Toward a Performance Engineering Capability

Fred Nickols

6/12/2016

This paper suggests that organizations can benefit from developing and deploying a robust, pervasive performance engineering capability, one in which employees, with support from their managers, can manage, improve and engineer their own performance as well as the performance of the organization's processes and the organization itself. Several models are presented, including a general performance engineering model.

Toward a Performance Engineering Capability

A little more than 30 years ago I published an article declaring that Human Performance Technology (HPT) had reached the end of an era (Nickols, 1990). The basis of my assertion was that there had been a deep and fundamental shift in the nature of work and working. Work had shifted from a materials-base to an information-base and, as a result, working activities had shifted from routines that had been prefigured or specified in advance, typically in the form of detailed procedures, to responses that had to be configured or crafted in response to the circumstances at hand. Working had also shifted from highly visible physical activities to difficult to observe mental activities. And, the locus of working interactions was now more between people and information than between people and materials.

What the shift from prefigured to configured work signaled to me was the end of an era when outside consultants could come in and, through interviews and observations of so-called "master performers," identify the best or proper way of performing tasks and then equip other employees to perform on a par with the master performer. In short, what the shift to configured working activities meant was that *we* could no longer engineer *their* performance. Thus, the shift from prefigured to configured work brought with it a requirement to transfer the know-how associated with performance engineering from external, consulting practitioners to the performers themselves. We are in an era where employees must manage, improve and engineer their own performance.

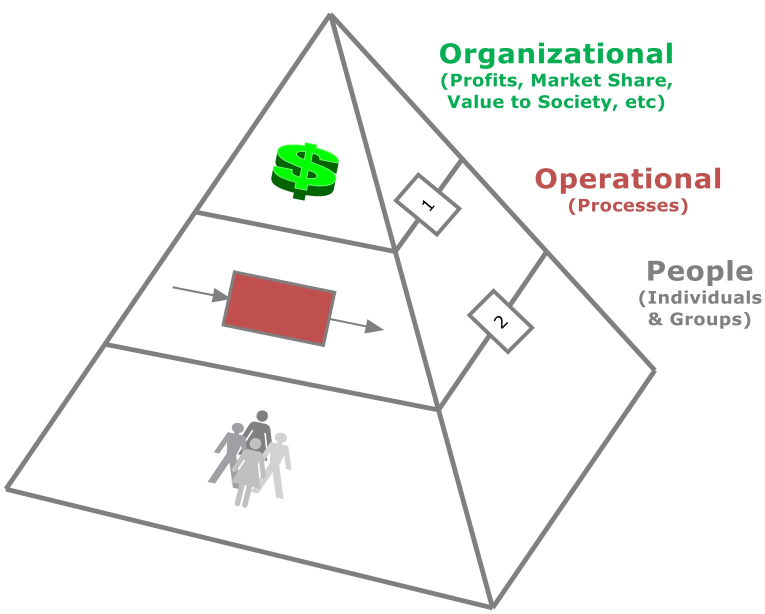

Figure 1 – The Performance Pyramid

That body of knowledge known as performance technology, whether viewed as a craft, a technology or an emerging science, exists and can be applied at three levels: people, processes and the organization as shown in Figure 1 above. (A fourth level, the societal level, is not addressed in this brief exposition.) In addition to Figure 1 four other models useful in engineering performance at those three levels are presented here.

An important point to draw from Figure 1 is that the three levels of performance it depicts are and can be linked. Working upward, human performance can be linked to process performance and process performance can in turn be linked to organizational performance. The linkages are suggested by tabs 1 and 2 in the diagram. One can also start with organizational performance and work down, establishing links to operational and then to individual and group performance. Indeed, linking the three levels is critical to the task of engineering performance at any level. Failure to do so produces what are known as “unintended side effects.”

An overall or general performance engineering model is shown below in Figure 2. It describes a process that is applicable at all levels of performance. It thus “houses” or accommodates the other models and can be applied at any or all levels. It is reasonably self-explanatory and requires little elaboration here.

