

THE SYSTEMS APPROACH

Kramer, W.M. *Advanced Fire Administration Course Guide*. "Systems Approach" 9-2 to 9-7, Emmitsburg, MD: National Fire Academy Open Learning Fire Service Program, 1979.

We will take a close look at the "systems approach" as applied to program and personnel planning. The concept basically requires an administrator to view the organization as a whole with all parts interrelated, so that movement in any one part affects all others directly or indirectly. The organization is basically a process with certain inputs--such as personnel, facilities, and machinery--used to produce outputs such as products or services. For a fire department, which is labor intensive, the "heart" of the inputs is the personnel component. In the outputs are represented the programs that emanate from a fire department.

A fire department is composed of component parts, the principle one of which is personnel. A change in personnel may result in a series of chain reactions in other components that could neutralize or negate the intended change, or lead to unanticipated consequences in other parts of the organization and impact negatively on the intended programs. A systems perspective would identify and provide a focus on the critical interrelations among the various elements in the organization, and between each of them and the external environment, so that the consequences of a change in any element of the organization could be anticipated.

There are four advantages of viewing personnel and programs from a systems perspective:

1. The processes by which the department attempts to provide a service and deliver to programs are examined.
2. The various external and internal forces that affect the fire department are indicated.
3. The relationships among various units of the department and the functions they perform are identified.
4. A mechanism is available to identify directly a link between the personnel in the fire department and the public services rendered.

We begin with the assumption that the agency is composed of a set of interrelated units designed to achieve a common outcome. The interrelated activities of these units provide inputs to the system. The system transforms these energies and produces an output. This process is illustrated in Figure 2-1.

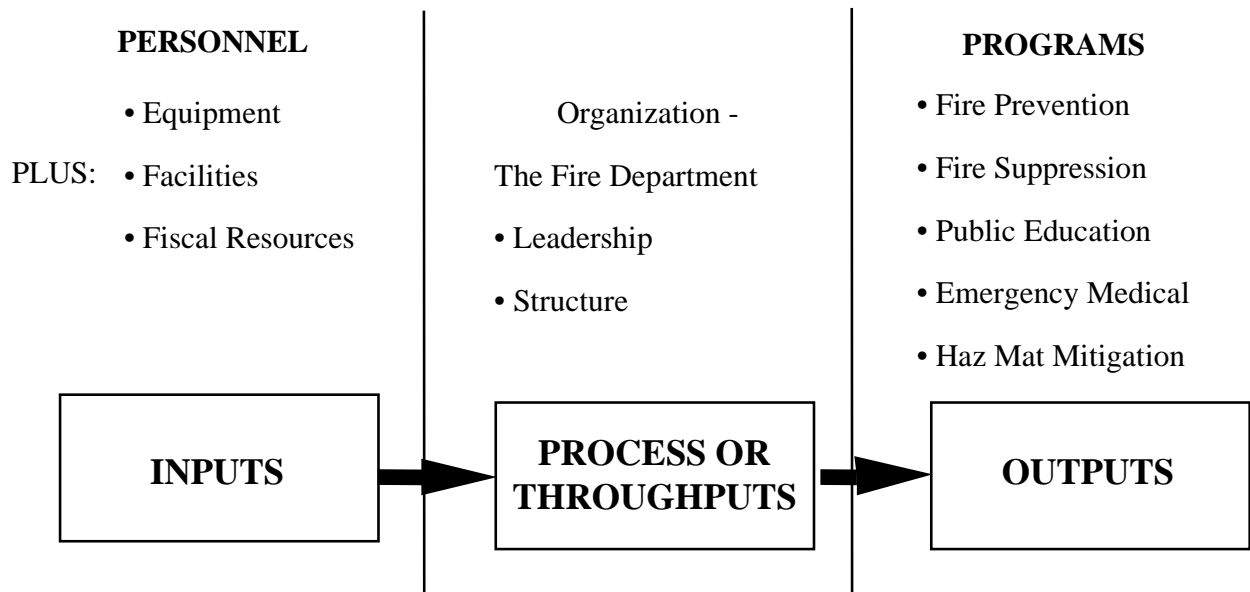


Figure 2-1
The Fire Department from a Systems Approach

The fire department is dependent on the environment to survive and to achieve its goals. This "open system" means that the fire department has several basic characteristics shared by all such systems:

