



# SYSTEMS ARCHETYPES AS DYNAMIC THEORIES

BY DANIEL H. KIM



## Part 3 of a 3-part series

*As we previously mentioned, there are at least three ways to use the archetypes to better understand complex situations: as different “lenses” on a problem, as structural pattern templates, or as dynamic theories. In this issue, we will focus on using systems archetypes as dynamic theories.*

Part 3 of a 3-part series

Part 1: Using Archetypes as Different “Lenses” (V23N7)

Part 2: Systems Archetypes as Structural Pattern Templates (V23N10)

Most people are familiar with the Sufi tale of the four blind men, each of whom is attempting (unsuccessfully) to describe what an elephant is like based on the part of the animal he is touching. Trying to understand what is going on in an organization often seems like a corporate version of that story. Most organizations are so large that people only see a small piece of the whole, which creates a skewed picture of the larger enterprise. In order to learn as an organization, we need to find ways to build better collective understanding of the larger whole by integrating individual pieces into a complete picture of the corporate “elephant.”

## A Starting Point for Theory-Building

Quality pioneer Dr. Edwards Deming once said, “No theory, no learning.” In order to make sense of our experience of the world, we must be able to relate that experience to some coherent explanatory story. Without a working theory, we have no means to integrate our differing experiences into a common picture. In the absence of full knowledge about a system, we must create a theory about what we don’t know, based on what we currently *do* know.

Each systems archetype embodies a particular theory about dynamic behavior that can serve as a starting point for selecting and formulating raw data into a coherent set of interrelationships. Once those relationships are made explicit and precise, the “theory” of the archetype can then further guide us in our data-gathering process to test the causal relationships through direct observation, data analysis, or group deliberation.

Each systems archetype also offers prescriptions for effective action. When we recognize a specific archetype at work, we can use the theory of that archetype to begin exploring that particular system or problem and work toward an intervention.

For example, if we are looking at a potential “Limits to Success” situation, the theory of that archetype suggests eliminating the potential balancing processes that are constraining growth, rather than pushing harder on the growth processes. Similarly, the “Shifting the Burden” theory warns against the possibility of a short-term fix becoming entrenched as an addictive pattern (see “Archetypes as Dynamic Theories” on pp. 9–10 for a list of each archetype and its corresponding theory).

Systems archetypes thus provide a good starting theory from which we can develop further insights into the nature of a particular system. The diagram that results from working with an archetype should not be viewed as the “truth,” however, but rather a good working model of what we know at any point in time. As an illustration, let’s look at how the “Success to the Successful” archetype can be used to create a working theory of an issue of technology transfer.

## “Success to the Successful” Example

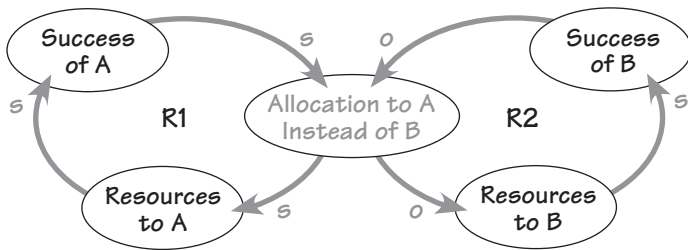
An information systems (IS) group inside a large organization was having problems introducing a new email system to enhance company communications. Although the new system was much more efficient and reliable, very few people in the company were willing to switch from their existing email systems. The situation sounded like a “Success to the Successful” structure, so the group chose that archetype as its starting point.

The theory of this archetype (see “‘Success to the Successful’ Email” on p. 8) is that if one person, group, or idea (“A”) is given more attention, resources, time, or practice than an alternative (“B”), A will have a higher likelihood of succeeding than B (assuming that the two are more or less equal). The reason is that the initial success of A justifies devoting more of whatever is needed to keep A successful, usually at the expense of B (loop R1). As B gets fewer resources, B’s success continues to diminish, which further justifies allocating more resources to A (loop R2). The predicted outcome of this structure is that A will succeed and B will most likely fail.

