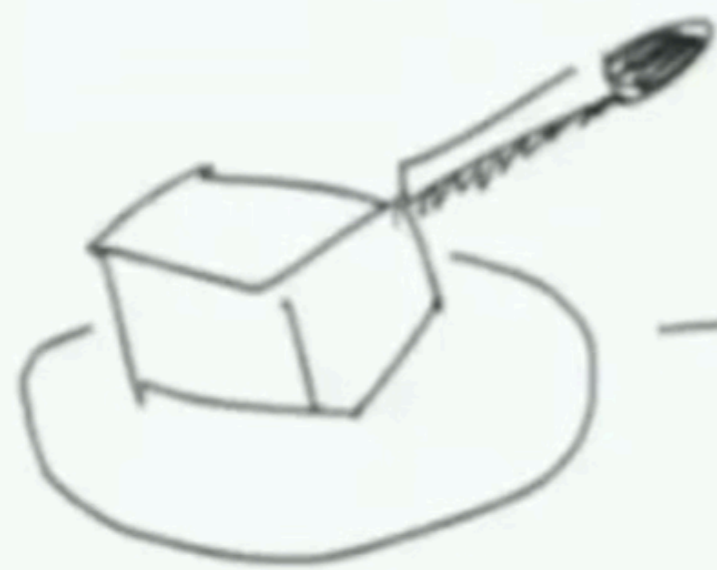


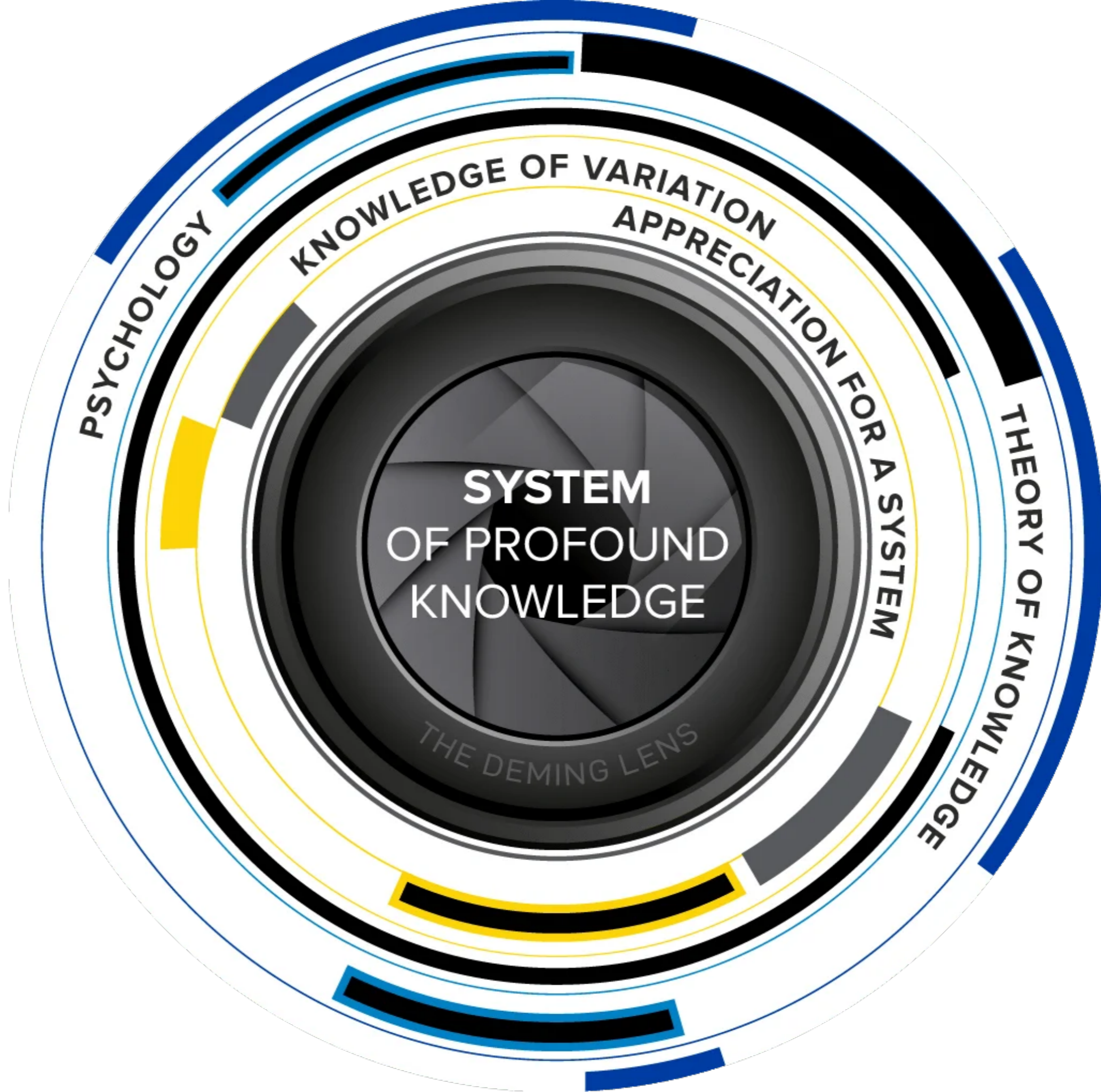
What Do We Mean By "Variation"?

