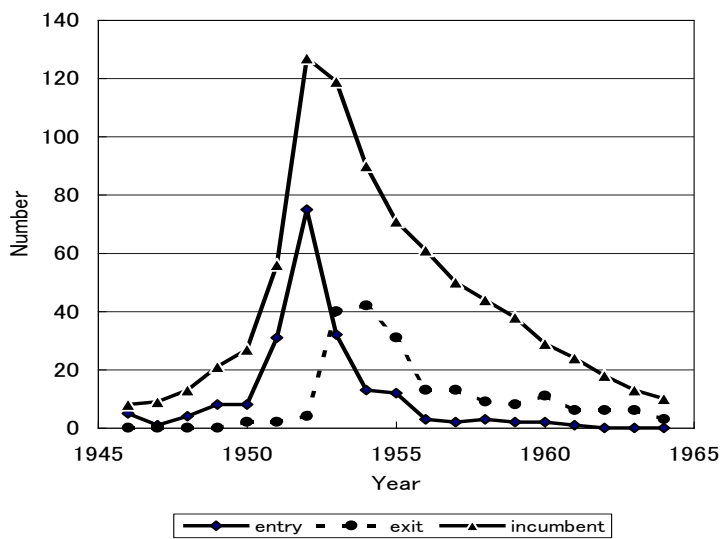


Table 2. Growth of the Garment Industry in Bangladesh

Fiscal year	Number of Garment Factories	Employment (million workers)	% of garments in the country's export earnings
1983/84	134	0.04	3.9
1987/88	685	0.28	35.2
1991/92	1,163	0.58	59.3
1995/96	2,353	1.29	65.6
1999/00	3,200	1.6	75.6
2004/05	4,107	2.1	74.2
2007/08	4,740	2.5	75.8
2010/11	5,150	3.6	77.5

3. We heard something similar to 5S a million times from our mothers and still need 5S.

- A. The abundance of low-wage labor should be the source of advantage of late-industrializing countries. But if low-wage workers are not disciplined or proactive to learning, it is difficult to achieve efficient operation.
- B. To turn such workers into efficient workers, 5S is effective.
- C. But some people do not understand why 5S works.
- D. The keyword is “coordination failure.”

A. Low wage workers may increase labor cost.



B. To turn such workers into efficient workers, 5S is effective.

1. Sorting
2. Setting in order
3. Shining
4. Standardizing
5. Self-discipline (Sustaining)



C. Why 5S works.

- 5S classifies everything into necessary and unnecessary ones, into being at right place and wrong place, into being done and undone, etc.
- This makes operation more efficient.
- But why shining?

D. Coordination failure

		Colleagues come	
		on time	an hour late
You come	on time	High - c, High - c	Low - c, Low
	an hour late	Low, Low - c	Low, Low

- Shining, systematizing, and self-discipline are about confirming that people in the same workplace are moving or have moved from the bad equilibrium to the good equilibrium.

Communication, leadership, among others



4. *Kaizen* is indispensable for industrial development today, even though it was not in the past.

- A) The West was industrialized without *Kaizen*. Nor prewar Japan.
- B) Postwar Japan had industrial development and rapid economic growth while large firms were developing what we call *Kaizen* today based on the knowledge that came from US.
- C) Small enterprises in Japan, however, needed to learn *Kaizen* for growth and survival when wage rates and land rents were soaring and technologies and markets were changing rapidly.
- D) Likewise, it is impossible for industries in developing countries today to keep pace and to catch up with their counterparts in other countries without making workers and managers proactive to learning new things.

5. Industrial development policies are effective when aligned into action in a proper sequence.

1. Injection of knowledge of management, marketing, and technology. Especially, 5S/Kaizen is the first.
2. Infrastructure
3. Finance
 - What would take place if finance were the first? How about if infrastructure were the first?
 - Before my experimental training program began in late 2007, a blacksmith in Kumasi, Ghana asked me, “Why training? Why not subsidy or loan if your sponsor is the World Bank?”
“Sir, if you were a banker, would you lend money to a small business owners like your neighbors?”
“No, because they don’t know how to use money.”

6. Japan’s ODA has been outstanding in bringing industrial development to developing countries.



The Eastern Seaboard Development Program in Thailand (early 1980s -)
“Detroit of Asia”



Wrapping up

1. We are getting evidence that *Kaizen* works for every business, big or small. We should have a unified view on Six Sigma and Lean.
2. Let's reach out a helping hand to both those who are operating businesses and those who will start their businesses.
3. 5S is essential etiquette at working together with other people.
4. For industrial development today, *Kaizen* is indispensable.
5. Industrial development needs *Kaizen*, knowledge of other aspects of management, technology, and marketing, and then infrastructure and financing. This sequence is a key.
6. Japan is able and willing to help the industrial development of developing countries beyond *Kaizen*, and this makes your efforts to disseminate *Kaizen* more rewarding and valuable.

Thank you so much for your attention