Better Thinking About the System of Profound Knowledge

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PWR Webinar
Overview of the Presentation

• Observations about the evolution of the System of Profound Knowledge (SoPK)

• What is the System of Profound Knowledge?

• How can we use SoPK to think about business ... and life?
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  • What is the System of Profound Knowledge?
  • How can we use SoPK to think about business ... and life?
The 14 Points for Management

1. Create constancy of purpose for improvement of product and service.
2. Adopt the new philosophy.
3. Cease dependence on mass inspection.
4. End the practice of awarding business on the basis of price tag alone.
5. Improve constantly and forever the system of production and service.
6. Institute training.
7. Adopt and institute leadership.
The 14 Points (cont’d.)

8. Drive out fear.

9. Break down barriers between staff areas

10. Eliminate slogans, exhortations, and targets for the work force.

11. a) Eliminate numerical quotas for the work force

   b) Eliminate numerical goals for people in management.

12. Remove barriers that rob people of pride of workmanship.


14. Take action to accomplish the transformation.
The Deadly Diseases

1. The crippling disease: lack of constancy of purpose.
2. Emphasis on short-term profits.
3. Evaluations of performance, merit rating, or annual review.
4. Mobility of management.
5. Running a company on visible figures alone.
6. Excessive medical costs.
7. Excessive costs of liability, swelled by lawyers that work on contingency fees.
The 14 Points: A theory of management?

Often, people spoke of the 14 Points as Dr. Deming’s philosophy, or as his theory of management.

They looked to me like a list of things to do or consider, *manifestations* of the theory instead of the theory itself.

... so what *is* the theory of management that gave rise to the 14 Points?
Enumerative and Analytic Studies

The purpose of any statistical study is to provide a rational basis for taking action. The distinction between them revolves around where the action will be taken:

- **Enumerative Study**: a statistical study in which action will be taken on the material in the frame being studied.

- **Analytic Study**: a statistical study in which action will be taken on the process or cause-system that produced the frame being studied, the aim being to improve practice in the future.

**Note**: This distinction is taken from Deming’s paper “Probability As a Basis for Action”, *The American Statistician*, Vol. 29, No. 4, 1975.
Enumerative and Analytic Studies

Enumerative study (focus on judging what is)

Analytic study (focus on improvement)
In 1988, I thought the Theory behind the 14 Pts. was: Management is an Analytic Problem

<table>
<thead>
<tr>
<th>Cease Enumerative Practice</th>
<th>Establish Analytic Practice</th>
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<tr>
<td>3. Cease dependence on inspection to achieve quality</td>
<td>5. Improve constantly and forever the system of production and service</td>
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<td>10. Eliminate slogans, exhortations &amp; targets</td>
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<td>11. Eliminate numerical quotas and goals.</td>
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<td>12. Remove barriers that rob people of their right to pride of workmanship.</td>
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<td>DD3. Evaluation of performance, merit rating, or annual review.</td>
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<td>DD5. Management by use only of visible figures.</td>
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... ... 

**Note**: I presented this idea in a talk delivered at the NYU Deming Seminar for Statisticians on 3/29/1988.
Dr. Deming’s articulation of his theory: The evolution of SoPK

24 January 1989

1. Knowledge of variation; statistical theory
2. Knowledge of the distinction between common causes and special causes
3. Knowledge about the loss from tampering
4. Knowledge about interaction of forces
5. Knowledge of operational definitions
6. Knowledge of psychology
7. Knowledge of cooperation and its benefits
The evolution of SoPK

28 March 1989

1. Knowledge for study of variation
2. Knowledge about tampering, and losses caused by:
   a. Treating a fault or mistake as if it came from a special cause when in fact it came from common causes, or
   b. The converse
3. Knowledge of procedures aimed to minimize the net economic loss from both mistakes
4. Knowledge about loss functions, in particular, the Taguchi loss function. Which quality characteristic is most critical for management to work on.
6. Knowledge about the production of chaos built on harmless random forces
   a. Worker training worker
   b. Executives meeting together for policy without guidance of profound knowledge
   c. Success stories
   d. Competition, treating the world as a zero sum game
   e. Trade barriers
The evolution of SoPK

28 March 1989 (cont’d)

7. Theory of knowledge
   a. Experience studied without theory teaches nothing
   b. Examples, success stories, studied without theory, teach nothing
   c. A plan requires prediction
   d. There is no knowledge without prediction
   e. Operational definitions. Communications
   f. No number of examples establishes a theory, but one unexplained failure will overthrow a theory.

