

Lessons from the Master

*Things We Have Learned from Shigeo Shingō
...and Things We Haven't*

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Themes

- First encounters
- A revolution unfolds
- What makes Shingō's contribution distinctive?
- Some lessons we haven't learned
- What next?

Initiation



Quiz (4 Questions)

1. Which of the following did Shigeo Shingō consider to have had the greatest influence on his thinking?
 - a. W. Edwards Deming
 - b. Frederick W. Taylor
 - c. Frank B. Gilbreth
 - d. Taiichi Ohno

2. Which of the following assertions would Shigeo Shingō agree is true?
- a. Value streams are strings of operations.
 - b. Value streams are strings of processes.
 - c. Processes are strings of operations.
 - d. I'm confused. Does this stuff matter?

3. Imagine you are Mr. Shingō, a renowned consultant on the road. Japanese food is a priority for you but you are in rural Nebraska. What do you insist on having for dinner?
- a. Steak
 - b. Sushi
 - c. Pizza
 - d. Kentucky Fried Chicken.

4. On the same trip, you have now arrived in Chicago. What do you insist on having for dinner?
- a. Steak
 - b. Sushi
 - c. Pizza
 - d. Kentucky Fried Chicken.

衆瞽
摸象之圖



How Can We Most Effectively Improve?

*...And so these men of Indostan, disputed loud and long,
each in his own opinion, exceeding stiff and strong,
Though each was partly in the right, and all were in the wrong*

John Godfrey Saxe

“The first problem is that we don’t realize that our basic theory of improvement is flawed.

Shigeo Shingō

“The first problem is that we don’t realize that our basic theory of improvement is flawed.

“Our production activities are built on an erroneous understanding of the nature of production.”

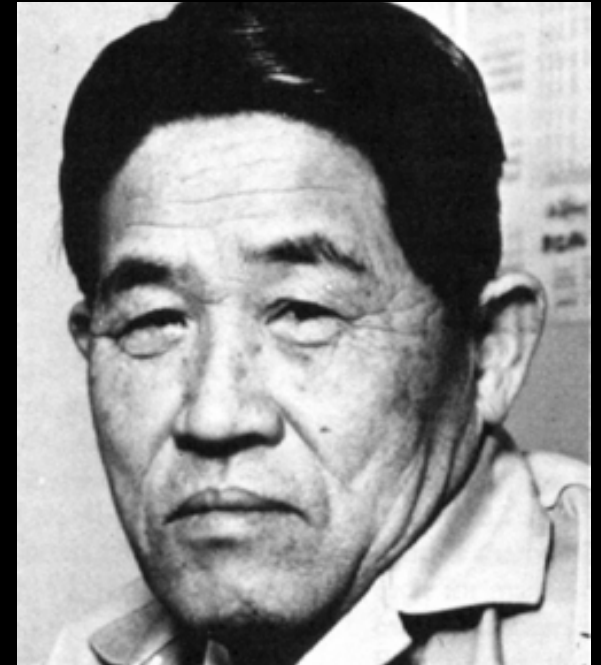
Shigeo Shingō

Improvement demands that we understand both improvement thinking and the structure and functions of production.

Shigeo Shingō

Shigeo Shingō (1909-1990)

- 1930 Graduates from Yamanashi Technical College; Joins Taipei Railway Factory.
- 1945-6 Joins Japan Management Association (JMA). Defines production as network of processes and operations.
- 1955-80 Teaches production courses for Toyota.
- 1959 Forms Institute for Mgt. Improvement.
- 1967 Develops *pokayoke* & source inspections.
- 1969 Single-Minute Exchange of Die (SMED)
- 1970-80 Scientific Thinking Mechanism (STM)
- 1988 Honorary doctorate from Utah State Univ.
- 1971-90 Consults and lectures internationally.