Deming Module #4

May 2026

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About Deming

The Aim of This Webpage

To promote learning about Deming's approach to more effective leadership, greater productivity, higher quality, and healthier lives.

Method: a series of talks about the teachings of [W. Edwards Deming](#), and the impact of his teaching on my life and – potentially – yours.

Welcome Notes

I am not an expert on W. Edwards Deming. I'm learning to understand and apply his teachings as I proceed.

My knowledge is limited to hearing Dr. Deming in 1987; a three-day workshop led by The Deming Institute in 2017; and – most significantly – a long-standing marriage since 1988 to Alisa, who started her career in manufacturing and with the study of Deming.

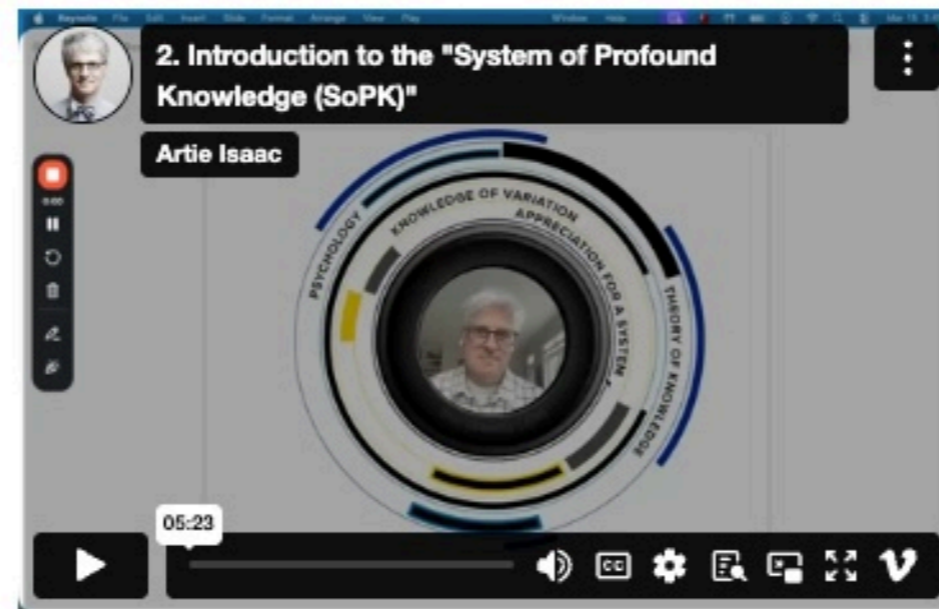
For definitive resources, please visit [The Deming](#)