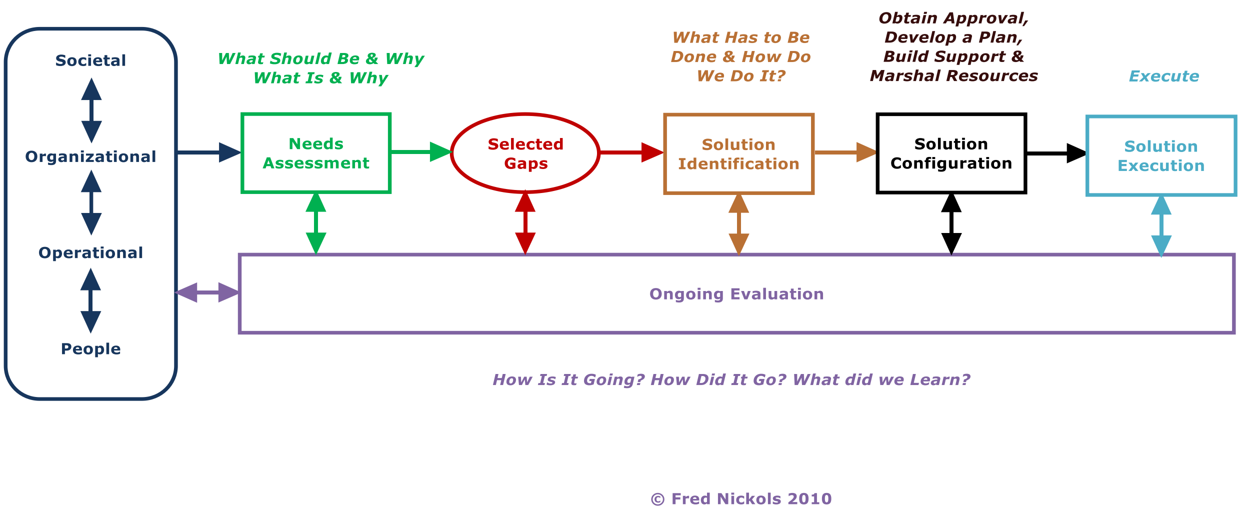

Figure 2 – A Performance Engineering Model

The process depicted in Figure 2 is essentially a process for engineering solutions to performance requirements. These requirements are identified through a process of needs assessment; that is, taking stock of *what is* and *what should be* and then selecting certain gaps for closure or resolution. The balance of the process is concerned with identifying and configuring an appropriate course of action and carrying it out. Evaluation is built in all along the way.

A model useful for engineering performance at the organizational level is shown below in Figure 3. It is a view of an organization as an open, adaptive system, one that transforms inputs into outputs, carries out transactions with its larger environment so as to obtain new inputs and continue the cycle of events, and that identifies and responds to changes in its larger environment via adaptation and innovation. In other words, it is a model of a sustainable organization.

Two key points to be made in relation to this model are the notions of "fit" and "fitness." "Fit" refers to the relationship between the organization and its environment. "Fitness" refers to the capabilities of the organization. Together, "fit" and "fitness" add up to sustainability.