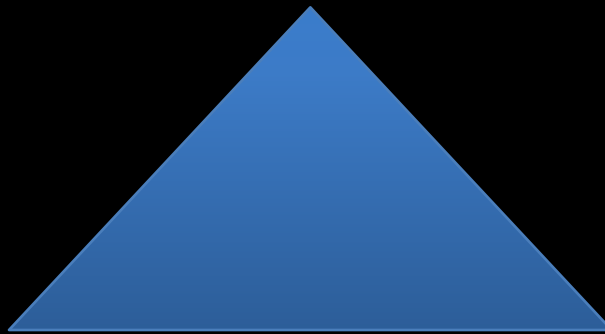


A Convergence of Influences

Cultural Context

A sense of community

Agricultural values



A Moment in History

Modernization and the
desire for prosperity

Nationalism and the War

Ideas and Teachers

Frederick W. Taylor

Frank B. Gilbreth

Ken'ichi Horigome

The “Father of Scientific Management”



“We can see our forests vanishing, our water-powers going to waste, our soil being carried by floods into the sea; and the end of our coal and our iron is in sight. But our larger wastes of human effort, which go on every day through such of our acts as are blundering, ill-directed, or inefficient, and which Mr. Roosevelt refers to as a, lack of "national efficiency," are less visible, less tangible, and are but vaguely appreciated.”

F. W. Taylor. 1911. Principles of Scientific Management. 6.

1931: Taylor Galvanizes Shingō

“The majority of...men believe that the fundamental interests of employees and employers are necessarily antagonistic. Scientific management, on the contrary, has for its very foundation the firm conviction that the true interests of the two are one and the same; that prosperity for the employer cannot exist through a long term of years unless it is accompanied by prosperity for the employee, and vice versa; and that it is possible to give the workman what he most wants—high wages—and the employer what he wants—a low labor cost—for his manufactures.”

F. W. Taylor. 1911. Principles of Scientific Management. 6. (emphasis added)

Frank and Lillian Gilbreth: Science and “the Human Element”



Gilbreth's Science Begins with Measurement

“No definite and permanent advance is made in any kind of work, whether with materials or men, until use is made of measurement.”

F. B. Gilbreth. 1917. *Measurement of the human factor in industry.*

1937: Shingō Attends Ken'ichi Horigome's Two-Month Production Engineering Course

“Horigome believed that in nearly all Japanese factories profits could be increased massively by concentrating intensively on reducing production lead times before conducting time studies.”

JMA Journal. 1987. IE fukyū ni kaketa oni.

Horigome on the Primacy of the Shop Floor

“Facts are in the workplace [*gemba*]. Industrial engineering’s basic attitude is that you have to go to the workplace and grasp the facts yourself.”

