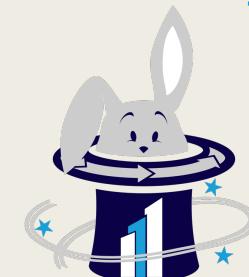


AN INTRODUCTION TO
SYSTEMS THINKING

Jeff Kosciejew



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Game Objectives

- Pass as many balls through your team as possible in the time provided
 - *We'll need teams with an approximately equal number of people per team*
- Each ball that makes it to completion is worth one point



Game Format

- At the end of each round, record your actual results on your Performance Tracking Data Recording sheets
- Discuss the improvement you're going to make & record it, along with your estimate for the next round



Game Format

- 1 Minute of Planning per round
 - *How you're going to work*
 - *Estimation committed & documented*
- 2 Minutes of Playing per round
 - *To accomplish the objective*
 - *Following the rules*
- We'll play a total of 5 Rounds



Rules

- Everyone on your team must touch every ball for it to count
- No passing to your immediate neighbour
- Each ball must have airtime between people
- Start point = End point



Rules - Updated

- Everyone on your team must touch every ball for it to count
- No passing to your immediate neighbour
- Each ball must have airtime between people
- Start point = End point
- Every ball that touches the floor, a table, or a chair is a defect, and counts as -1 to your final score for that round





What is a System?

A network of interdependent components that work together to accomplish the aim of the system.

A system must have an aim.
Without an aim, there is no system.



What is a System?

A set or pattern of relationships that work together in some fashion. Systems can accomplish things that would be impossible if the same elements were put into random relationships, or none at all...



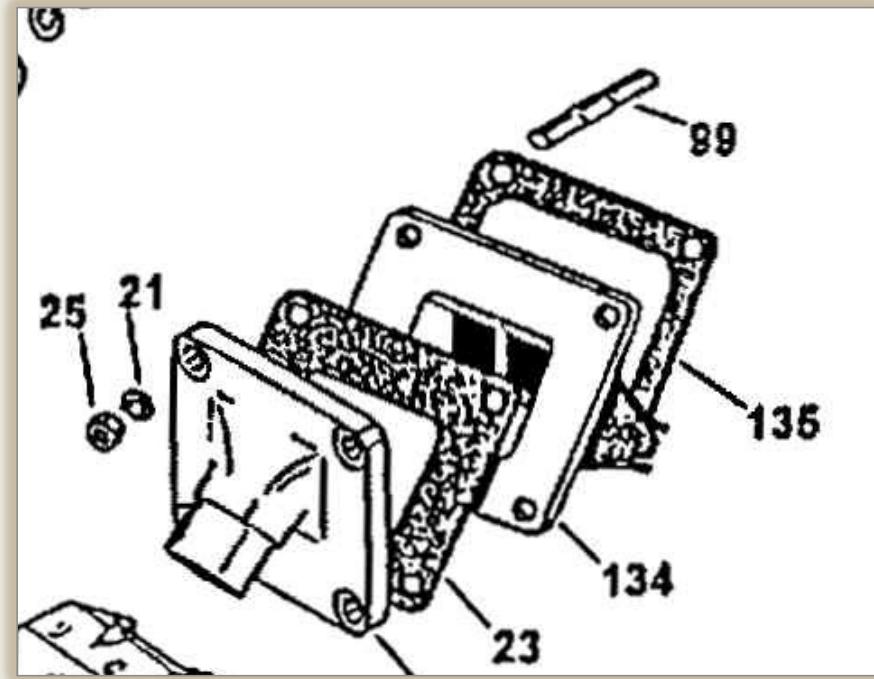
Each Part in a System...