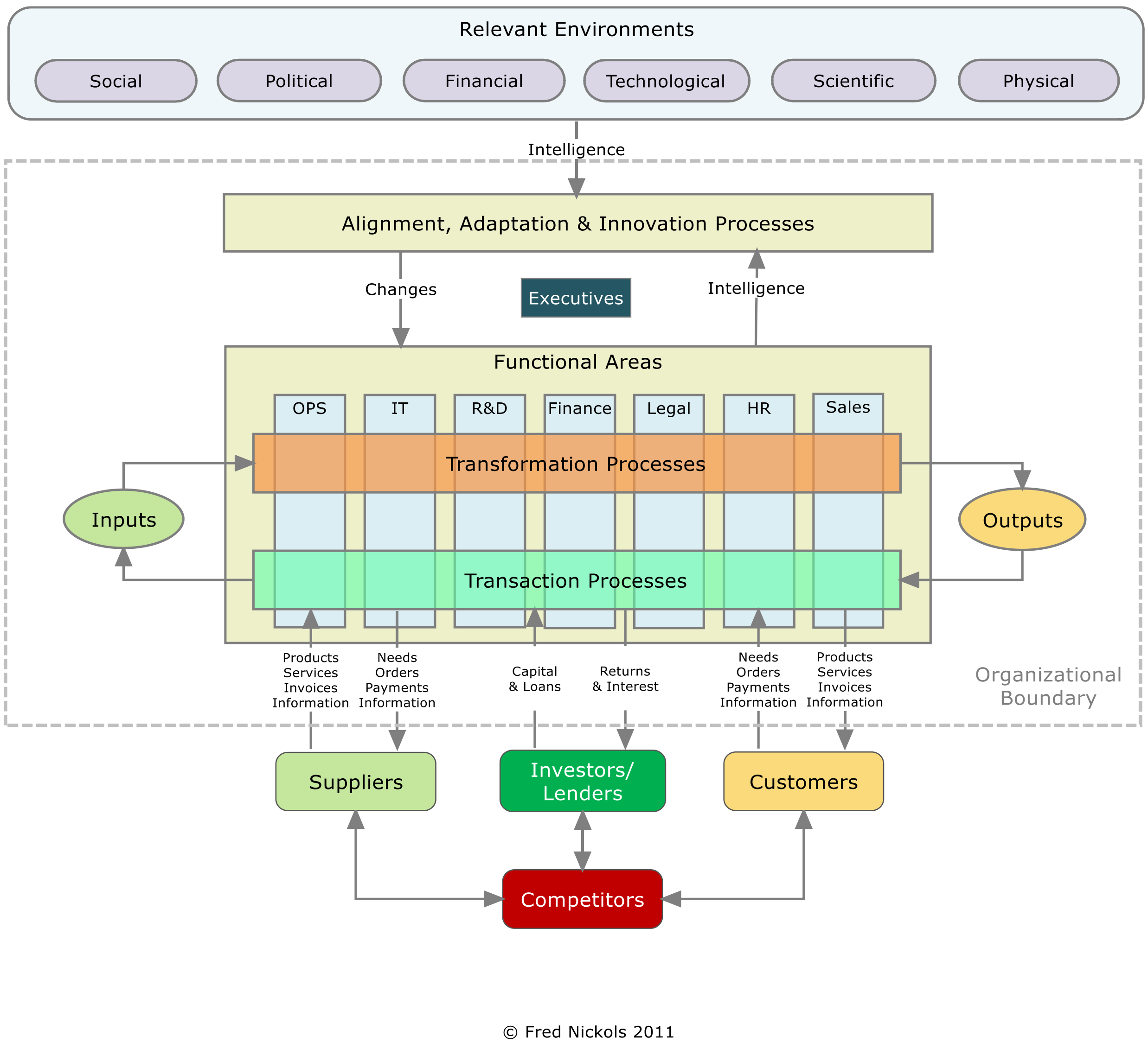

Figure 3 – An Organization as an Open, Adaptive, Sustainable System

A model useful for performance engineering work at the process or operational level is shown in Figure 4. It is a model of a work and work control system. This model can be applied whether the processor in question is a person, a machine or a combination of the two (e.g., a data entry operator or a manager using a computer and software).