H. Nakajima. 1987. *IE fukyū ni kaketa oni. JMA Journal*

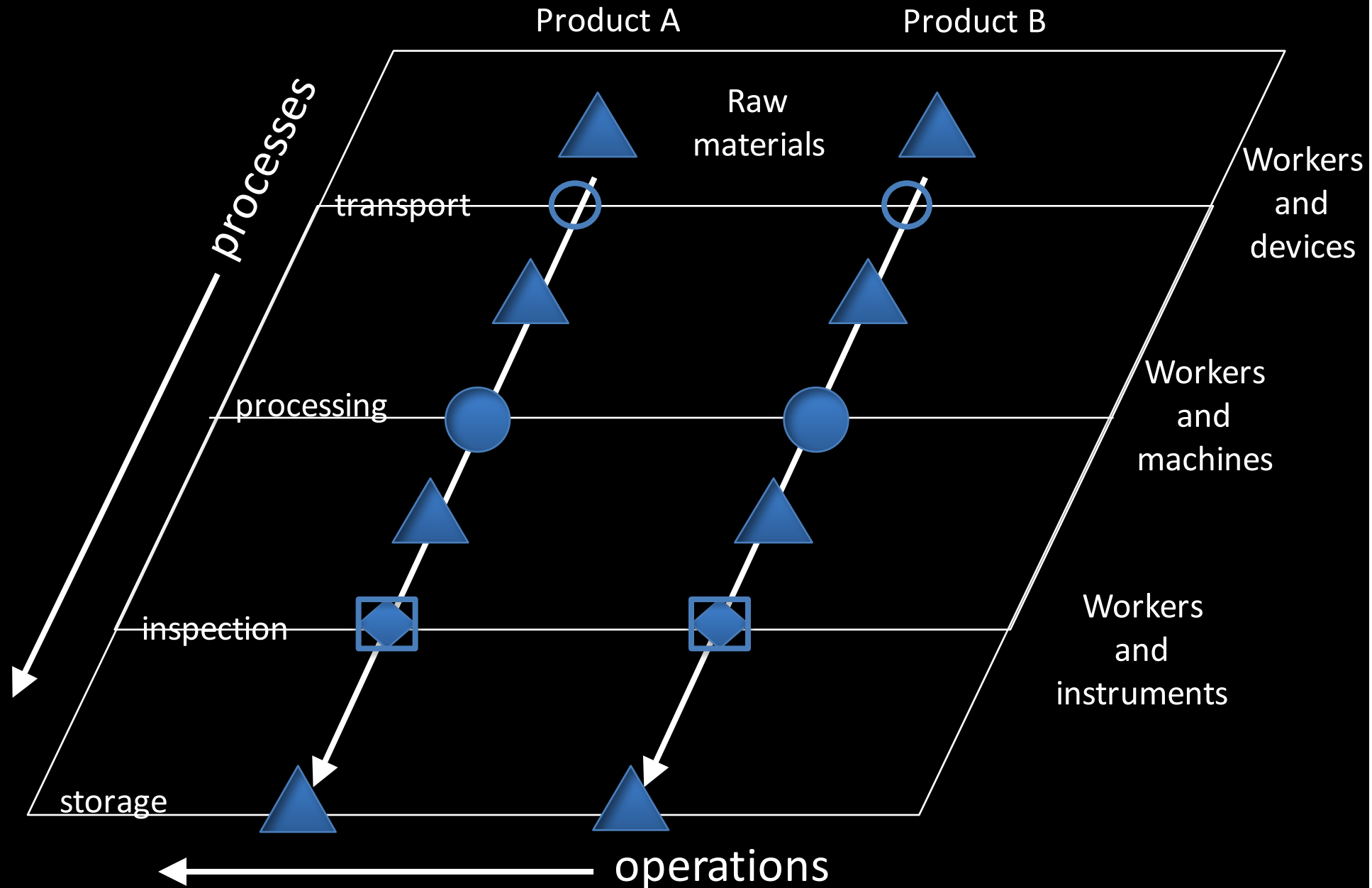
Horigome on Improvement and Standardization

“Task analysis is not simply a matter of conducting time studies and then setting piece rates (standard times). It demands relentless elimination of waste (muda) in human [effort], materials, equipment, energy, time and space. Work method standardization comes of using scientific rationality to stabilize work. This is expressed in standard times and constitutes the basis of unit costs.”

“You don’t set piece rates without making improvements (kaizen).”

H. Nakajima. 1987. *IE fukyū ni kaketa oni*. JMA Journal.

1946: "Production is a Network"



Processes and Operations

Processes: transformations by which raw material becomes finished product: Production from the customer's or product's perspective.

Operations: human or mechanical actions by which the transformations are effected: Production from the human's or machine's perspective.

Misunderstanding Kaizen

Our failure to grasp the true nature of production leads us to misunderstand improvement.

Incremental operational kaizen, for example, does not bring radical results. Satisfaction with small steps forward, moreover, inures us to low expectations.

We must remember that operations and processes are of different orders and that process improvements are more fundamental than operational improvements.

1955-1980: Consultant to Toyota

Shingō's Production Engineering course reaches thousands 6,000 students.

He and Toyota's leaders learn from one another.

Who invented the Toyota Production System?

Shingō on Toyota

“The Toyota Production System was the first production system to logically integrate all aspects of production.”