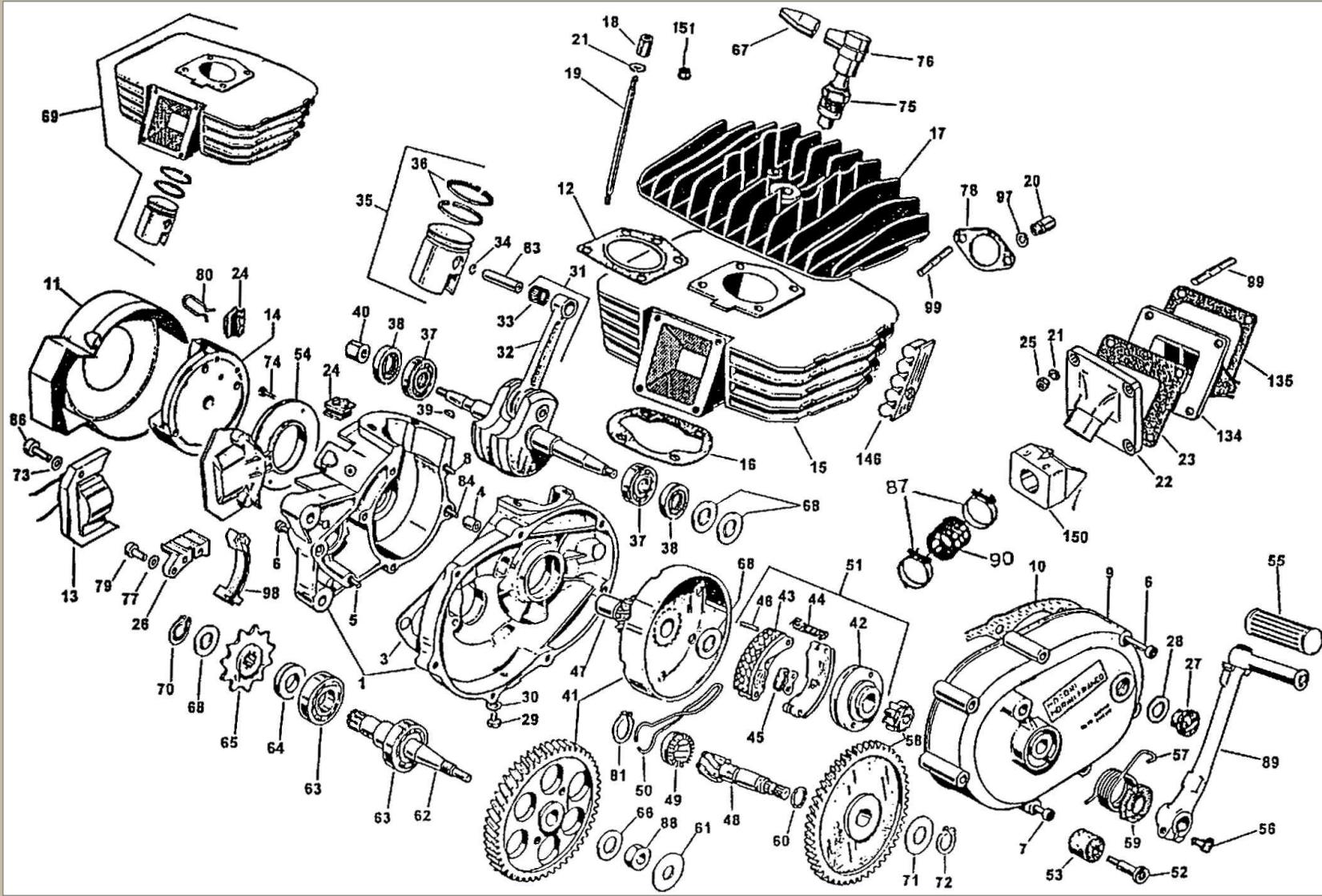
- Has its own purpose
- Is interdependent
- Interacts with others



We Cannot Understand a System...

- By looking at a collection of its parts
- Without looking outside of it
for why it exists
- By taking it apart
to analyze it





