

"An Introduction to Water Logic, Rock Logic, and Investment Thinking"

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Aim: This article is presented with the aim of fostering greater interest in Continuous Investment Thinking and its connections to system management.

A Personal Beginning

At the close of an evening presentation in February 1990, Dr. W. Edwards Deming fielded questions from the audience at Western Connecticut State University. He had just finished his third presentation that day, this one to a public audience. I was among the handful that attended all three lectures. My introduction to his "system of profound knowledge" (the name he chose for his management theory) began earlier in the day when I attended his afternoon presentations, first to students and later to faculty. These sessions also included a time for questions and answers. Approaching ninety years of age, this "Consultant in Statistical Studies" had no doubt heard many of them before. For me, though, the questions and answers were relatively new. Like pieces to a puzzle, I sorted through the questions and answers and began to arrange them. My search for a pattern and a deeper perspective on his message had begun. In the role of a student, I was both learning and thinking. This was to be my personal introduction to water logic, rock logic, and investment thinking.

*How the world we perceive works depends on how we think.
The world we perceive is a world we bring forth through our thinking.*
H. Thomas Johnson

Among the other *students* in the evening audience that I can recall was one seeking insight on the issue of staff cutting. The question went something like this...

"Dr. Deming, what do you think about the recent trend towards reducing the number of levels of management?"

Before presenting his answer, it would be worthwhile to consider your answer. Then again, pause and consider the question. Where was it *coming from*? It may well have been asked by a middle-level manager, an individual living day in and day out during a period of deep cuts in the ranks of management. Although I was not a middle-level manager, I was anxious to gain the perspective of Dr. Deming, for it would offer another piece to the puzzle. With little hesitation, Dr. Deming offered his advice with this question,

"Why have more levels than you need?"

How does this compare to *your* answer? As for me, it was not the answer I had anticipated nor the direction I had expected Dr. Deming to move. For some reason, I was expecting a response with advice on how many levels of management were appropriate. Perhaps 5. Perhaps 3. Either solution might be interpreted as "the answer", as in "one size fits all". Instead, Dr. Deming answered the question with a question. In hindsight, this was an obvious answer. But, I could not see it coming. Could you? More than I could have ever expected, his answer allowed me to further assemble the puzzle. As my thinking evolved, I was beginning to see a pattern and the relationship between the pieces.

"Reality is relationships"
Gregory Bateson

My immediate interpretation of Deming's answer was that the number of levels of management would be *dependent* on the situation. I would not translate this advice as "one size fits all". Instead, it was more like "*it depends*". Given a specific situation, or system (which includes one's level of thinking), one would need an appropriate number of levels. More than this would be costly. Less than this would be costly. A process of experimentation would lead to an answer. Should the situation change, I might expect the answer to change as well. Instead of a "one size fits all" solution, I would define this activity as "managing the system".

Now, consider what questions may have followed this question. Perhaps,

"Dr. Deming, what do you think about the recent trend towards reducing variation in our processes ?"

or, "Dr. Deming, what do you think about the recent trend towards reducing the number of parts in our products ?"

How might he have answered the first question ? What advice would you offer ? I believe Dr. Deming would have answered it with a question. Less than necessary would be costly. More than necessary would be costly. Given a system definition, a process of experimentation would lead to an answer. To appreciate that "it depends" is to further appreciate what it means to think systemically, in comparison to the simplicity of a "one size fits all" solution. Instead of *reducing* variation, a more systemic approach would be to *manage* variation and provide the appropriate levels throughout the system.

Water Logic and Rock Logic

Systemic thinking implies an awareness of the relationships between the elements, or pieces, of a system. Lacking awareness of these interactions, a system is but a collection of independent pieces. From this perspective, one could count the number of parts in a product, the number of steps in a process, and the number of employees in an organization. Brought together, these parts would commence to "work together" to define a product, a process, or an organization of people. The degree to which the system "works together" can be enhanced with a better understanding of Dr. Deming's management theory, his so-called "system of profound knowledge".