3. What Do We Mean By "A System"?

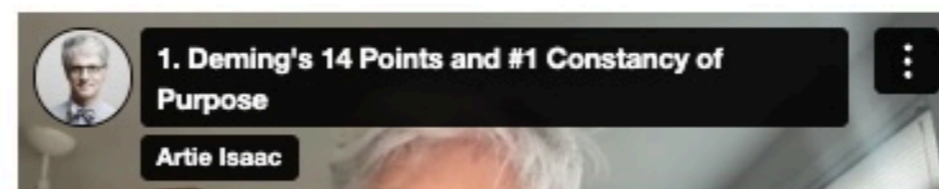


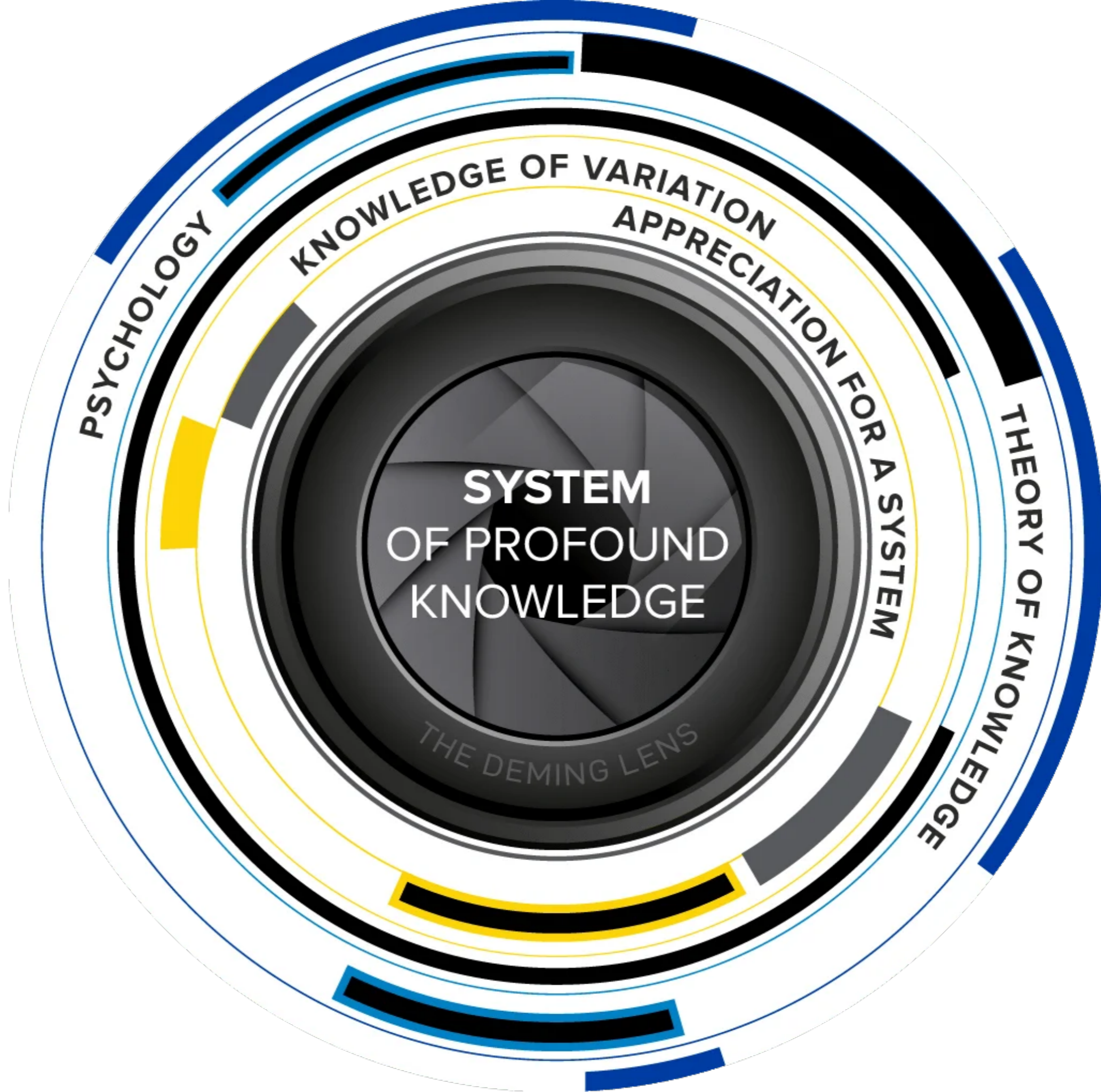
CLICK HERE FOR THE TED TALK MENTIONED IN VIDEO #3