“The strength of the Toyota Production System is not the superficial feature of Just-in-Time, but rather that the Toyota System boldly takes up the challenge of process improvement.”

Shigeo Shingō

“One of the major defects of the Toyota Production System is that it has to use *kanban*.”

“*Kanban* is nonsense.”

STM: Method in the Relentless Pursuit of Ends

Organize thinking

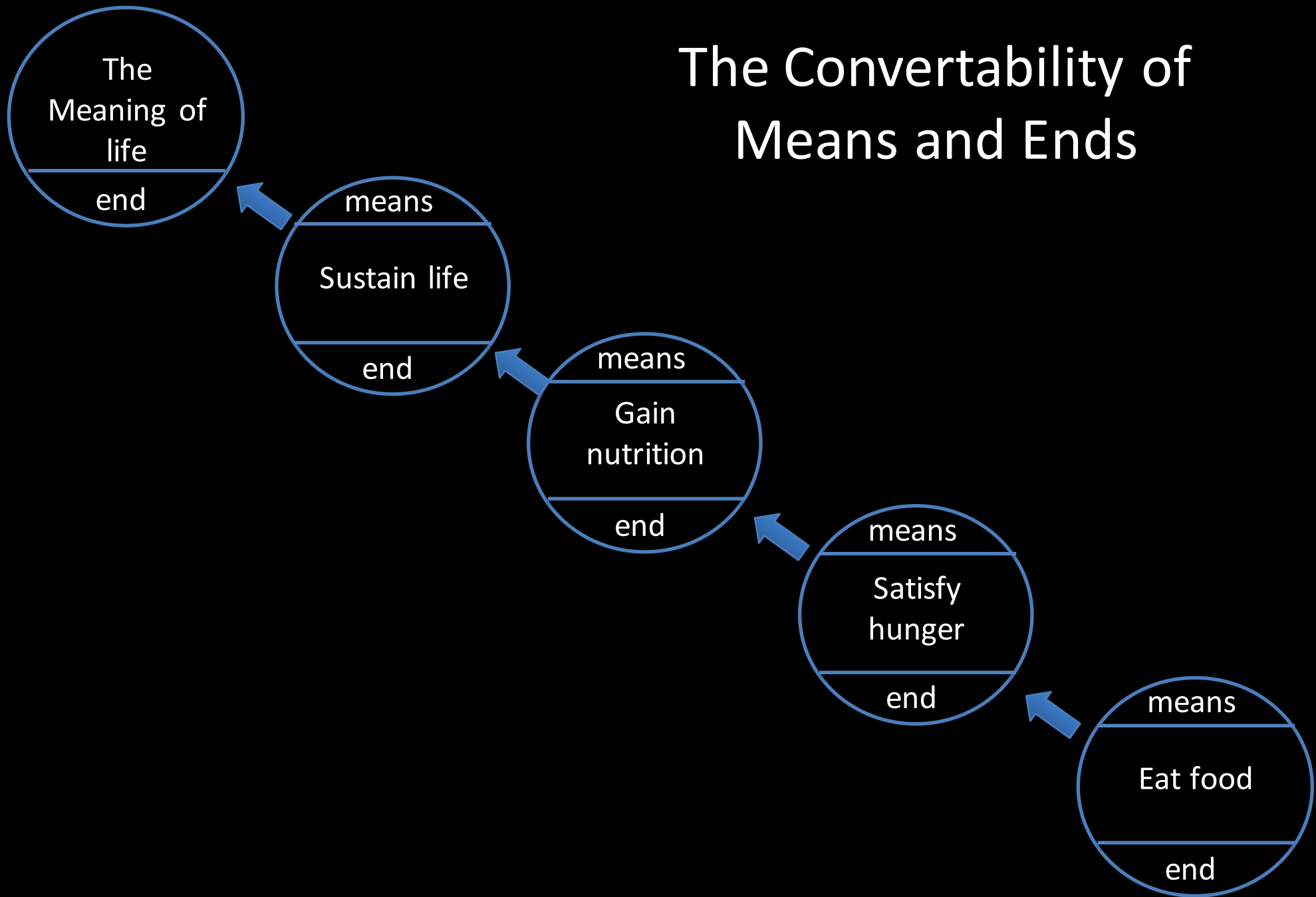
Identify problems (e.g., *muda*)

Pursue Purposes (Why? Why?)