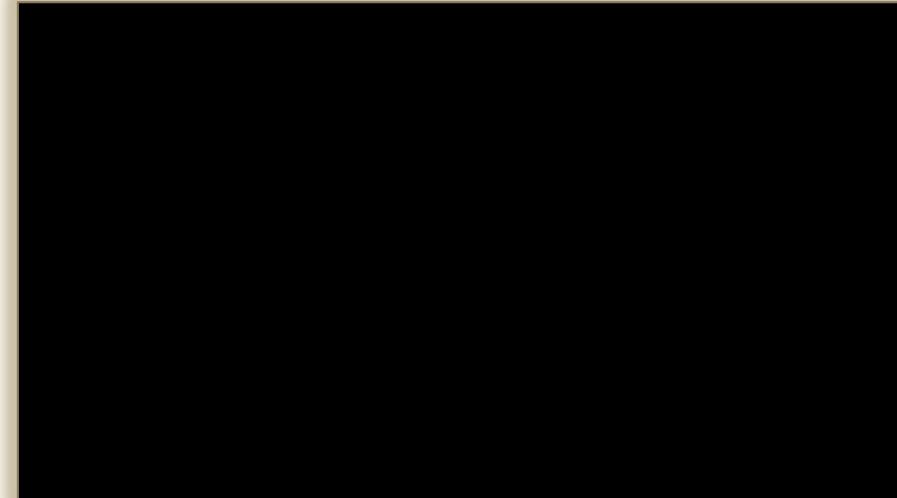
Systems Are...

- Indivisible
- A product of its interactions, not a sum of its parts



So What is Systems Thinking?

- A way of looking at the world:
 - *Relationships over Unrelated Objects*
 - *Connectedness over Isolated Events*
 - *Process over Structure*
 - *Patterns over Contents*
 - “*WE*” over “*ME*”



<https://www.youtube.com/watch?v=eakKfY5aHmY>



“ An example of a system, well optimized, is a good orchestra. The players are not there to play solos as prima donnas, each one trying to catch the ear of the listener.

They are there to support each other.

Individually they need not to be the best players in the country...

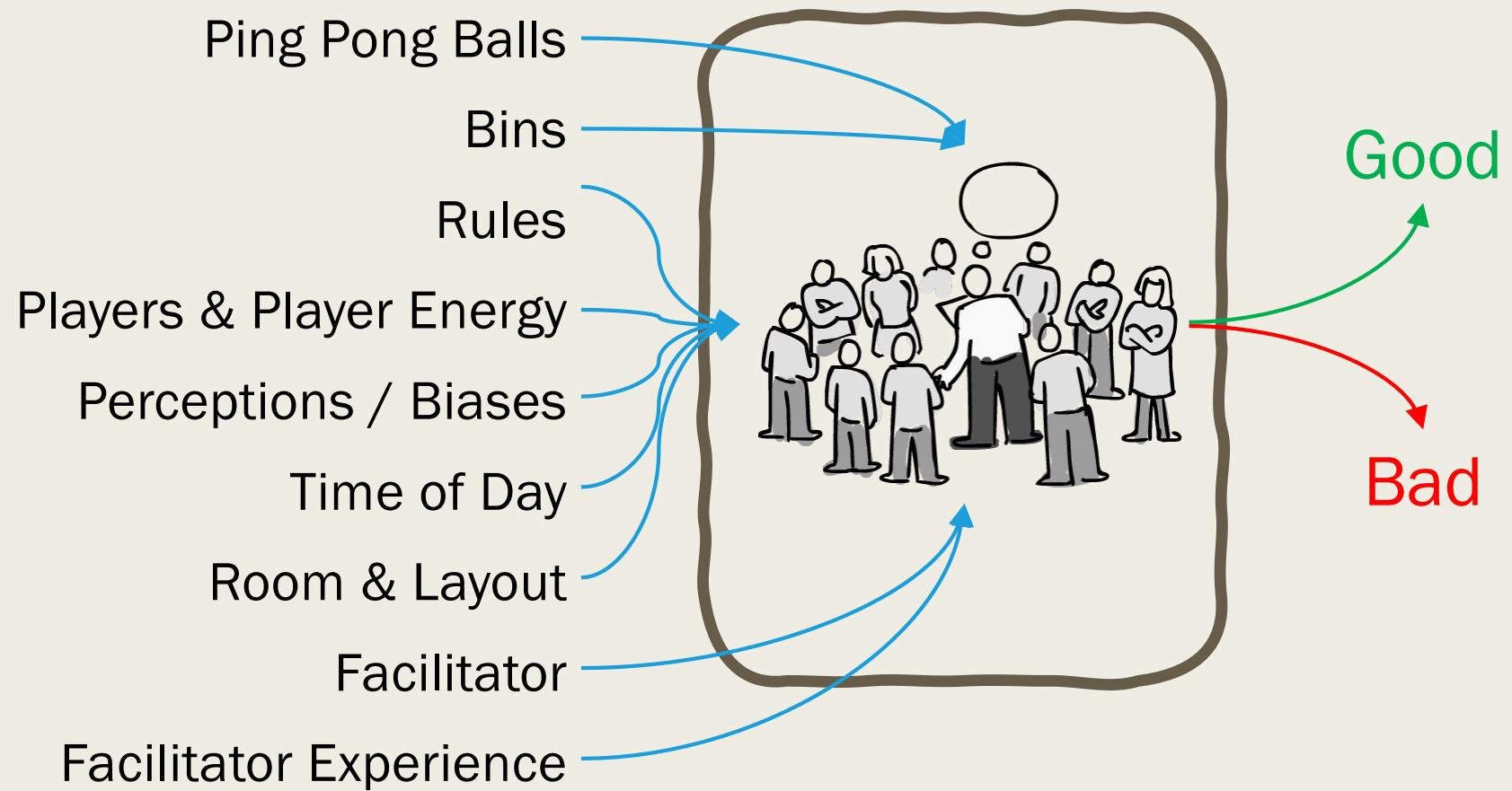
An orchestra is judged by listeners, not so much by illustrious players, but by the way they work together.