2. Introduction to the "System of Profound Knowledge (SoPK)"



1. The 14 Points and #1 Constancy of Purpose





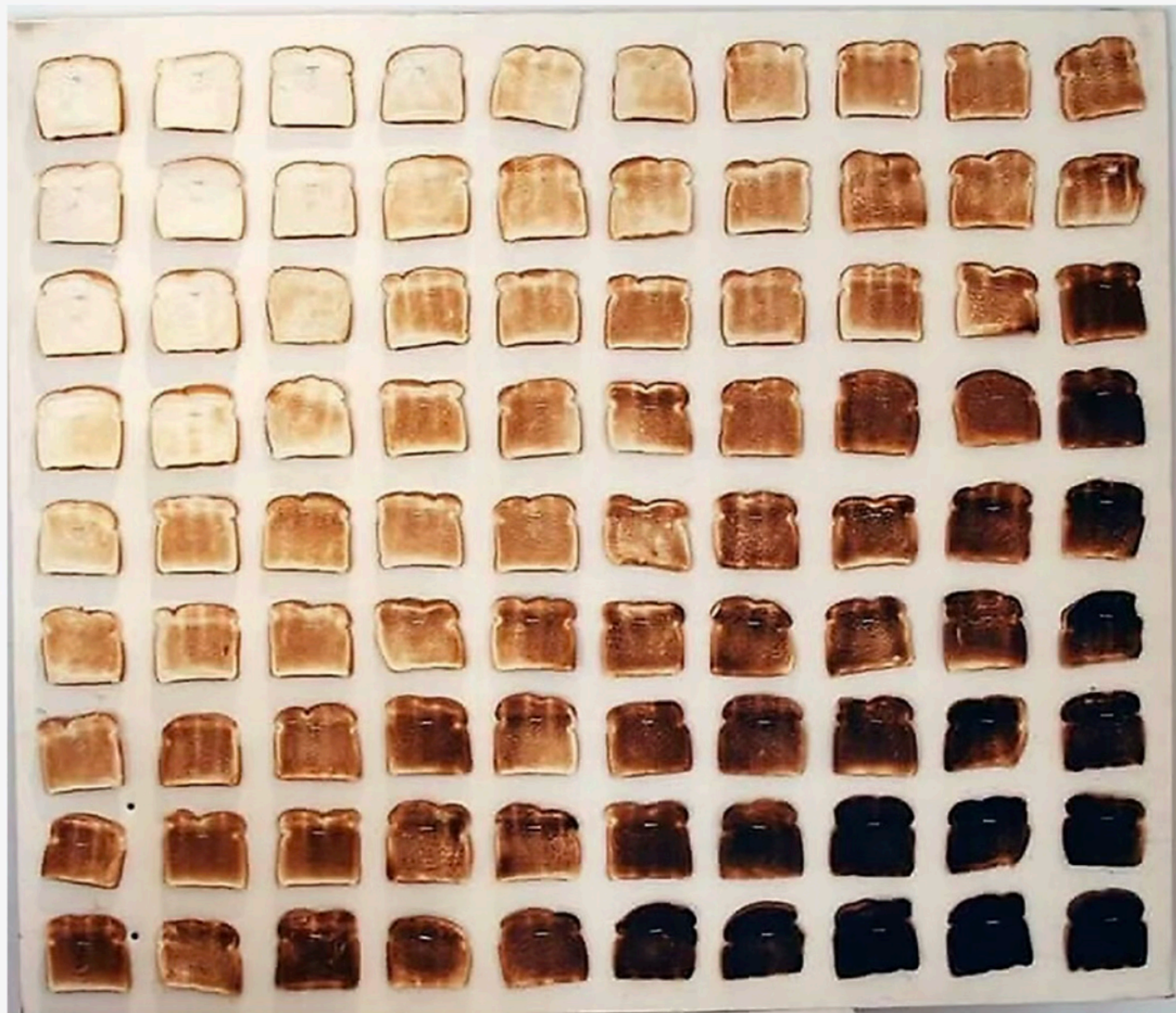
**SYSTEM
OF PROFOUND
KNOWLEDGE**

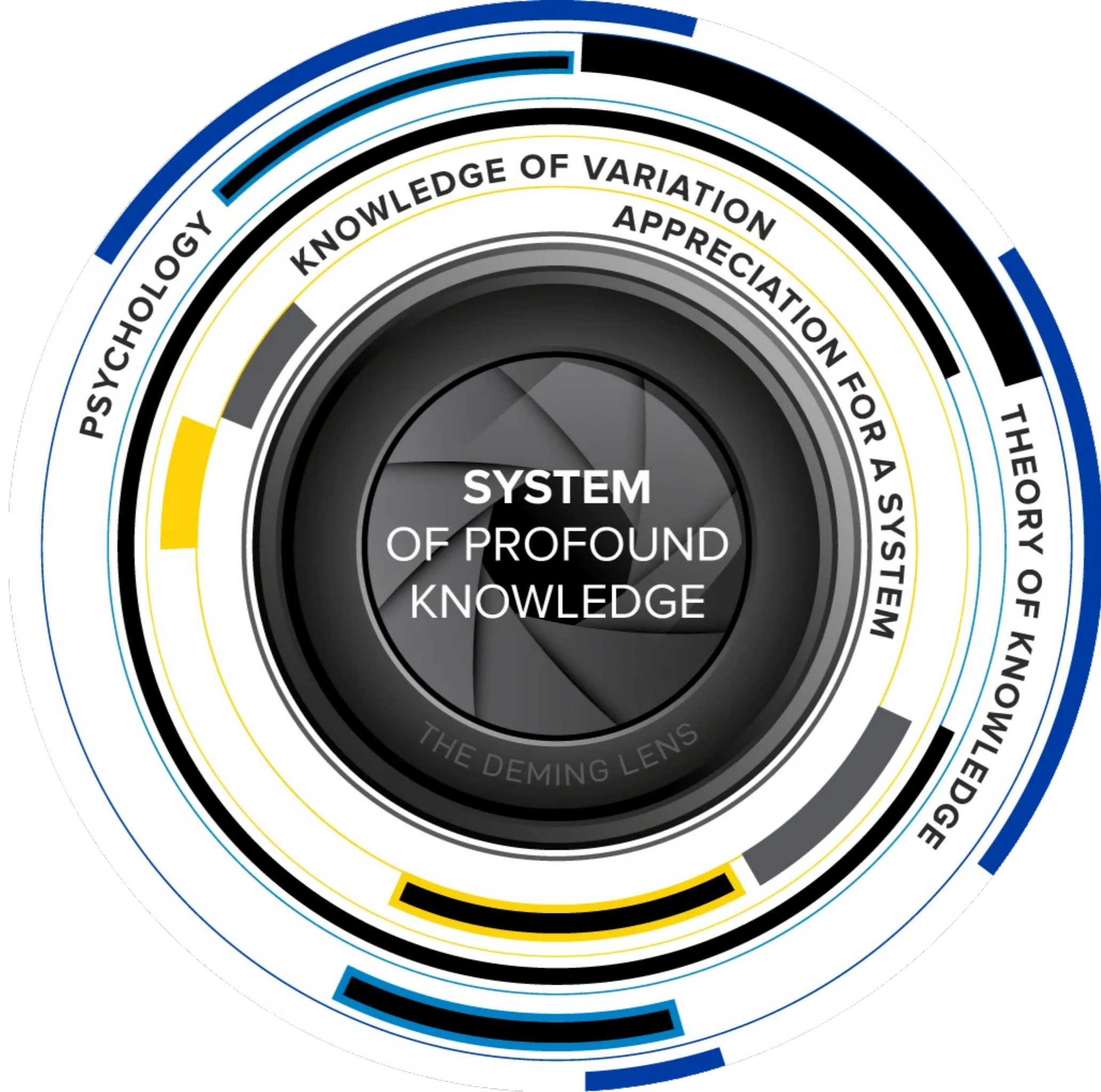
THE DEMING LENS

PSYCHOLOGY

KNOWLEDGE OF VARIATION
APPRECIATION FOR A SYSTEM

THEORY OF KNOWLEDGE





Aim For This Module

**To define *variation*
and
inform our observation of variation
in work and beyond**



What Do We Mean By "Variation"?

The Law of Variation is defined as the difference between an ideal and an actual situation.

Variation or variability is most often encountered as a change in data, expected outcomes, or slight changes in production quality.

What Do We Mean By "Variation"?

**Variation usually occurs
in four separate areas:**

- 1. Special causes**
- 2. Common causes**
- 3. Tampering**
- 4. Structural variation**

- 1. Special causes**
- 2. Common causes**
- 3. Tampering**
- 4. Structural variation**

What Do We Mean By "Special Cause Variation"?

Special Cause Variation refers to unexpected, sporadic, and assignable fluctuations in a process caused by external factors rather than inherent system design.

These deviations are identified when data points fall outside control limits or show non-random patterns, requiring immediate investigation and correction.