The existence of the relationships between the elements of a system can be defined with questions such as,

"what is this part of ?"

"where did this come from ?"

and, "what will this lead to ?"

From a systemic perspective, the sequence of these questions may be represented by the connection (or *flow*) of the parts (pieces or events) below;

From Where ? → **This Part** → Lead To ?

From Where ? → **This Piece** → Lead To ?

Further definition of a given system can be achieved by repeated use of these questions, or logic (as in, “where does the “to” *lead to* ?”). As defined by author Edward de Bono, one’s awareness of the existence of the “*flow*” pattern connecting these elements stems from the use of “*water logic*”. To utilize the three questions above is to utilize water logic. Conversely, the inability to connect the pieces, or the lack of awareness of water logic, gives rise to a part perspective. Under such circumstances, one would not be aware of a flow. This situation is defined by de Bono as the use of “*rock logic*”. To become part focussed or piece focussed is to suffer from rock logic. Likewise, the inability to connect events, as in the connections below,

From Where ? → **This Event** → Lead To ?

may also be defined as a symptom of rock logic.

Investment Thinking

Given this introductory perspective on water and rock logic and the relationship of these concepts to systemic thinking, let me now draw a connection to what I refer to as “Investment Thinking”. If I were to explain the concept of an investment to my nine-year old daughter, I might approach it as “putting \$10 in the bank and getting \$12 back”. I might add that the bank is borrowing the money from me and paying me back for its use. In essence, the money is growing. I might then restate the action as “spending money to make money”. From a business perspective, such thinking is well understood. The simplicity of this action extends to spending time to save time or, in general, allocating resources in order to receive a greater return on those resources. The investment is made *here* and the return takes place *there*. As in the banking example for my daughter, *here* may refer to a time frame, as in the present, and *there* may refer to the future. I also liken the simple action of picking up a nail in a parking lot as a precious act of investment thinking. In doing so, I am spending time (my time...seconds) to save time (someone else’s time...maybe hours.) More broadly, *here* may be a particular piece of the organization that allocates the resources and *there* may be a connected piece of the organization that achieves the planned gain. Conceptually, this is the very theme I have in mind with Investment Thinking.

Investment Thinking is largely dependent on water logic, for how else could the connection be made between “allocating resources” *here* in order to achieve a gain *there* ? When suffering from rock logic, one would only see pieces, parts, or events, all as disassociated elements of a system. Lacking the systemic insights of water logic, Investment Thinking would be severely hampered. In doing so, investment opportunities would be missed. Likewise, would-be investment opportunities might readily be replaced by losses, as in the possible consequences of a nail in parking lot not being picked up. Such activities represent the essence of sub-optimization – the unwillingness or lack of sufficient systemic appreciation to make the investment. Conversely, individuals of an organization (a system itself) that are accomplished with water logic could participate in Investment Thinking as a naturally occurring, every day activity. Continuous Investment Thinking might be defined as the action of investment thinking, when practiced by all participants of the organization. Such a degree of choreography would result in an amazing degree of “working together”, with results (gains) that all members of the system could be proud of.

Thinking Together

The intent of this article is to create awareness in Continuous Investment Thinking and it’s connections to system management and business profitability. Beyond this article, a greater appreciation of this thinking can be achieved by attending the “Understanding Variation” seminar, which is offered within The Boeing Company on a regular basis. Using a model of systemic

learning as a means to foster superior systemic thinking, this seminar (a piece) is connected to a web of interdependent courses. When viewed as a system, these pieces have been specifically designed and integrated with the aim of providing a deeper and broader appreciation of the advantages of improving our collective thinking, towards the aim of *thinking together*. I refer to this system of thinking as a "Thinking Roadmap". A web site for this roadmap is available on the Boeing intranet at the address below;

<http://rdweb.rdyne.bna.boeing.com/tools&services/roadmap>

This web site may be used to gain additional awareness of the elements of this Thinking Roadmap, as well as to register for any of its courses.