Plan improvement

Implement

The Convertability of Means and Ends



“All too often we mistake intermediate goals for ultimate goals and satisfy ourselves at that [low] level.”

Shigeo Shingō. 1992. The Shingō Production Management System. Prod. Press., p. 45

The “Human” Factor and Managerial Responsibility

“Why is it that in Europe and America we throw up our hands and assume all workers are X-type people? Why is it we put hardly any effort into changing X characteristics to Y characteristics?”

S. Shingō. 1990. Seisan kanri no kakumei to kōtei kinō no kaizen, p. 86

“We can hardly expect to prosper in the long run unless management rejects the 19th-century assumption that workers are lazy, X-type people. We need to return to the basic aim of making the pie bigger and then sharing it more fairly between management and labor.”

S. Shingō. 1990. Seisan kanri no kakumei to kōtei kinō no kaizen, p. 87

Shigeo Shingō on the Future of the Revolution

1. Relentlessly pursue processing improvements.
2. Strive for “zero quality control”
3. Reshape layouts to eliminate nearly all but small-scale transportation.
4. Synchronize processes to eliminate process delays.
5. Move from SMED to “One-touch” changeovers.
6. Develop technologies for incidental operations.
7. Free people from machines by “pre-automation.”
8. Pursue ever higher goals.

And What Will Drive us Forward?

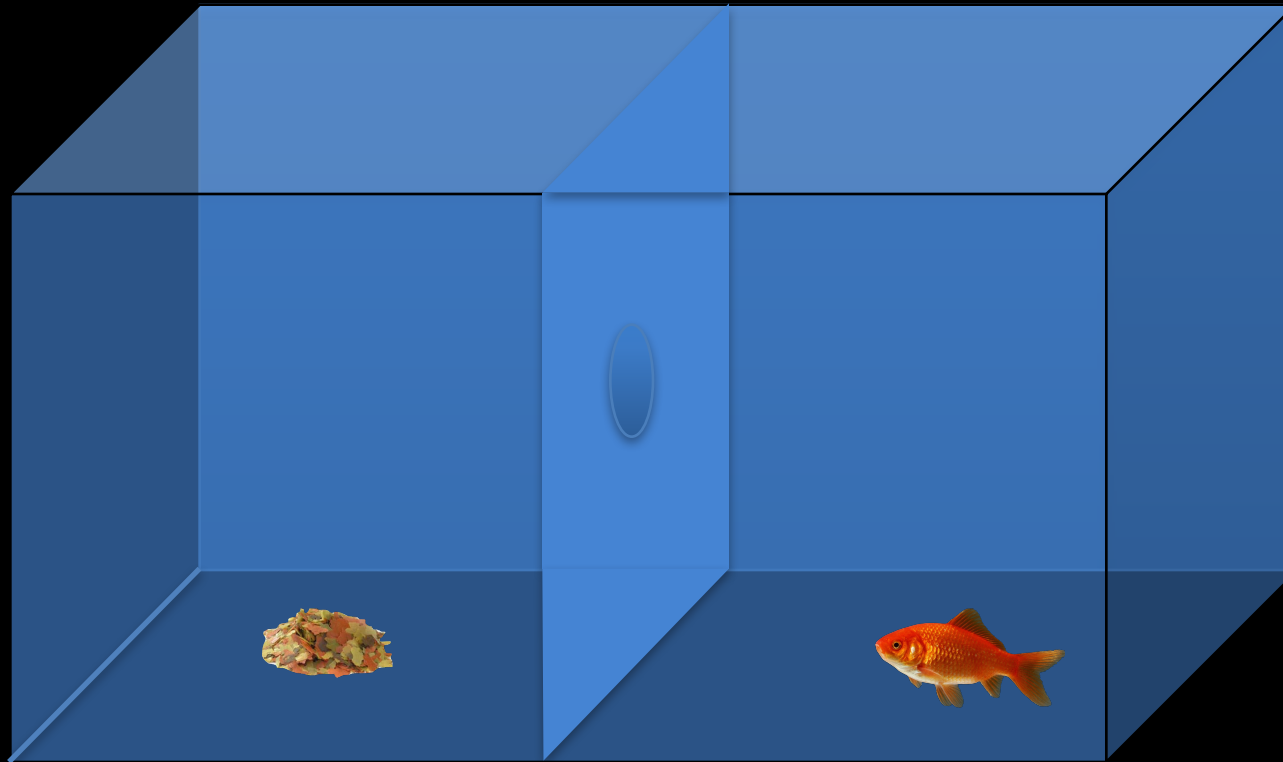
Shingō's Work Suggests Three Necessary Elements