1. **Purposive behavior.** The fire department, as an open system, has a purpose, a reason for being. Fire department goals and objectives can be multiple, conflicting, or implicit.
2. **The importation of inputs.** These include personnel, supplemented by facilities, equipment, and fiscal resources necessary for the survival and functioning of the fire department.
3. **The "processing of inputs."** This is the complex of processes in which the fire department takes the inputs and transforms them into services. Essentially, this means proper utilization of personnel to optimize program outputs.
4. **The output of the service.** The fire department must develop a set of mechanisms that move the service to the public, such as sending out fire suppression and fire preventive personnel.
5. **The cycle of activities.** The service of the fire department enables it to obtain new inputs which then are transformed into outputs, and so on. This cycle can, therefore, be maintained only through the interrelationship of the various components of the fire department.

The essential characteristics of open systems are derived from two basic motivations that energize the system, the "goal-seeking motive" and the "self-maintenance or survival motive." The goal-seeking motive refers to the continuous efforts of the fire department, as expressed by the structural arrangements and processes within it, to achieve its aim: successful fire protection. The self-maintenance motive, on the other hand, refers to the constant pressures and efforts to keep the organization as a going concern, to maintain its survival, and to enhance its position in the environment. Clearly, the organization cannot attain its goals at the risk of jeopardizing its existence; at the same time, it cannot invest all its energies in self-maintenance and enhancement without attempting to achieve its goals. Nevertheless, these two forces are not necessarily complementary. Often the organization must compromise in making decisions about its future course. Although it may decide to serve the disadvantaged or hard-to-employ, it also must weigh the costs of such a decision in terms of maintaining itself as a viable agency, being able to obtain necessary resources, and avoiding identification as a marginal organization. Consequently, it is important to realize that most of the critical decisions reflect some compromise, or the push and pull of these two forces.

Changes that are imposed on fire departments often fail to take these two factors into account. The decision to shift goals to serve the disadvantaged, while highly welcome from a social viewpoint, may fail to consider the consequences to the self-maintenance and compensating actions, is likely to drain the resources of the agency, affect its image, lead to demoralization of the staff, and reduce the overall vitality. It is not implied that such a shift is undesirable, but unless attention is paid simultaneously to the consequences of the change to the organization, the shift is likely to be undermined and neutralized, and the agency may pay only lip service to that goal. Likewise, sheer enhancement and assurance of agency maintenance through increased input of resources will not necessarily be accompanied by changes in its goals. Rather, a series of commitments must be made by the executive leadership of the department to modify its mission.

STEP ONE

Going back for a moment to the basic graphic model of the systems approach (Input--Process--Output), let's apply this model directly to the fire service. Assuming you will be in charge of forecasting the personnel requirements for a fire department and carrying out the procedures necessary to staff it, how do you start? Interestingly enough, you should start at the end of the model, not the beginning. You start with Outputs. (See Figure 2-2 below.)