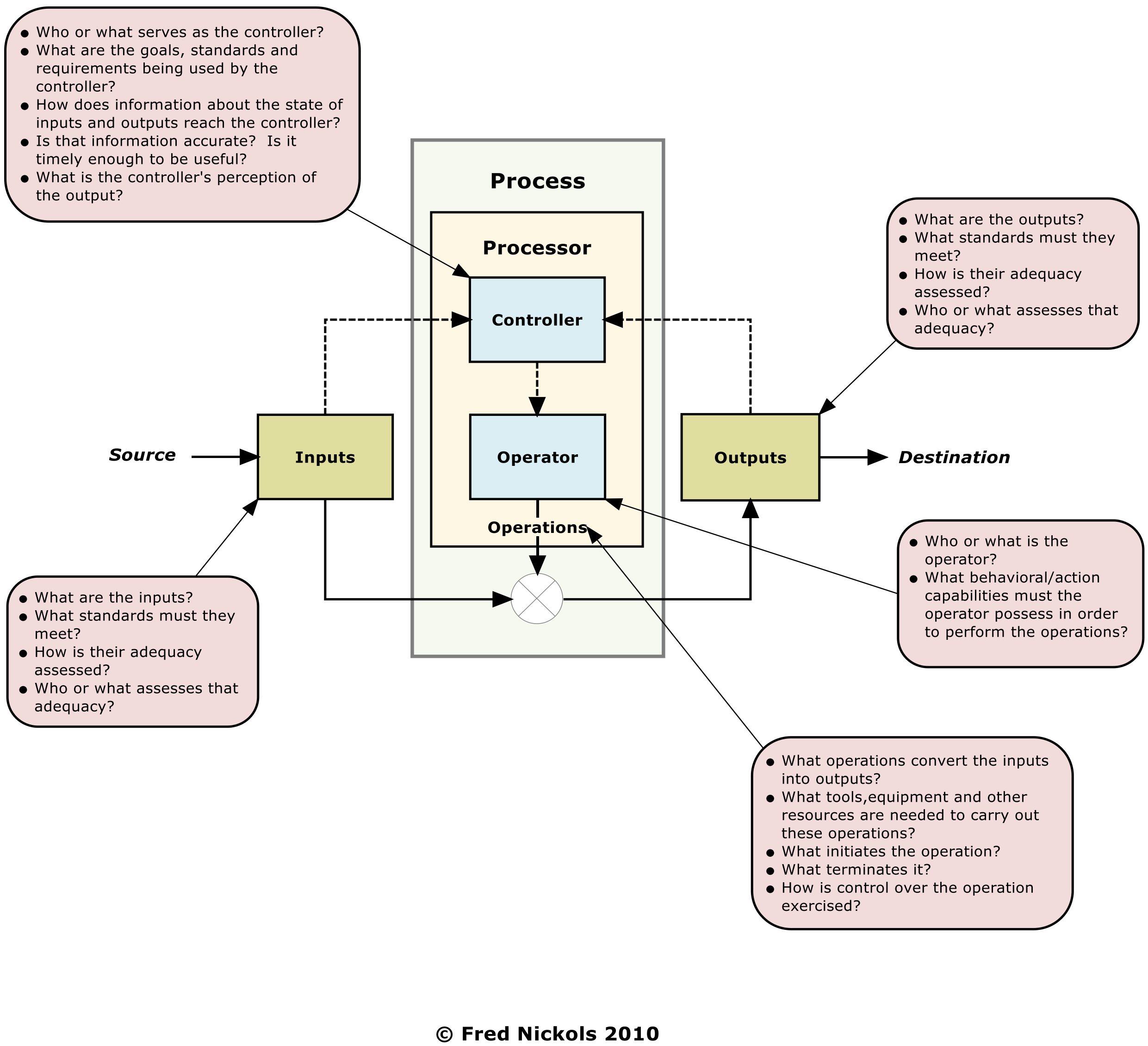

Figure 4 – A Work and Work Control System

A model useful to performance engineering work at the level of people (individuals or groups) is shown in The Target Model in Figure 5 below. It is a model of a "living control system" and recognizes that the locus of control over an individual's behavior and thus in large measure that person's performance lies with the person in question. A brief exposition follows.

Toward a Performance Engineering Capability

People set their sights on certain performance targets, some variable they wish to be in and stay in a specified state (e.g., sales, error rates, budget, etc.). Regarding these targets, people also establish goals, that is, a specification of the particular state they wish the targeted variable to be in (e.g., a sales volume of $3M/month, an error rate of less than 3 parts per million, a budget that is within plus or minus 3 percent of the set value). Via their perceptions, people are also aware of the current or actual state of the target variable. If a gap exists, they take action in ways that are intended to bring the target value to its specified or goal state. There are other actors and factors that affect that same target variable and actions must always account for and offset any "disturbances" posed by these other conditions. Assuming these other conditions are not overwhelming, we are able to bring the target variable to its goal state and keep it there.