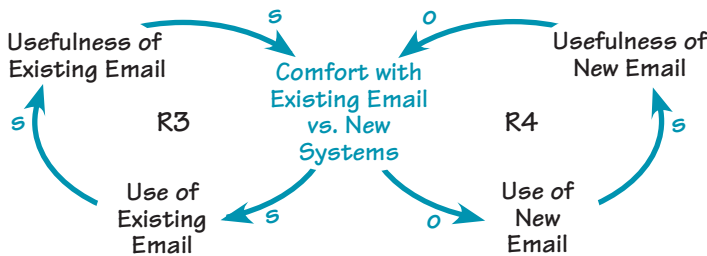
When the IS team members mapped out their issue into this archetype, their experience corroborated

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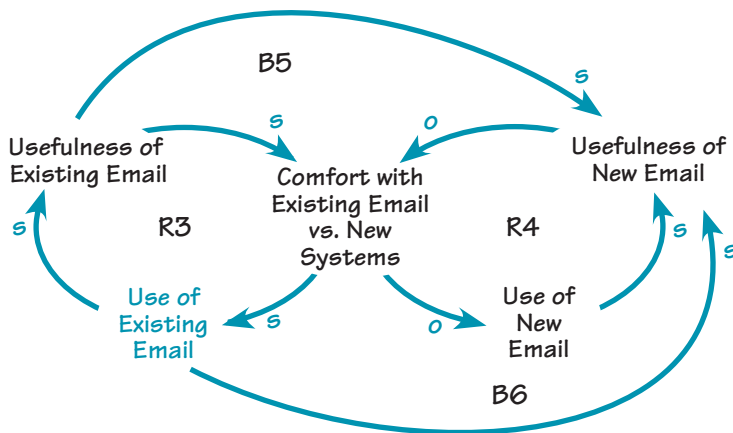
“SUCCESS TO SUCCESSFUL” TEMPLATE



CORE DYNAMIC THEORY



EXTENDED DYNAMIC THEORY



Starting with the “Success to the Successful” storyline (top), the IS team created a core dynamic theory linking the success of the old email systems with the success of the new system (middle). They then identified structural interventions they could make to use the success of the old systems to fuel the acceptance of the new one (loops B5 and B6, bottom).

the relationships identified in the loops (see “Core Dynamic Theory”). The archetype helped paint a common picture of the larger “elephant” that the group was dealing with, and clearly stated the problem: given that the existing email systems had such a head start in this structure, the attempts to convince people to use the new system were likely to fail. Fur-

thermore, the more time that passed, the harder it would be to ever shift from the existing systems to the new one.

Using the “Core Dynamic Theory” diagram as a common starting point, group members then explored how to use the success of the existing system to somehow drive the success of the new one (see “Extended Dynamic Theory”). They hypothesized that creating a link between “Usefulness of Existing Email” and “Usefulness of New Email” (loop B5) and/or a link between “Use of Existing Email” and “Usefulness of New Email” (loop B6) could create counterbalancing forces that would fuel the success loop of the new system. Their challenge thus became to find ways in which the current system could be used to help people appreciate the utility of the new system, rather than just trying to change their perceptions by pointing out the limitations of the existing system.