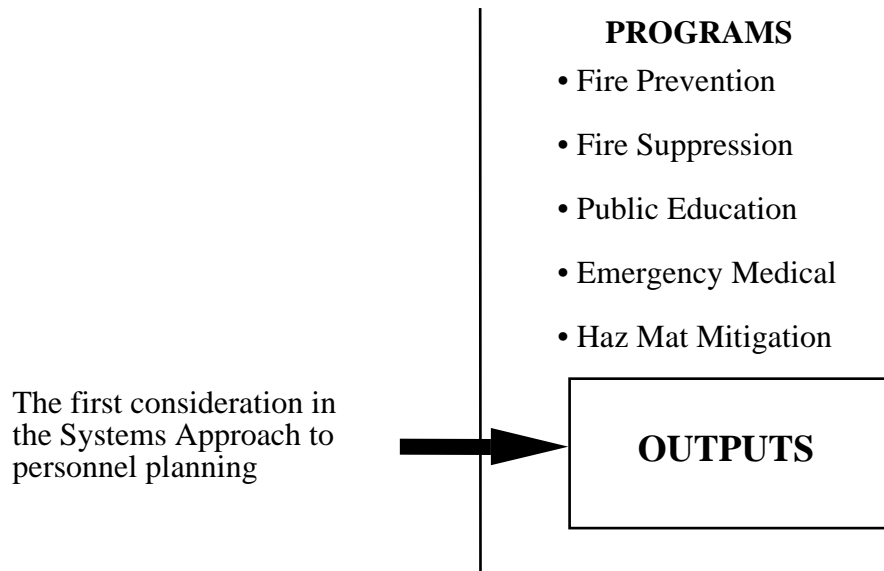


Figure 2-2
The First Step

The outputs probably will include some combination of activities including:

1. Fire Prevention.
2. Fire Suppression.
3. Public Education.
4. Emergency Medical Services.
5. Haz Mat Mitigation.

First, define the role or mission in terms of each of these and determine the personnel requirements. Too often fire chiefs are heard to say, "I don't have any personnel for fire prevention. Every man I can get must go to the suppression forces." In times of cutbacks and declining personnel, the cry is, "The first thing I'll cut out is the fire prevention bureau." Both arguments are based on the improper approach of looking at inputs (personnel) first and outputs second. If the outputs are determined in advance, then the required inputs can be set and an honest effort can be made to recruit and train personnel accordingly.

STEP TWO

After outputs have been determined, the next step is to identify the input requirements necessary to support the desired outputs. (See Figure 2-3.)