1. **Special causes**
2. **Common causes**
3. **Tampering**
4. **Structural variation**

What Do We Mean By "Special Cause Variation"?

Examples:

- **Machine/Equipment Failure:** Machine breaks down, power surge, or tool breaks mid-production.
- **Material Issues:** Bad batch of raw materials from a supplier differs from the standard specification.
- **Operator/Human Error:** Untrained operator, or an employee makes a mistake due to lack of awareness.
- **Environmental Changes:** A sudden unexpected rainstorm on site.
- **Process Changes:** Unauthorized or emergency change in the operating procedure.
- **External Disruptions:** Computer system crash, power outage, or a delivery truck stuck in abnormal traffic.

1. Special causes
2. Common causes
3. Tampering
4. Structural variation

Adult Learning Activity

- 1. Concept**
- 2. Solo Consideration**
- 3. Discussion**

- 1. Special causes**
- 2. Common causes**
- 3. Tampering**
- 4. Structural variation**

What Do We Mean By "Common Cause Variation"?

Common Cause Variation is the natural, inherent, and predictable variability within a stable process caused by random factors, not specific events, and requires system-level improvements rather than immediate, individual reactions.

1. Special causes
2. Common causes
3. Tampering
4. Structural variation

What Do We Mean By "Common Cause Variation"?

Examples:

- **slight temperature changes**
- **normal traffic**
- **minor raw material inconsistencies**
- **routine, expected maintenance**

1. **Special causes**
2. **Common causes**
3. **Tampering**
4. **Structural variation**



What Do We Mean By "Tampering"?

Tampering is the act of adjusting a stable process in response to variation that is actually inherent to the system (common cause variation).

This well-intentioned but misguided interference typically increases variation and worsens the system's performance.

1. Special causes
2. Common causes
3. Tampering
4. Structural variation

What Do We Mean By "Tampering"?



1. Special causes
2. Common causes
3. Tampering
4. Structural variation

What Do We Mean By "Structural (Systemic) Variation"?

Structural (Systemic) Variation is variation inherent in the design of the system itself.

Unlike "special causes" (unique, isolated events), structural variation is stable, predictable within limits, and built into how the work is organized, managed, or measured.

Structural (systemic) variations are the responsibility of management to change (e.g., changing the process or machine), whereas blaming workers for these variations is the core cause of failure.