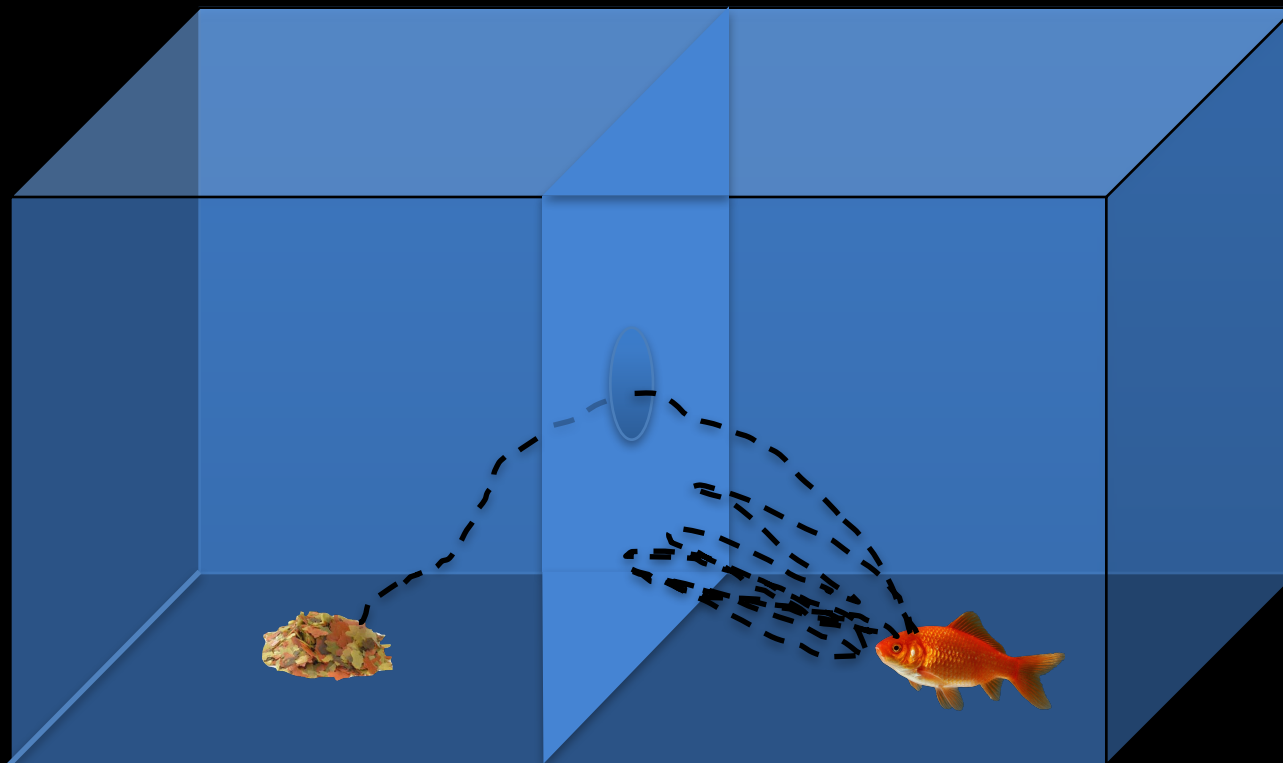
1. Dissatisfaction with the status quo.
2. A habit of overcoming habit.
3. The urge to pursue higher ends.

