

# Get ready to benefit from economies of scale

Apr 1, 2003 12:00 PM

Ronny J. Coleman

How do you know you're getting a bargain? In many cases value is determined prior to a purchase, and you decide you're willing to pay a certain amount for something you really want. Why else would people pay millions of dollars for paintings that were originally sold for pennies?

At one of my favorite restaurants here in Sacramento, the owners like to say, "We lose money on every one of our meals, but we make it up on volume." The humor in that saying is apparent, but the reality is that nobody can lose money and provide high value at the same time.

My interest in bargains and the value of goods and services stems from recent conflicts where communities buy fire protection from a neighboring fire agency but are then unhappy with the results. Could it be that the department providing the service has overextended itself to multiple communities? In examining documents and reports, I've been able to find only a limited amount of information about economies of scale in selecting and being satisfied with fire services.

Let's assume that a community's need for fire protection is almost never created with a price tag on it. When you go back to the origins of almost all fire departments, including some of the major metropolitan departments of today, fire protection came into existence because the public believed that somebody had to cope with the ravages of fire in a highly localized atmosphere. That first fire station was often dead center in the community, with secondary stations appearing as growth patterns warranted.

Is one fire station enough to protect a community in terms of response times and forces? The first half of that question is easy enough to answer: Using that original fire station as an epicenter, we could calculate exactly how many miles of streets and highways and how many parcels that one fire station could get to within the desired response time.

However, if we look at effective response forces we know that a single fire station won't put enough people on the fireground to deal with what is commonly referred to as a "benchmark fire" — it takes about 13 to 15 people to achieve that, according to contemporary thinking. So will a single fire station provide coverage for a community? If the system does not put a sufficient number of people on the fireground in the sufficient amount of time, the answer is unequivocally no.

If one station isn't enough, then how many does it take to cover a given piece of real estate? You could make the argument that it takes a minimum of two fire stations with command officers and an appropriate organizational structure to constitute a real fire department, but the reality is that there are a whole bunch of departments out there that would never achieve that level. In fact, there are a significant number of volunteer departments that operate five or six apparatus out of one station, so a single fire station with multiple companies may be adequate after all!

Economy of scale becomes a problem when this station can't adequately cover its response area and looks for help from a neighboring jurisdiction. Sometimes this arrangement works, and sometimes it doesn't. My simple formula is a classic example of synergy: Does the sum equal more than the parts? The old "two plus two equals five" approach is the very essence of an economy of scale. In other words, if two inadequate departments join forces to create adequate response coverage, then they have created a successful economy of scale.

Unfortunately, human nature can create problems following a consolidation. I have found that political bodies invariably feel cheated because "their" resources were being "used" elsewhere. The entire purpose of consolidating is to have economies of scale that provide a mutual benefit to the entities agreeing to contribute to it. You have to give up the territorial aspects when your goal is an economy of scale.

Yet the politicians ask, "Are we getting our money's worth?" They want to know the percentage of calls in each community and whether the other community is paying its fair share. In my opinion, these are the wrong questions to be asking. A political body needs to consider what its community can protect by itself and what it can protect if it combines forces. If the latter option provides better coverage for everyone, then there's an economy of scale where everyone wins.

In many cases, the question of adequate coverage is more political than technical. If this question is raised prior to the joining of resources, response coverage often can be quantified and documented. However, if people start picking and choosing the parameters used to measure performance after the marriage has been consummated, things tend to get quite argumentative.

Let me give you an example. When two agencies join forces to create an effective response force for two communities that are very balanced in terms of industrial, commercial, residential and economic conditions, one might expect that their calls would be relatively the same. However, we all know that there could be reasons why the call volume would be higher in one area, resulting in an uneven distribution of workload.

What about communities that join forces for an effective response or defense in depth because of a very severe fire problem? If one community has an inordinate amount of economically disadvantaged citizens who draw on these resources more often, does that negate the overall goal of having defense in depth and an effective response force?

The real issue is that picking and choosing the performance of a delivery system after it has been joined is subject to the somewhat arbitrary decision of how you measure the level of service. Designing the system so that the performance requirements are up-front is much more appropriate. In using the concept of economies of scale, departments should begin to work more cooperatively together on how to measure fireground performance.

There are many other attributes of the department in which larger-scale operations provide assets that can't be achieved as effectively on a more limited level, such as information technology, clerical support, communication capacity, purchasing power, benefit packages and more. However, an economy of scale does have its limits, as evidenced by what happened to the British fire service in World War II.

Most people aren't aware that during World War II the British fire service was nationalized — local government was taken out of the equation. At the end of the war there was a conscious decision to disassemble that very large, vertically homogenized system. It was simply too large to be politically sensitive to the wide variety of communities in the system.

In fact, there was a study that discussed minimum and maximum sizes of fire brigades. The study found that a fire brigade could reach a point where it was so large that the top-to-bottom communications between the person who needs the service and the responsible chief officer were separated by too many levels of command and control. As a result, the system suffers. When the United Kingdom disassembled its national fire service, it was decided to create countywide fire departments as opposed to city fire departments, which seems to have achieved an effective degree of economy of scale. Even so, that decision is still re-examined on a regular basis to ensure that everyone's goals are being met.

In the U.S. fire service, however, the tendency has been for smaller entities to merge with larger ones. There now is an emerging trend where significantly sized fire departments are joining forces to become even more powerful. On one level this is not only acceptable in the fire service but also highly desirable by individuals who understand the concept of economy of scale and are doing what they can to make their resources as effective as possible.

The downside is that it can get political in a big hurry. The solution is torn right out of the pages of *Poor Richard's Almanack* over 200 years ago: “An ounce of prevention is worth a pound of cure.” The break-up of a consolidated fire protection effort can be minimized by a lot of homework done up front. One of the techniques for doing this is to make sure that an accurate baseline of operations is established prior to combining departments.

This baseline should be an accurate description of what you actually had on the ground in your resource pool prior to creating a new entity. One of the best ways of demonstrating this is to make sure that both your department and the other agency have done an adequate job of mapping responses, jurisdictional area and experiential requirements. By

creating a baseline map and using it as part of any future discussion about the effectiveness of the consolidation, you will have done your part in preparing for this marriage. If the politics become too tough to bear, you've created a pre-nuptial agreements that will prove very important during any potential divorce proceedings.

---

**A 40-year veteran of the fire service, Ronny J. Coleman is the president of the Fire & Emergency Television Network, which features career development and succession planning in its Command Transfer series. He has served as fire chief in Fullerton and San Clemente, Calif., and was the fire marshal of the State of California from 1992 to 1999. He is a certified fire chief and a master instructor in the California Fire Service Training and Education System. A Fellow of the Institution of Fire Engineers, he has an associate's degree in fire science, a bachelor's degree in political science and a master's degree in vocational education.**