Edward Martin Baker: *The Symphony of Profound Knowledge*



Ball Point Game as a System





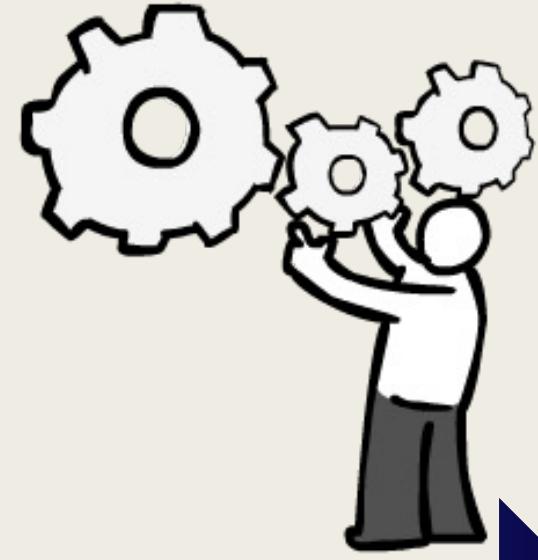
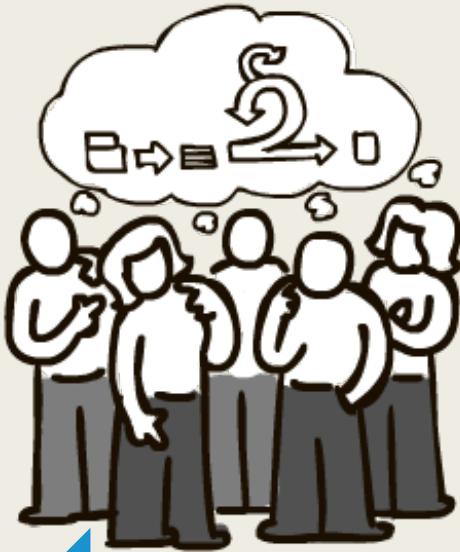
Each Part in a System