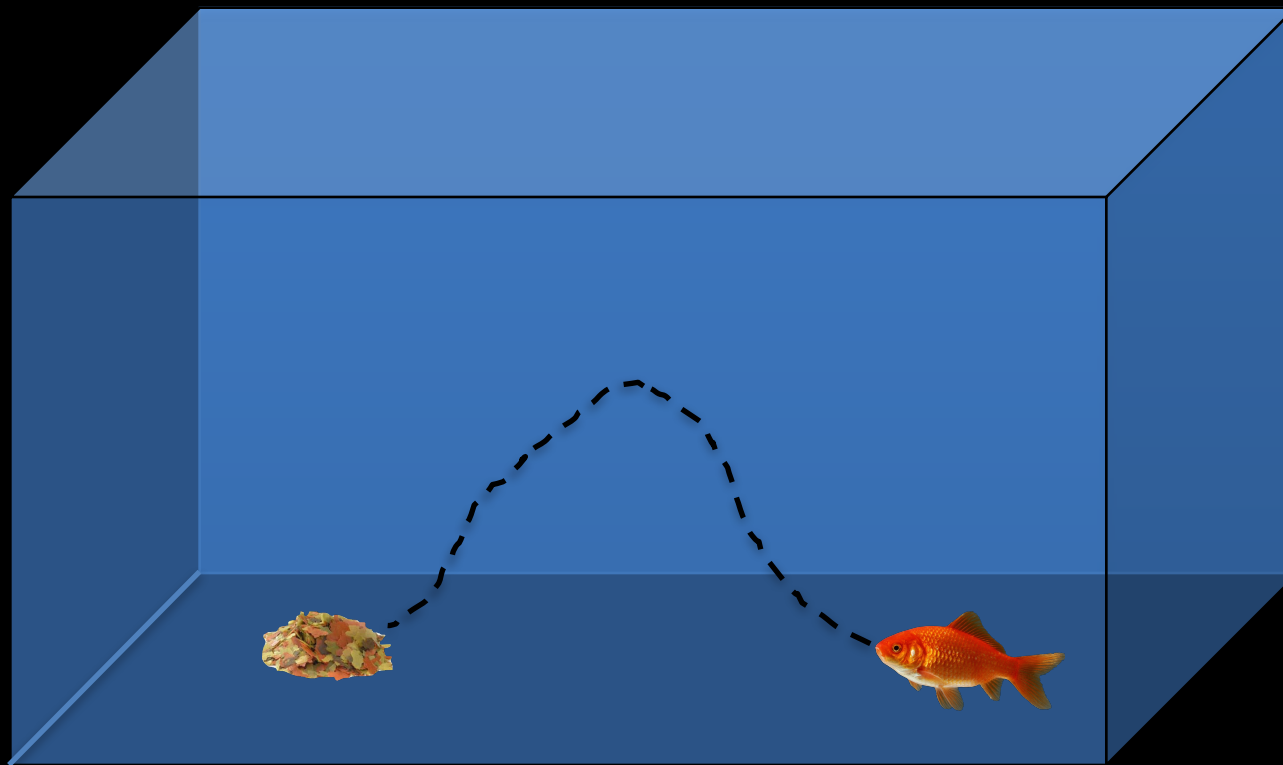
“People who are not dissatisfied with the way things are will never improve.”

Shigeo Shingō

The Force of Habit







Don't be a goldfish!