1. **Special causes**
2. **Common causes**
3. **Tampering**
4. **Structural variation**

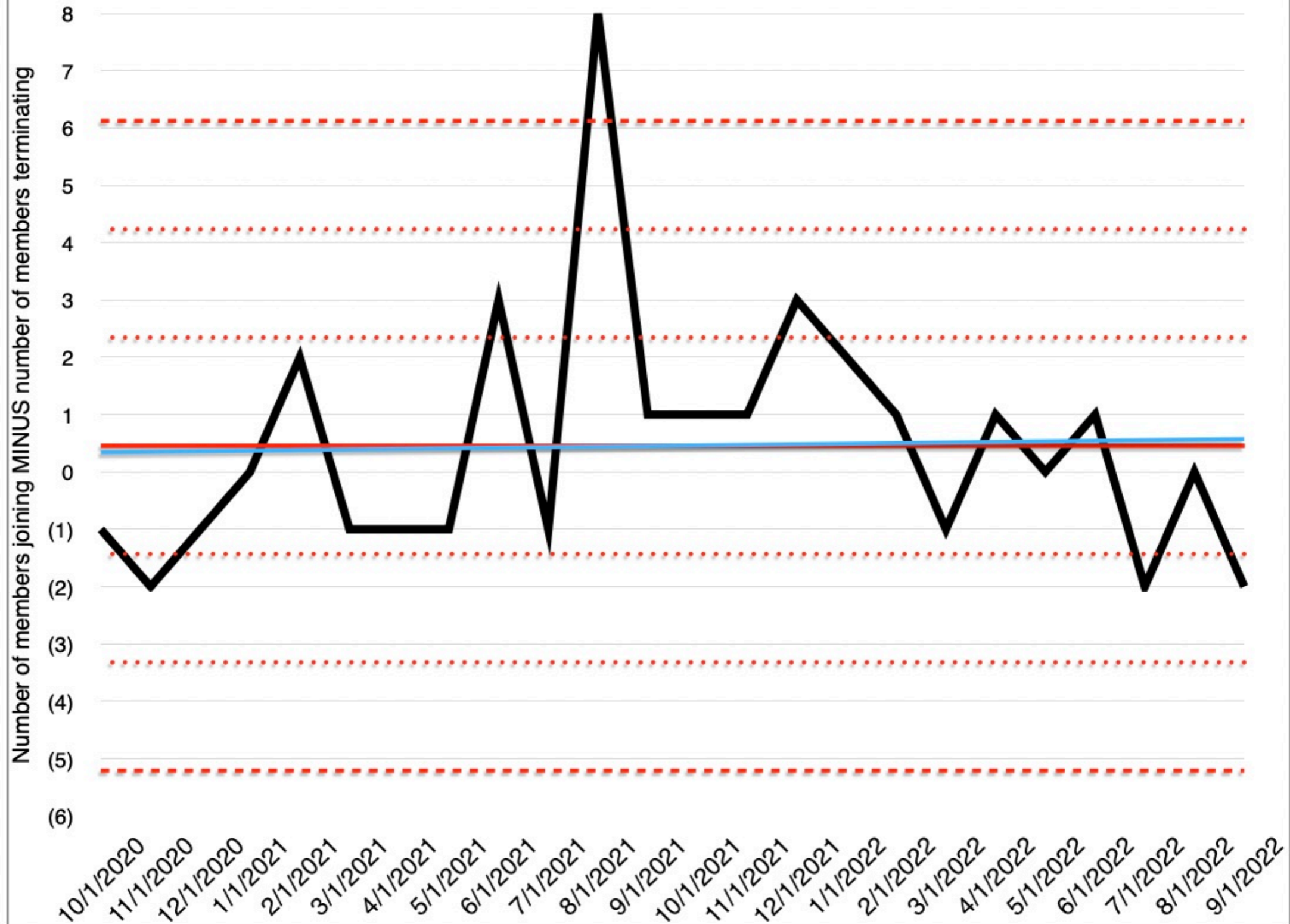
What Do We Mean By "Structural Variation"?