- Has its own purpose
- Is interdependent
- Interacts with others

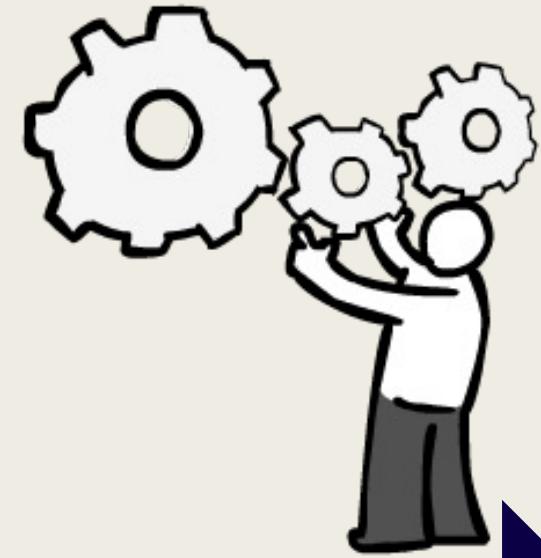
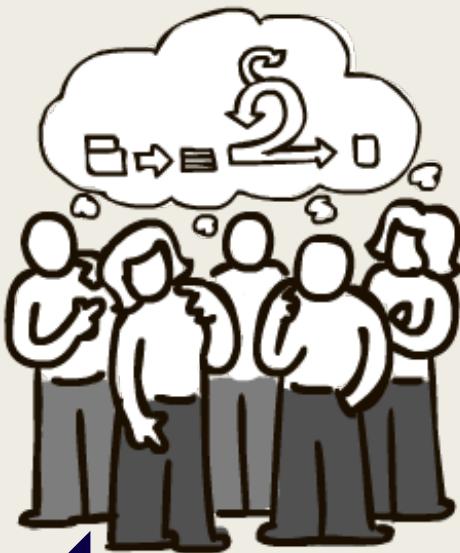
- Ping Pong Balls
- Bins
- Rules
- Players & Player Energy
- Perceptions / Biases
- Time of Day
- Room & Layout
- Facilitator
- Facilitator Experience



Ball Point Game as a System



Ball Point Game as a System



4%

96%



Each Part in a System

- Has its own purpose
- Is interdependent
- Interacts with others

- Ping Pong Balls
- Bins
- Rules
- Players & Player Energy
- Perceptions / Biases
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“ More important than using specific tools... is statistical thinking with an understanding of variation... This new way of thinking is the most powerful resources... ”

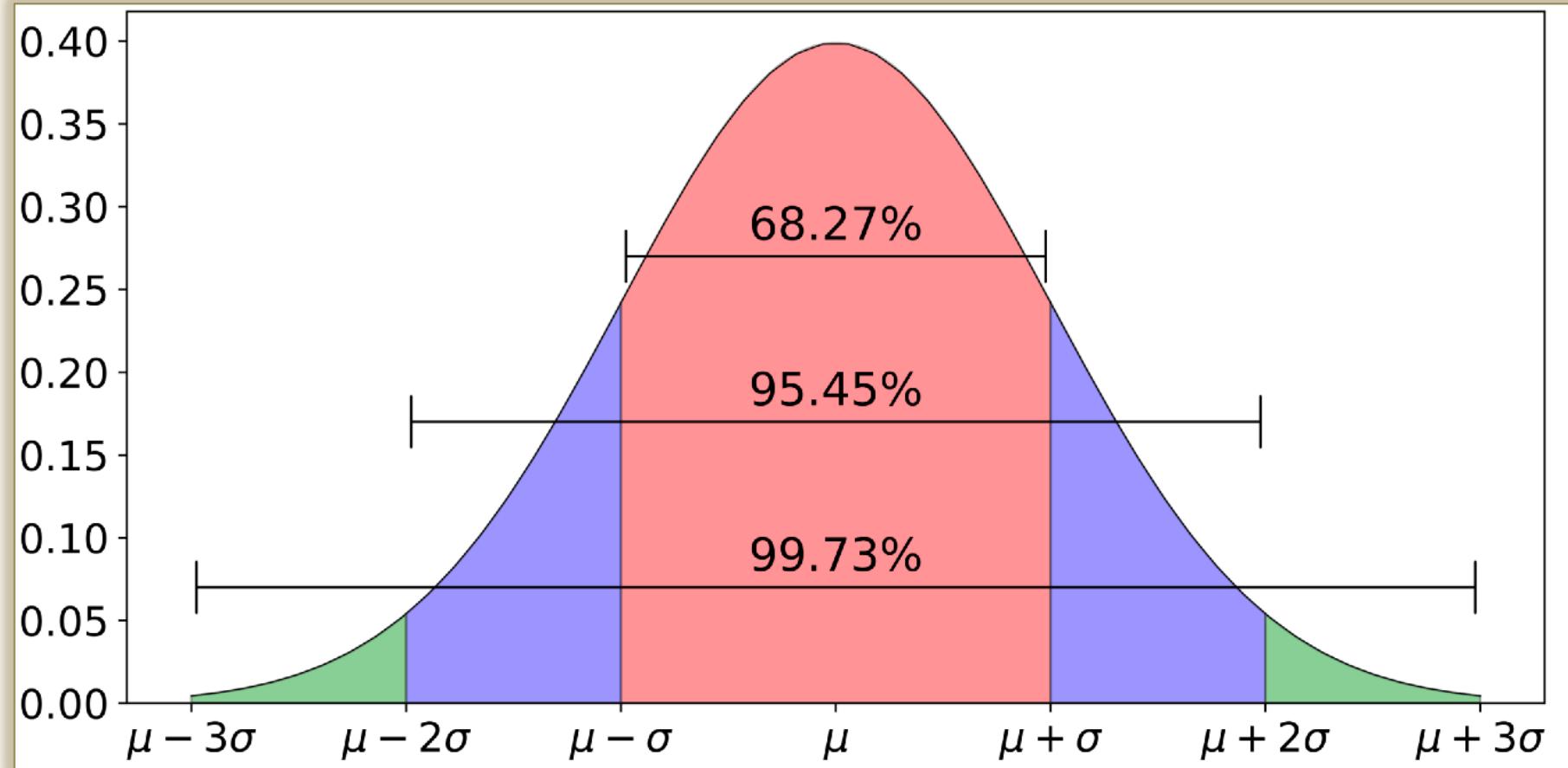
In any business, there are always variations between people, in output, in service, and in product. The outcome of a system results in two types of variation.