Managers As Researchers and Theory Builders

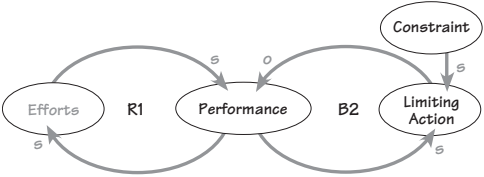
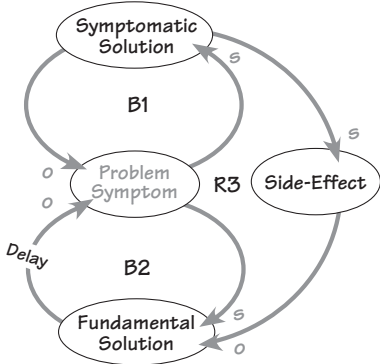
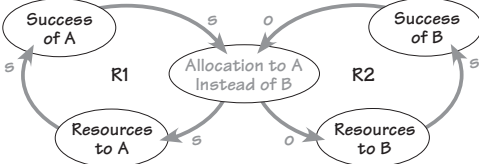
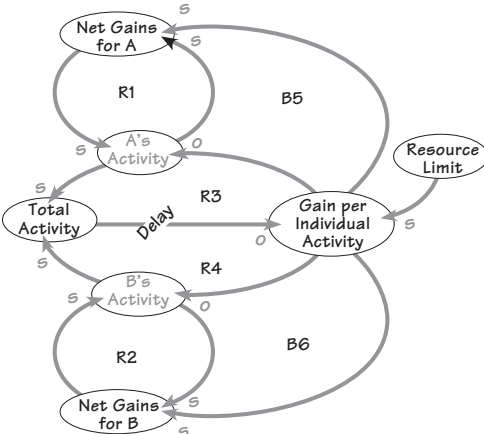
Total Quality tools such as statistical process control, Pareto charts, and check sheets enable front-line workers to become much more systematic in their problem solving and learning. With these tools, they become researchers and theory builders of their own production process, gaining insight into how the current systems work.

Similarly, systems archetypes can enable managers to become theory builders of the policy- and decision-making processes in their organizations, exploring why the systems behave the way they do. As the IS story illustrates, these archetypes can be used to create rich frameworks for continually testing strategies, policies, and decisions that then inform managers of improvements in the organization. Rather than simply applying generic theories and frameworks like Band-Aids on a company’s own specific issues, managers must take the best of the new ideas available and then build a workable theory for their own organization. Through an ongoing process of theory building, managers can develop an intuitive knowledge of why their organizations work the way they do, leading to more effective, coordinated action. ■

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ARCHETYPES AS DYNAMIC THEORIES

Archetype	Dynamic Theory	Prescriptive Actions
<p><b>Drifting Goals</b></p>	<p>The “Drifting Goals” archetype states that a gap between a goal and an actual condition can be resolved in two ways: by taking corrective action to achieve the goal, or by lowering the goal. It hypothesizes that when there is a gap between the goal and the actual condition, the goal is lowered to close the gap. Over time, the continual lowering of the goal will lead to gradually deteriorating performance.</p>	<ul style="list-style-type: none"> <li>Anchor the goal to an external frame of reference to keep it from sliding (e.g., benchmarking, voice of the customer).</li> <li>Determine whether the drift in performance is the result of conflicts between the stated goal and implicit goals in the system (such as current performance measures).</li> <li>Establish a clear transition plan from current reality to the goal, including a realistic timeframe for achieving the goal.</li> </ul>
<p><b>Escalation</b></p>	<p>The “Escalation” archetype occurs when one party’s actions are perceived by another party to be a threat, and the second party responds in a similar manner, further increasing the threat. It hypothesizes that the two balancing loops will create a reinforcing figure-8 effect, resulting in threatening actions by both parties that grow exponentially over time.</p>	<ul style="list-style-type: none"> <li>Identify the relative measure that is pitting one party against another, and explore ways it can be changed or other ways the two parties can differentiate themselves in the marketplace.</li> <li>Quantify significant delays in the system that may be distorting the nature of the threat.</li> <li>Identify a larger goal that encompasses the individual goals of both parties.</li> </ul>
<p><b>Fixes That Fail</b></p>	<p>The “Fixes That Fail” archetype states that a “quick-fix” solution can have unintended consequences that exacerbate the problem. It hypothesizes that the problem symptom will diminish for a short while and then return to its previous level, or become even worse over time.</p>	<ul style="list-style-type: none"> <li>Focus on identifying and removing the fundamental cause of the problem symptom.</li> <li>If a temporary, short-term solution is needed, develop a two-tier approach of simultaneously applying the fix and planning out the fundamental solution.</li> <li>Use the archetype to map out potential side effects of any proposed interventions.</li> </ul>
<p><b>Growth and Underinvestment</b></p>	<p>The “Growth and Underinvestment” archetype applies when growth approaches a limit that can be overcome if capacity investments are made. If a system becomes stretched beyond its limit, however, it will compensate by lowering performance standards, which reduces the perceived need for capacity investments. It also leads to lower performance, which further justifies underinvestment over time.</p>	<ul style="list-style-type: none"> <li>Identify interlocked patterns of behavior between capacity investments and performance measures.</li> <li>Shorten the delays between when performance declines and when additional capacity comes on line (particularly perceptual delays about the need to invest).</li> <li>Anchor investment decisions on external signals, not on standards derived from past performance.</li> </ul>

