

Bureaucracy and Innovation Revisited: A 60-Year Update Incorporating Organizational Culture

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60 years ago, Victor Thompson examined the relationship between bureaucracy and innovation in the organizational context. Today, we are still far from answering how to resolve the conflict between bureaucracy and innovation. The opinions of scholars differ significantly. These cover both extremes, from bureaucracy being the solution to most organizational problems to bureaucracy hindering organizational success and growth. In between, there are various opinions, such as that bureaucracy needs innovation and vice versa.

Despite this unresolved conflict in the scientific and management communities, there is little doubt that organizations have to adapt to fast-changing environmental conditions. Rapid technological transformations, such as the massive improvements in artificial intelligence (AI) systems, rising global conflicts, and increasing inflation, force organizations to think anew.

We draw on the strengths of the system dynamics (SD) methodology to help managers strike the right balance between bureaucracy and innovation to maintain stable organizational performance amid changing conditions. In contrast, for instance, to the rich body of models found in operations research, we do not limit the problem to scheduling. In addition to assigning employees to either bureaucratic or innovative tasks, we also include the effect of organizational culture.

Our model consists of two sub-systems: the organization and the external environment. The latter sets performance goals and offers resources to the organization. The organizational model is built around two core elements. On the one hand, there are the bureaucratic tasks employees are engaged in. In the context of our model, bureaucracy stands for hierarchical structures, functional specialization, and a staff of experts. Bureaucratic tasks directly contribute to organizational performance.

In contrast, innovative tasks do not deliver products or services to the environment. However, these tasks are directed towards increasing organizational efficiency by, for instance, introducing new work procedures or deploying AI-based tools. Hence, the performance of an organization is not only determined by the number of employees engaged in bureaucratic tasks but also by its efficiency.

For efficiency, we follow the argument that an organization has to consider two aspects. The first is that employees have to engage in innovative tasks. The second aspect is the need for a certain level of creativity in the organization. Without creativity, innovation cannot unfold its full potential. However, we know from research in the social sciences about the negative effects of bureaucracy on creativity.

In addition to bureaucracy, innovation, and efficiency, our SD model of an organization includes a fourth stock. This stock represents the level of innovative culture, a subset of organizational culture, that the organization has. Organizational culture can be defined as a pattern of shared beliefs and basic assumptions within the members of the workforce. It behaves like an invisible hand, controlling the behavior of individuals and groups at work. An organization's innovative culture transforms only slightly. In our

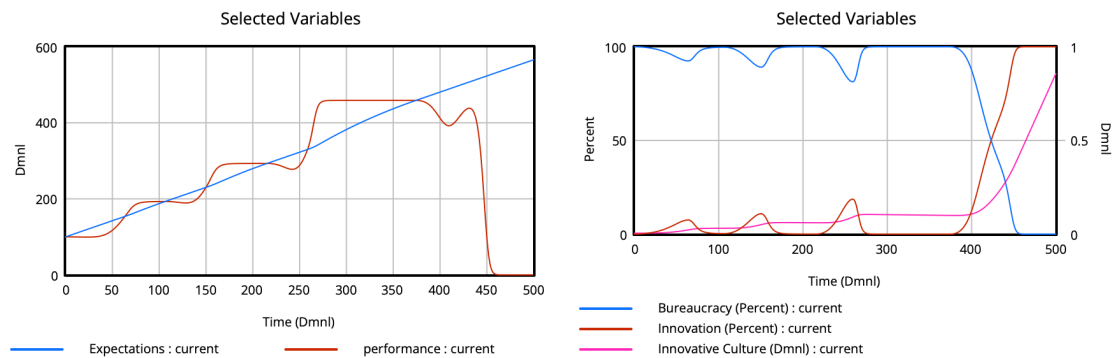
model, the corresponding stock is positively influenced by the number of employees engaged in innovative tasks. On the other hand, it erodes when people are mainly assigned to bureaucratic tasks.

Management steadily evaluates the current performance of the organization against expectations from the environment and acts accordingly. In case of a performance gap, management shifts human resources between bureaucratic and innovative tasks. When performance falls short of expectations, more employees are assigned to innovative tasks to improve the organization's efficiency. When performance exceeds expectations, then resources are reassigned to bureaucratic tasks.

These rational decisions are partly countered by organizational culture. With a high level of innovation culture in place, many staff members tend to ignore management orders and engage in innovative tasks. In contrast, a low level of innovative culture keeps people resting in the bureaucratic work system.

We will illustrate the effect on organizational performance with a simulation experiment. The left diagram in the figure below illustrates how performance relates to the constantly increase in external expectations. Until about week 370, the former stays close to the latter. Unfortunately, at about week 430, performance sinks dramatically. What happens is depicted in the right diagram. Management constantly shifts resources between bureaucratic and innovative tasks. This works well, up to a certain time.

However, at about week 370, efficiency gains are not sufficient to close the existing performance gap. To counter this, management shifts even more resources. This, in turn, transforms the organizational culture towards an innovative one. Now, employees are unwilling to engage in bureaucratic tasks. The organization is innovative, but lacks the capabilities to meet external expectations. It is occupied with itself and collapses.



Both bureaucratic and innovative tasks are necessary for organizational success. The big challenge for management is to balance both work systems. Our SD model reveals that focusing solely on task assignment is insufficient. Rather, management should keep an eye on organizational culture, as neglecting the corresponding effects on the workforce can result in well-intended management interventions backfiring.

Unfortunately, the presented SD model does not yet offer solutions for actively influencing organizational culture. Therefore, we intend to split the multi-dimensional stock representing innovative culture into finer-grained model elements in a future version. Hopefully, this could also solve the existing issue of how to measure innovative culture.