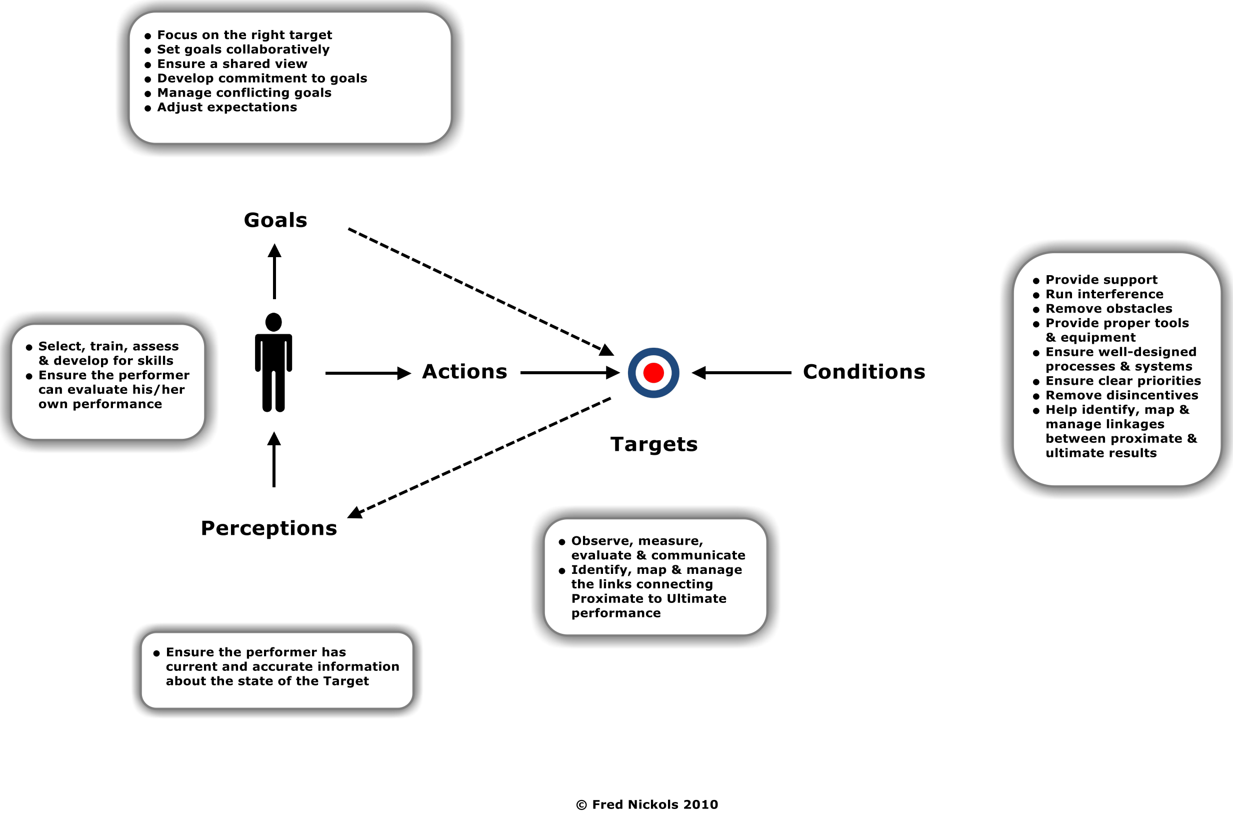

Figure 5 – The Target Model of Human Behavior and Performance

Collectively, the preceding models provide a conceptual framework that can be used in conjunction with other tools to analyze, design, manage and improve performance at any level and to link and integrate that level with the other levels. They represent one step toward a performance engineering capability. Another step entails communicating these models and the underlying tools, methods and techniques to the employees of an organization and then working with them to ensure they can apply them. In this way, the organization can develop and deploy a robust, pervasive performance engineering capability.

References

1. Nickols, F.W., "Human Performance Technology: The End of an Era." *Human Resources Development Quarterly,* Vol 1, No 2 (Summer 1990) pp 187-197. Jossey-Bass: San Francisco.