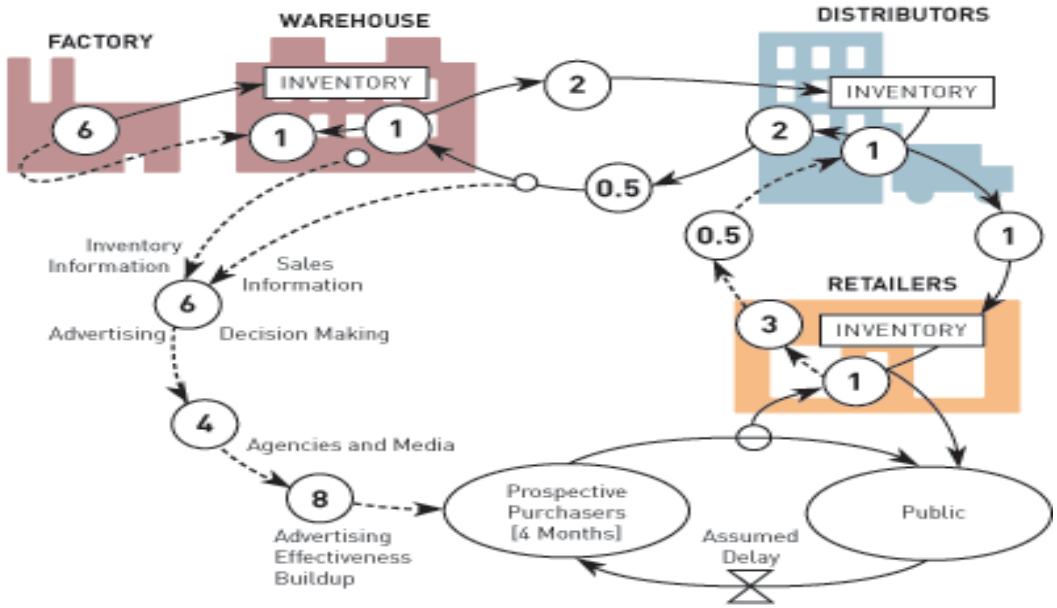
A management board game provides real-time experience of system dynamics, manually simulating supply chains.

ORIGINS OF THE MANAGEMENT BOARD GAME:

(Based on actual situation at General Electric in the 1950s).

1. The Board Game originated at MIT in 1957.
2. It is based on Prof. Jay Forrester applying System Dynamics at GE while assessing and modeling their supply chain issues.
3. The game's name has changed 3 times: from Refrigerator Game, to Beer Game, to Orange Juice Game, and others.
4. It provides hands-on, real-time experience to managers who play it in teams of 5 each and compete across teams.
5. ConfluCore partners have facilitated this game since 1989 at MIT and many organizations on 6 continents.
6. We offer this experience as a 6-hour activity, with breaks, and debriefs, potentially also relating applicable areas of the managers.
7. It can be played by a minimum of 10 managers (i.e., 2 teams of 5 each); maximum 60, and ideally 30 participants in 6 teams of 5 each.

Exhibit 1: **Modeling System Dynamics**



Source: Adapted from "Industrial Dynamics: A Major Breakthrough for Decision Makers," *Harvard Business Review*, July–August 1958

This diagram shows the interrelationships in Jay Forrester's early model of General Electric's supply chain problems. The "buildings" [factory, warehouse, distributors, retailers] represent stocks — in this case, inventory levels. Dotted lines represent flows of information (such as orders or sales figures); solid lines, flows of products or causal influence. Numbers in circles show the number of weeks required for each step.

Adapted from *Industrial Dynamics: A Major Breakthrough for Decision Makers, by* Jay Forrester, Harvard Business Review, July-August 1958.

One of the biggest contribution system dynamics has made is introducing experimentation to management and organizations.

CHANGE CAN BE DESIGNED AND SCRUTINIZED:

(Broader lessons from System Dynamics).