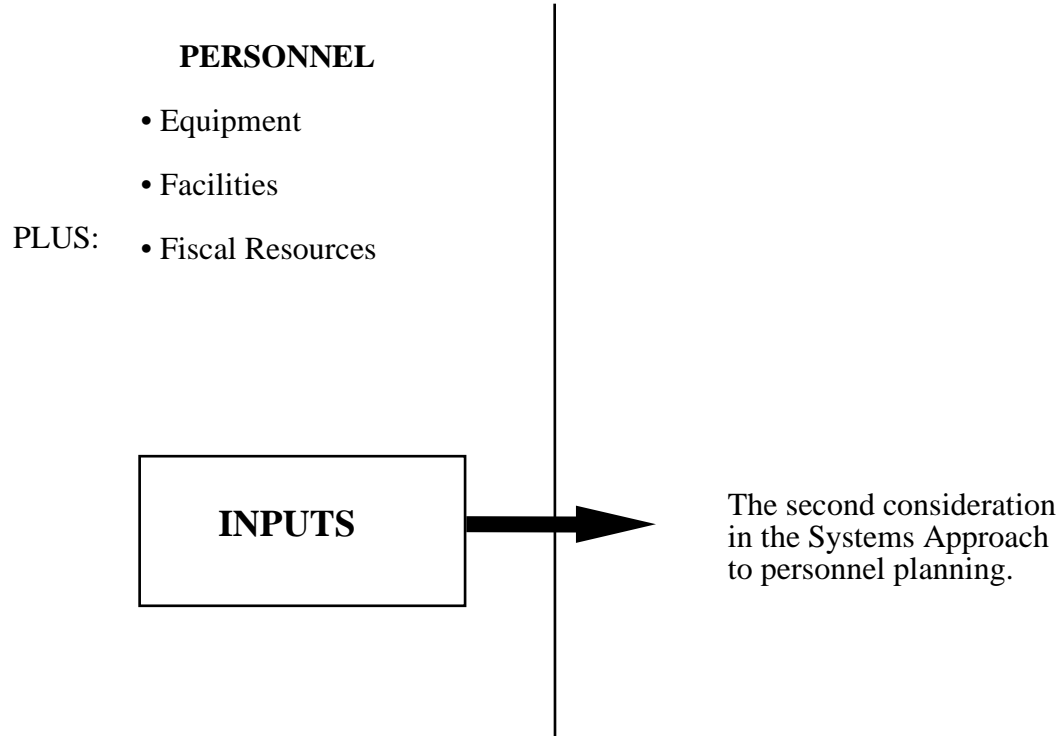


Figure 2-3
The Second Step

In many major cities, the administration continues to chop away at the personnel-level active duty strength of the fire department. Chiefs often are powerless to combat this strategy, since there is little apparent difference in the level of service before and after the cuts. Had they been stating measurable objectives in advance, in terms of what they could accomplish (outputs), they would be able to justify adequate personnel (inputs).

STEP THREE

Finally, the third part of the model comes into focus--Process. This is the entire organizational process using all of the inputs. It includes personnel considerations not only at the entry-level position, but also at succeeding levels in the personnel hierarchy. Hence, it encompasses the function of personnel planning which deals with promotional opportunities. The personnel planning function includes, from a practical perspective, the two parts that follow:

1. Planning for the absolute or overall numbers required (basically entry-level requirements).

2. Planning for personnel with managerial and technological skills which will be necessary to fill advanced positions. (See Figure 2-4 which follows.)

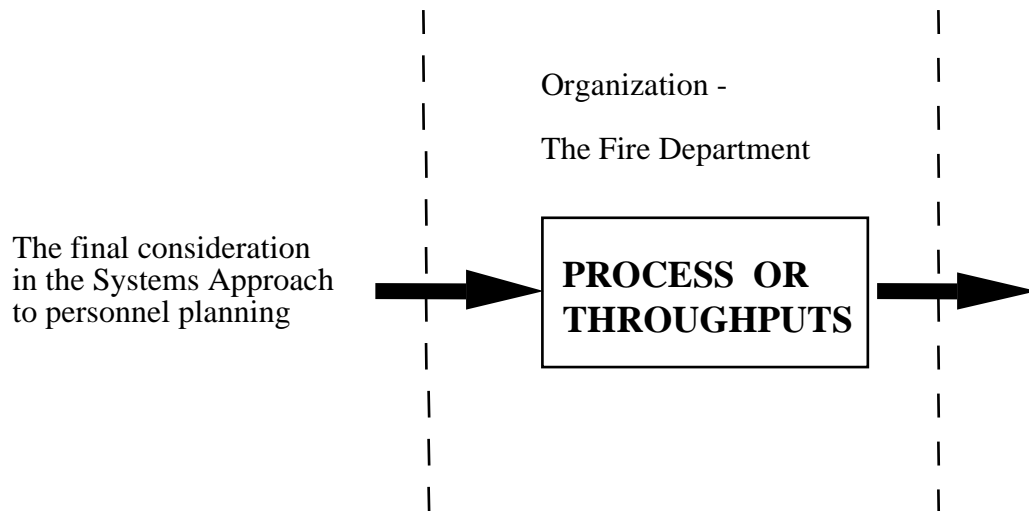


Figure 2-4
The Final Step

More planning and development are occurring at the level of the individual business firm and, to a lesser degree, in public agencies. Firms dependent on sophisticated personnel look ahead, relating product and sales outlooks to personnel needs and setting place programs to get the right person in the right place at the right time. Enlightened firms also attempt to foresee declining personnel needs so that attrition can reduce surplus or excess personnel. Most corporations at least try to predict the attraction of top management and attempt to have replacement personnel prepared for the transition. The number of fire departments presently undertaking such personnel planning is small, but it is certain to increase in the future.