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Economy Of Scale

How do you know you are getting a bargain? A classic example of people wanting to get the best out a deal is when they try to buy low and sell high. But how do you know you are getting the best buy for your dollar? In many cases value is determined prior to a purchase and an individual makes a decision that they are willing to pay a certain amount for something they really want.

Why else would people pay millions of dollars for paintings that were originally sold for pennies? There are some things that have a very high value just on the surface of them. An ounce of gold is an ounce of gold. And in our trade and economic system it is real easy to establish what that price is. It goes up over time or it goes down over time directly dependent on people's value of that commodity.

At one of my favorite restaurants here in Sacramento they have a notation on one of their place settings that goes like this "we lose money on every one of our meals but we make it up on volume." For humor but the reality is that nobody can lose money and provide high value at the same time.

The reason for this discussion has then risen to my level of attention because of recent conflicts I have seen over the question of communities buying fire protection from an external influence and then being unhappy with the results.

Even in the context with what is happening with consolidations and contracts for service the idea of economy of scale and cost benefit is taking on a new connotation. In examining documents and research of reports I have been unable to find a very limited amount of information about the concept of economy of scale when it comes to selecting and being satisfied with fire services.

This leads me to create a little experiment on my own mind. The experiment is based on the simple assumption 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 as a public perception that somebody had to cope with the ravages of fire in a highly localized atmosphere. As a matter of fact most of the volunteer fire departments are created when communities are created are almost dead center of their community. I have discussed this phenomenon previously with relationship to the growth patterns in the cities. Because secondary fire stations almost always are created on a fringe at a certain distance away from that core based on community growth patterns.

However with looking at the concept of economies of scale the simple formula is this:

A. What do you have and how much does it cost?



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- B. Is it adequate and can you afford more?
 - C. Who is going to pay for A?
 - D. Who is going to pay for B?

So let's examine a very simple premise. Is one fire station adequate to cover a community? First off let's define what we mean by covers. If we follow through with the concept that coverage means two things. One is a response time that betters within a certain parameter and an effective response force. Using that fire station as an epicenter we could calculate just exactly how many miles of streets and highways and how many parcels that one fire station could get to within the stated response goal. That is one to mention.

However if we look at effective response forces we know that a single fire station is not adequate to put enough people on the fire ground to deal with what is commonly referred to as the "benchmark fire." It takes about thirteen to fifteen people according the contemporary thinking to achieve that. So, will a single fire station provide coverage for a community? Yet the system does not put a sufficient number of people on the fire ground in the sufficient amount of time the answer is unequivocally no.

So how many fire stations does it take to cover a given piece of real estate? One could make the argument that it requires a minimum of two fire stations of command officers and an appropriate organizational structure to really constitute a real fire department. Reality is there is a whole bunch of fire departments out there that would never achieve that level. While I am not entirely confident that I know the number I would estimate that there are a significant number of fire departments that have one station that are mostly volunteer and then they operate with five and six pieces of apparatus out of that fire station as a matter of routine.

But that is not where economy of scale starts becoming an issue. Economy of scale starts to become a problem when you start trying to have multiple stations that protect jurisdictional areas and they are "owned" by one or the other of the jurisdictions that are trying to work more closely together. And this is where the argument seems to start on a lot of departments with regard to understanding what economies of scale really mean. My simple formula for dealing with this is this. Does the sum equal more than the parts? As some of you might know this is a classic example of synergy. The old two plus two equals five approach is a very essence of the idea of economy of scale.

If I take my resources that are inadequate and I take your resources that may not be adequate and put them together do we come up with something that is adequate?

Furthermore if I just pick our joint assets and split them back up again is either one of us penalized by the consequence of that act? If the answer is yes then economy of scale is being applied.



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This is interesting when I have examined the concerns of political bodies about their beliefs and what has happened to their resources when they have gone into consolidation activities. The entire purpose of doing a consolidation is to have economies of scale. The entire purpose of that is to provide a mutual benefit to the entities that are agreeing to utilize that economy of scale.

Yet the argument often boils down to this. Am I getting my monies worth? What percentages of the calls are falling in my community versus the other community and are they paying for their “fair share.” From my personal point of view these are not the right questions to even be asking.

I would characterize the issue as being more like what can I protect by myself and what can I protect when I combine forces? If the answer is I cannot provide protection for myself and our combined resources provide better coverage for everyone then you are achieving economy of scale.

In many cases this question is not a technical one but political one. If this question is raised prior to the joining of resources you can often quantify and document the issue. However if you wait until the union has been consummated and people start picking and choosing what parameters they use to measure the performance of the organization then it gets quite argumentative.

Let me give you an example. When two entities join forces to create an effective response force and the communities are very balanced with regard to industry, commercial, residential and even economic conditions one would expect with our experience in these communities to be relatively the same. However, we all know that there could be reasons why the number of calls would be higher in one area then they would be in the other regardless how balanced the financial system was and that the workload could be unevenly distributed.

Let's use another example. What about communities that join forces together so that they can have an effective response for, or defense in depth, because they have very severe fire problems? In this particular case one community has an inordinate amount of economically disadvantaged citizens and they draw on these resources more often. Does that render the overall goal of having defense in depth and effective response force any less significantly?

The real issue is that picking and choosing the performance of a delivery system after it has been joined is subject to a somewhat arbitrary decision of how you measure the level of service. Designing the system so that the performance requirements are there up front is much more appropriate. In economies of scale as departments begin to work more cooperatively together are not always measured in fire ground performance. There are many other attributes of the department in which larger scale operations provide assets that cannot be imported on a more limited level. These can include such things as information technology, clerical support, communication capacity, purchasing power, benefit packages, etc. Economy of scale does have its limitations.



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This was easily seen by what happened to the British Fire Service in World War II. Most people are not aware of the fact that during World War II the fire services were 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 expressed in the system. There was a study that was created that talked about a minimum and maximum size of fire brigades. The studies contention was that a fire brigade could reach a point where it was so large that the top to bottom communications between the customer, i.e. the person who needs the service and the responsible chief officer are separated by too many levels of and control.

As a result when the British Fire Service disassembled the National Fire Services they created countywide fire departments as opposed to city fire departments.

In looking at their system they have achieved a certain degree of economy of scale because they look at the political geographical boundaries and made some conscious decisions that have been under scrutiny ever since.

But training in the American Fire Service has been for smaller entities to merge with larger ones. There is a merging trend of showing fairly significantly sized fire departments 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 it can get political in a big hurry. The solution is torn right out of the pages of Paul Richards almanac two hundred years ago – “an ounce of prevention is worth a pound of cure”, if the make-up of consolidated fire protection can be minimized by a lot of homework done up front.

One of the techniques for doing this is to make sure that there is an accurate base line of operations established prior to the effort of being joined. What I mean by baseline is an accurate description of what you actually had on the ground in your resources pool prior to establishing a newly created entity. One of the best ways of demonstrating this is to make sure the department has done an adequate job of mapping its responses, its jurisdictional area and its experiential requirements. By doing a baseline map and using that as part of the discussion in any future discussion