Examples:

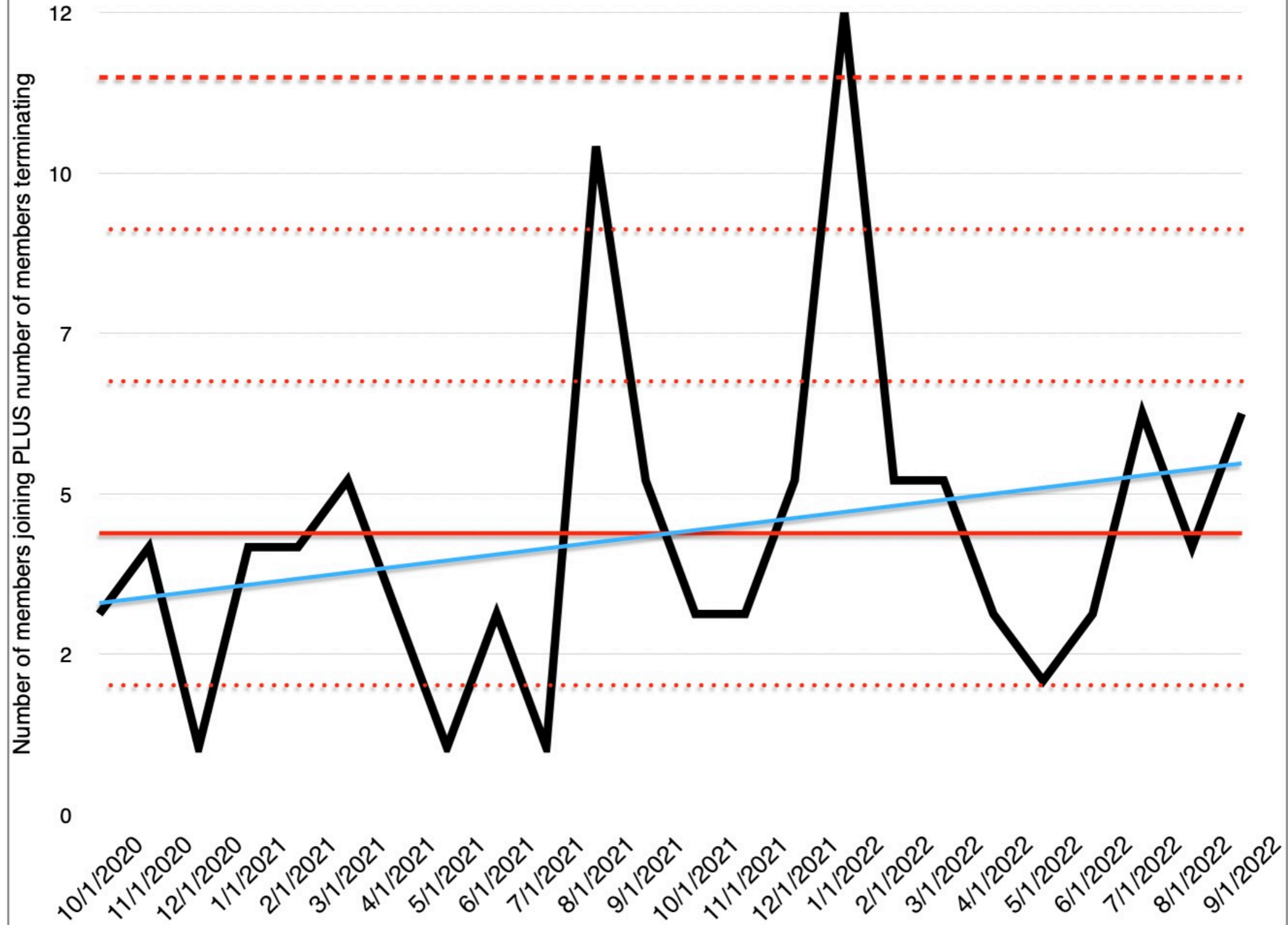
- **Process and Equipment Design**
- **Environmental and Structural Factors**
- **Management Policies and Incentives**
- **Interdependency Failures**
- **Training and Information Flow**

1. **Special causes**
2. **Common causes**
3. **Tampering**
4. **Structural variation**

2. Net Monthly Churn (Excluding Dayton and Inside)



3. Gross Monthly Churn (Excluding Dayton and Inside)





**SYSTEM
OF PROFOUND
KNOWLEDGE**

THE DEMING LENS

PSYCHOLOGY

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