Archetype	Dynamic Theory	Prescriptive Actions
<p data-bbox="261 149 467 174"><b>Limits to Success</b></p> 	<p data-bbox="654 149 1058 369">The “Limits to Success” archetype states that a reinforcing process of accelerating growth (or expansion) will encounter a balancing process as the limit of that system is approached. It hypothesizes that continuing efforts will produce diminishing returns as one approaches the limit.</p>	<ul data-bbox="1094 149 1536 474" style="list-style-type: none"> <li>• Focus on removing the limit (or weakening its effects) rather than continuing to drive the reinforcing processes of growth.</li> <li>• Use the archetype to identify potential balancing processes before they begin to affect growth.</li> <li>• Identify links between the growth processes and limiting factors to determine ways to manage the balance between the two.</li> </ul>
<p data-bbox="196 562 537 588"><b>Shifting the Burden/Addiction</b></p> 	<p data-bbox="654 562 1058 951">The “Shifting the Burden” archetype states that a problem symptom can be resolved either by using a symptomatic solution or applying a fundamental solution. It hypothesizes that once a symptomatic solution is used, it alleviates the problem symptom and reduces pressure to implement a more fundamental solution. The symptomatic solution also produces a side effect that systematically undermines the ability to develop a fundamental solution or capability.</p>	<ul data-bbox="1094 562 1536 867" style="list-style-type: none"> <li>• Focus on the fundamental solution. If necessary, use the symptomatic solution only to gain time while working on the fundamental solution.</li> <li>• Elicit multiple viewpoints to differentiate between fundamental/symptomatic solutions and to gain consensus around an action plan.</li> <li>• Use the archetype to explore potential side effects of any proposed solution.</li> </ul>
<p data-bbox="191 1024 493 1050"><b>Success to the Successful</b></p> 	<p data-bbox="654 1024 1058 1308">The “Success to the Successful” archetype states that if one person or group (A) is given more resources than another equally capable group (B), A has a higher likelihood of succeeding. It hypothesizes that A’s initial success justifies devoting more resources to A, further widening the performance gap between the two groups over time.</p>	<ul data-bbox="1094 1024 1536 1329" style="list-style-type: none"> <li>• Evaluate the current measurement systems to determine if they are set up to favor established practices over other alternatives.</li> <li>• Identify goals or objectives that will define success at a higher level than individual players “A” and “B.”</li> <li>• Calibrate internal views of market success against external indicators to identify potential competency traps.</li> </ul>
<p data-bbox="196 1459 488 1484"><b>Tragedy of the Commons</b></p> 	<p data-bbox="654 1459 1058 1738">The “Tragedy of the Commons” archetype identifies the causal connections between individual actions and the collective results (in a closed system). It hypothesizes that if the total usage of a common resource becomes too great for the system to support, the commons will become overloaded or depleted and everyone will experience diminishing benefits.</p>	<ul data-bbox="1094 1459 1536 1812" style="list-style-type: none"> <li>• Establish methods for making the cumulative effects of using the common resource more real and immediate to the individual users.</li> <li>• Re-evaluate the nature of the commons to determine if there are ways to replace or renew (or substitute for) the resource before it becomes depleted.</li> <li>• Create a final arbiter who manages the use of the common resource from a whole-system level.</li> </ul>