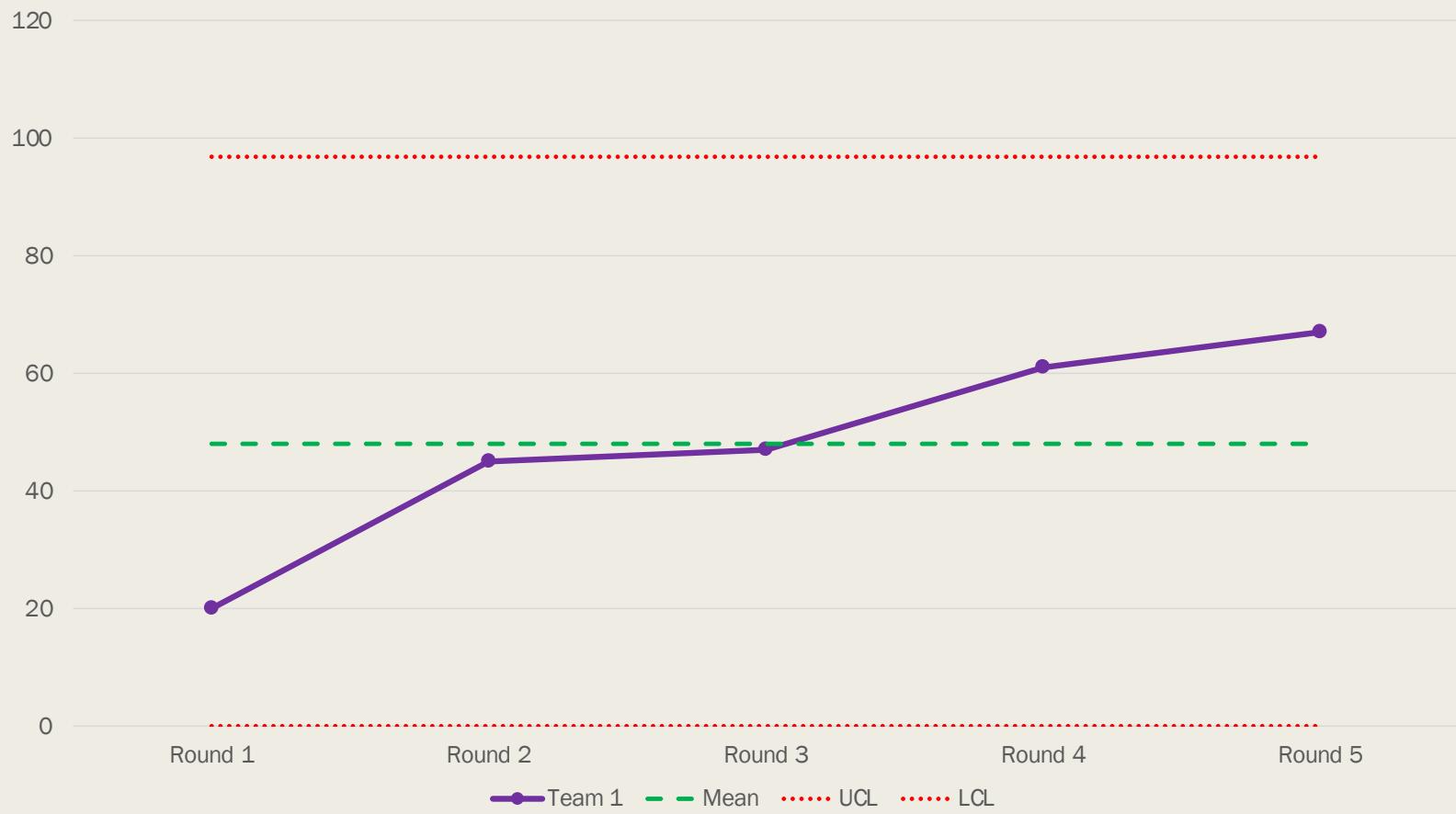
John Hunter: <https://blog.deming.org/2012/10/knowledge-of-variation/>