8. Knowledge of psychology
   a. The value of intrinsic motivation, self esteem, responsible only to oneself
   b. Limits of extrinsic motivation
   c. Overjustification. Reward for something done for the joy of doing it chokes motivation off
   d. Effects of the merit system and incentive pay.
   e. Losses from demands placed on people beyond their capacity of performance
A System of Profound Knowledge, from *The New Economics* (p.96)

**A system of profound knowledge.** The layout of profound knowledge appears here in four parts, all related to each other:

- Appreciation for a system
- Knowledge about variation
- Theory of knowledge
- Psychology

**Okay ... but what is it?**

“The system of profound knowledge provides a lens. It provides a new map of theory by which to understand and optimize the organizations that we work in, and thus to make a contribution to the whole country.” (p. 94)
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Using the Lens of SoPK

Four questions:

1. What does the landscape look like when we look through the lens of SoPK? (e.g. the 14 points)

2. What about the lens of a System of Profound Knowledge leads to this view of the landscape? (... or, why in the world would Deming say this?)

3. What does the landscape look like through the default lens of American management? (current management practice)

4. What about the default lens of American management leads to the view of the landscape described in 3, above? (... or, why does American management do this?)
Using the Lens of SoPK to Examine Pt. 4

1. “End the practice of awarding business on the basis of price tag alone. Instead, minimize total cost. One way to do that might be to work with a single supplier for any item.”

2. SoPK lens
   - There will be minimum variation if all of the parts come from a single supplier.
   - We can manage inventory more effectively if we only have one supplier.
   - Our suppliers know more about this technology than we do. If we involve them in design, they might be able to help us create more robust, higher quality or lower cost designs.
   - If one supplier has a price that’s 10% lower, but double the scrap rate or a higher field reject rate, which one is cheaper?
   - If we build a relationship with a single supplier, they will be more engaged in our business and care more about the work they do for us.
3. We should have multiple suppliers for any item, and we should purchase at lowest price tag.

4. Default lens:

- Competition is good. If we pick a single supplier, they’ll get complacent, lazy, or dishonest.
- What will we do if our sole supplier has a strike or a fire? A second supplier is an insurance policy.
- People talk about measuring total cost including cost of use, but those measures are soft and can be manipulated. All we need is for the parts to meet specifications—everything that meets specs is equally good.
- We don’t want to be too obligated to a single supplier.
- Our suppliers don’t have much knowledge. We just need the to shut up and do what we tell them to do.
Use the Lens of SoPK to Examine Pt. 11

1. “Eliminate numerical goals and quotas.”

3. Default landscape: Numerical goals and quotas are vital management tools

4. Default lens:
   • If we have goals deployed to every department, we can add them up to predict what corporate results will be
   • People need to know what to shoot for, and the goals should provide stretch to pull improvement
Use the Lens of SoPK to Examine Pt. 11

2. SoPK lens:

• If a process is capable, on average, of yielding a result, due to variation sometimes it will achieve the result and sometimes it won’t.

• If we give people goals, they will achieve them, sometimes at the expense of another part of the system (e.g. hold Purchasing responsible for reducing the BOM cost).

• There are three ways to achieve a goal beyond the capability of the process: 1) Improve the process; 2) Distort the process; or 3) Distort the measurement.
Use the Lens of SoPK to Examine DD3

1. Eliminate merit appraisal

3. Default landscape: Merit appraisal is a vital part of our HR toolkit

4. Default lens:
   - We need to recognize and reward the best performers
   - We need to have a process to identify and deal with the “dead wood”
Use the Lens of SoPK to Examine DD3

2. SoPK lens:

• Some of the variation observed between individuals is due to opportunity, evaluator, or other factors, and attributing results to an individual risks misattribution. (“He who can solve x+y=8 for x can do performance appraisals.”)

• 80% of people believe they are above average, but performance appraisal doesn’t support this, so people become demoralized and demotivated.

• Often, the differences in rewards are small compared to the potential damage done to individuals and the organization
Conclusion

“We see the world, not the way it is, but the way we are.” (Talmud)

Dr. Deming, with SoPK, has provided us a way to see the world differently.

We have a choice about how we see, so let’s make the choice!

Questions?