1. **While the Board Game originated from supply chains, System Dynamics lessons are broader and deeper for most issues/opportunities:**
   a. **Feedbacks** exist in all situations – these can be helpful or harmful to the goals and objectives – dynamic analyses are essential for making proper structural changes to effect strategy/policy.
   b. **Time delays** exacerbate and can even counter the intended "safe" changes initiated by management (the bullwhip effect is just one SCM example only).
   c. **Discrepancies** and gaps exist in every condition and proper gap-closing necessitates dynamic modeling.
   d. **Nonlinearities** are involved and must be included.
   e. **Accumulations** – in material as well as nonmaterial assets – like inventory, buffers, cashflow, morale, productivity, talent, etc. – all play a significant role in organizations; dynamic modeling includes the hard and soft variables as integral to the solution.
2. **There are outstanding applications of System Dynamics in improving functions, operations, organizations, processes, and strategy/policy.**

Example of the actual and simulated behaviors of the GE supply chain system:

The Board Game: Actual behavior of the system with unintended consequences.

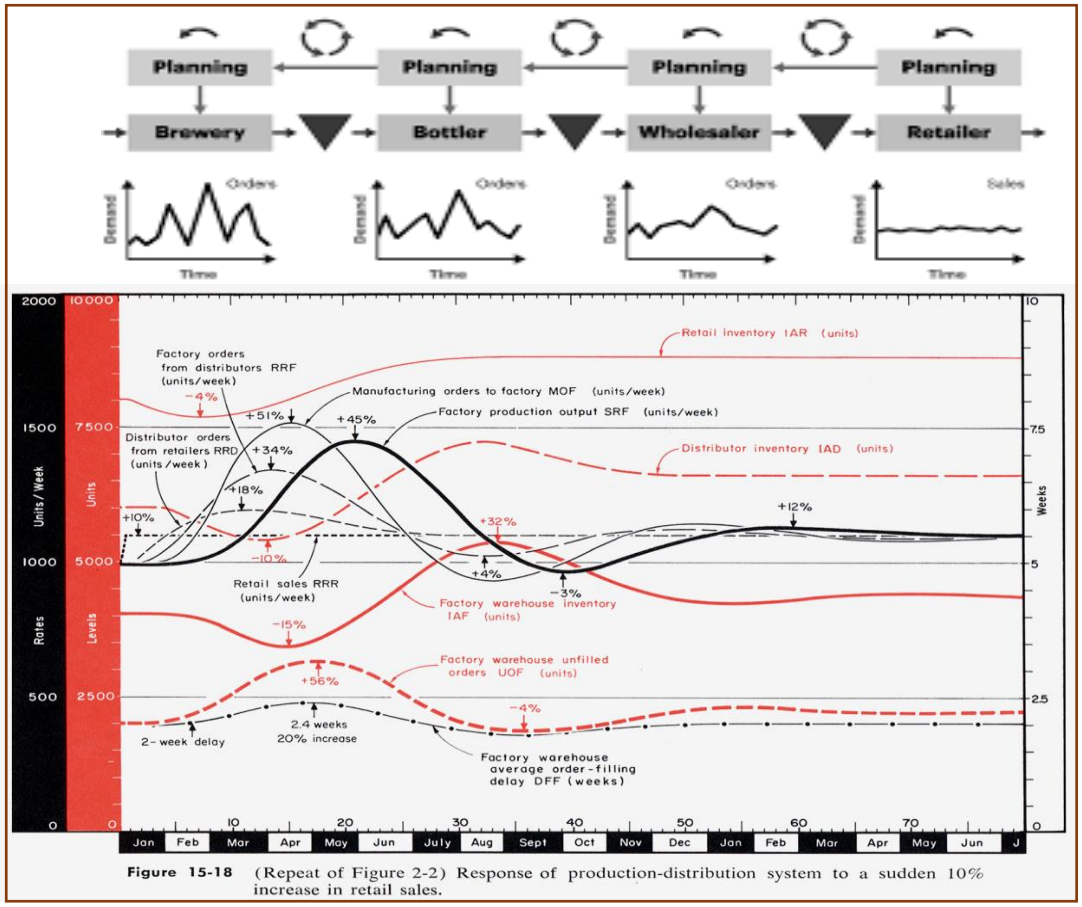
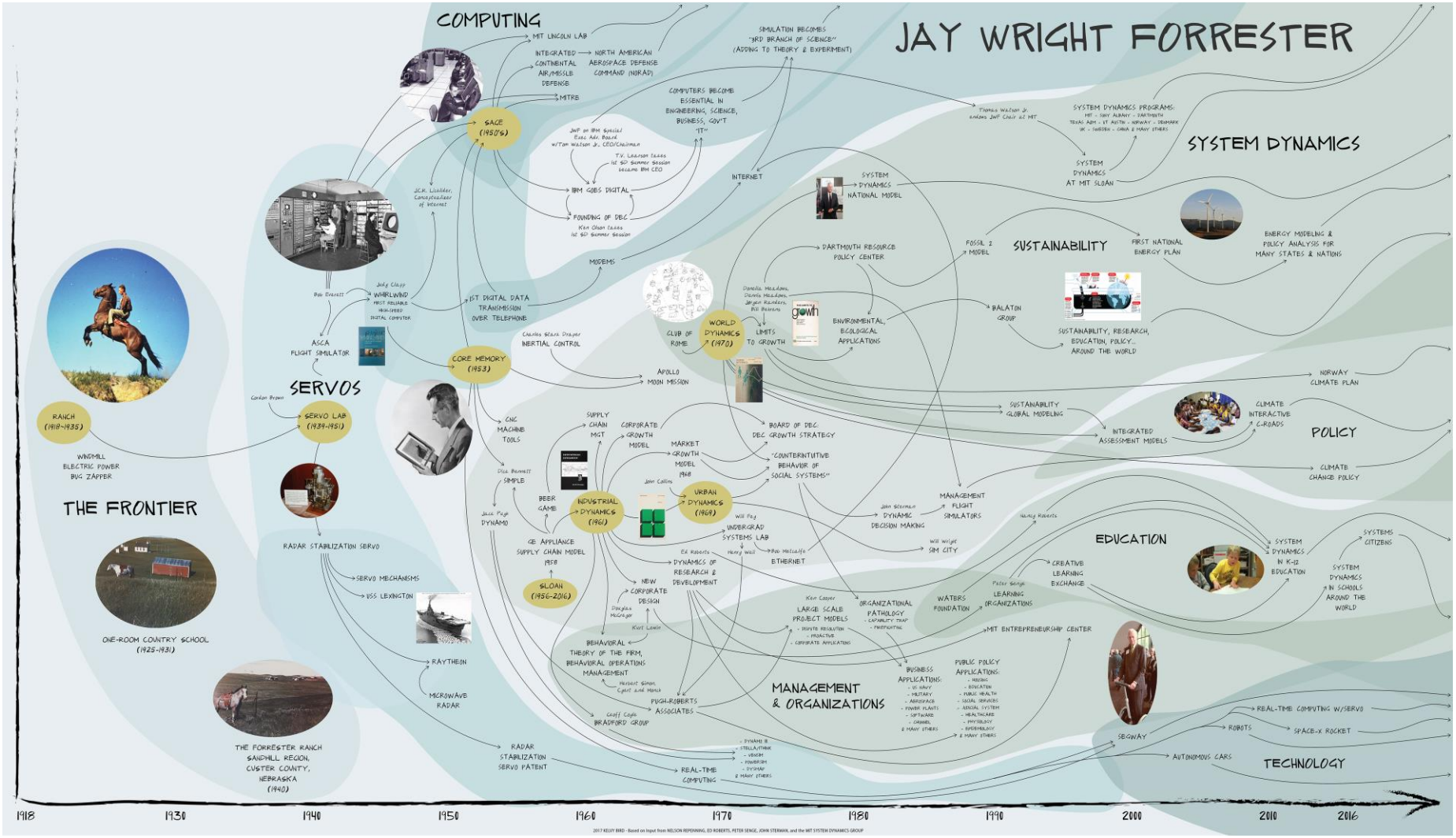


Figure 15-18 (Repeat of Figure 2-2) Response of production-distribution system to a sudden 10% increase in retail sales.

Two diagrams on the right-hand side are adapted and modified from *Industrial Dynamics,* by Jay Forrester, MIT Press, 1968.

Jay Forrester is the pioneer of system dynamics and its many original applications. He initiated many practical investigations making brilliant innovations every time.



Adapted from *The Many Careers of Jay Forrester,* by Peter Dizikes, MIT Technology Review, 2015.

 https://kelvybird.com/jay-wright-forrester/ To proudly share and celebrate.