Understanding Variation in a System



Understanding Variation in a System



Ball Point Game & Systems Thinking

- Did the improvements your team came up with address (a) the system, or (b) a part of the system?
- For there to be meaningful improvements to our results, what needs to happen?
- What improvement would you make to the game, thinking about your whole system?
- How might this apply this to your real work?



“The characteristic way of management that we have taught in the Western world is take a complex system, divide it into parts, and then try to manage each part as well as possible. And if that's done, the system as a whole will behave well.

And that's absolutely false.

Because it's possible to improve the performance of each part taken separately and destroy the system at the same time.

Russell Ackoff: A Theory of a System for Educators and Managers
<https://youtu.be/2MJ3IGJ4OFo?t=1m18s>

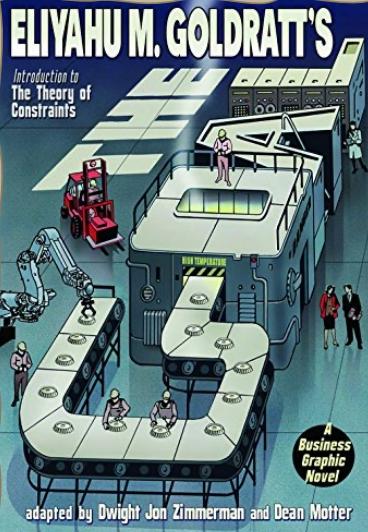


An Introduction to General Systems Thinking

SILVER ANNIVERSARY EDITION



Gerald M. Weinberg

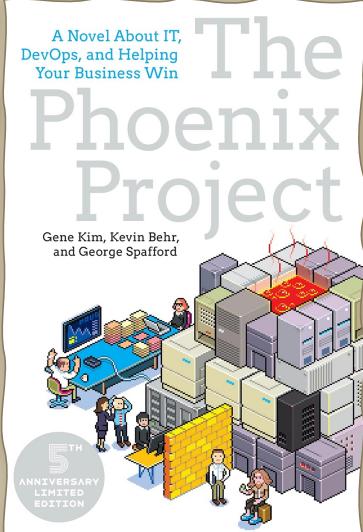
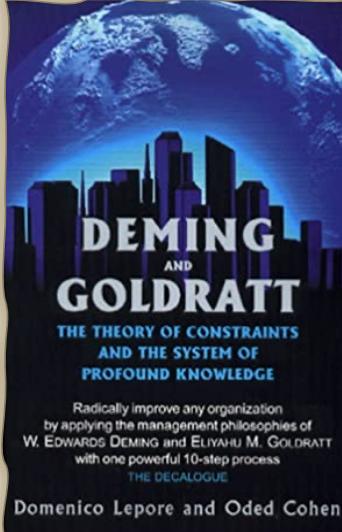
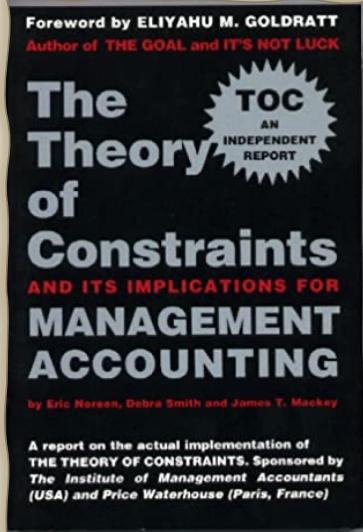
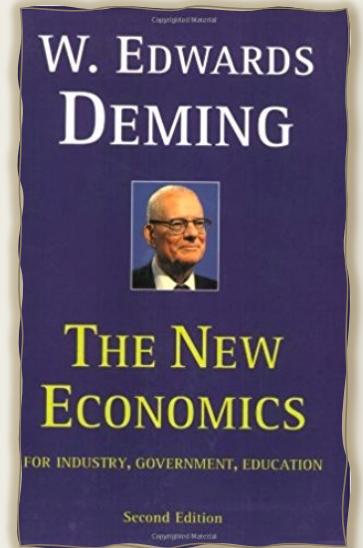
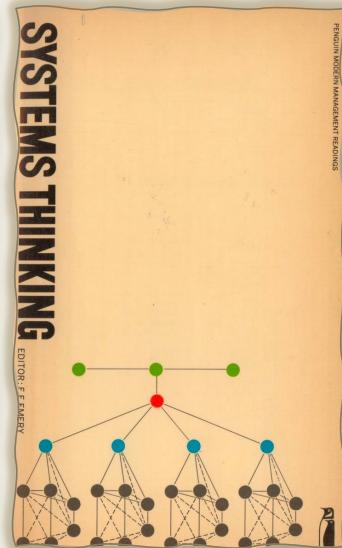
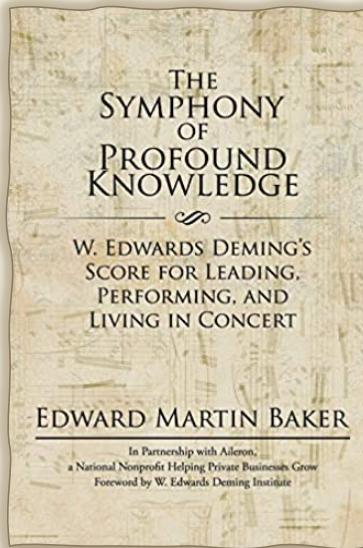
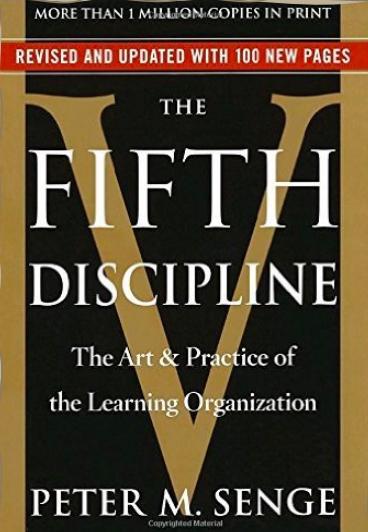


The DEMING Management Method

W. Edwards Deming, the genius who revitalized Japanese industry, offers his unorthodox system to make "Made in America" a guarantee of quality—again!

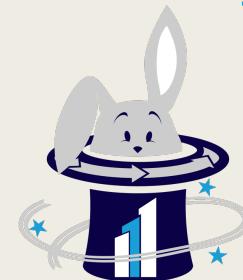
Mary Walton

Foreword by W. Edwards Deming



AN INTRODUCTION TO **SYSTEMS THINKING**

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