Coping with Demand Fluctuations in Service Industries

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Variation in customer demand is a perennial problem in every business. Because you never know just how much of the products or services the customers will want at any particular time, you always end up with too much capacity or inventory of one thing and too little of another.

We have long known about ways to mitigate this problem in manufacturing: use of common components, mixed model production lines, finished goods inventory, and designing production so the product differentiating steps are done toward the end of the process so they can be directed by actual customer demand rather than forecast.

But service industries suffer from a more difficult problem. Variation in product demand can be buffered by finished goods inventory. But service providers cannot hedge against the possibility of excess volume by stocking capacity in a warehouse. Service industries must maintain the capacity to handle surges in demand. But when the capacity goes unused, it is lost forever. As Henry Ford once said, “Time waste is worse than material waste because there can be no salvage.”

While you cannot escape variation in customer demand, you can design effective means to cope with it. First, study the nature of the variation in your business. Use histograms and run charts to understand and quantify the nature and range of the variation and any trending or cycles in the demand. Then evaluate your different options for reducing your vulnerability to demand variation to provide the best service at the least cost. Following are three staffing models for coping with demand variation:

Generalists, supplemented with a few specialists

Train generalists who can handle 80 or 90% of the work that comes in. When those few customers or transactions arrive that require something beyond a generalist’s skill, refer the work to the appropriate specialist. This reduces the number of people needed to maintain reasonable wait periods, because you will have less variation in total service transactions per day or hour than variation by each type of transaction. The more specialization you have, the more people you need to reliably handle variation in daily or hourly volume.

Most banks operate this way – a teller line can handle any of the most frequent customer needs, but for those few special transactions, customers are directed to a cubby or office for specialized help. Personal care physicians also follow this model – able to handle the vast majority of needs, but referring patients to specialists when their needs exceed the generalist’s skills. Society would need to employ far more physicians and longer waits would ensue if specialists were needed to handle most health needs.

This works very well when you have a great deal of variation in the type of work, but 80% of the volume can be anticipated and effectively trained for. It works best in jobs with a stable workforce.

Specialists, supplemented with a few generalists

But in some situations, the converse approach works best. Train specialists who handle the bulk of the work each day, but have a small team of multi-skilled staff to handle any variation of demand. This method blends the advantages of specialization (shorter learning curve and often greater speed and fewer errors) with an effective hedge against random fluctuations in daily or hourly volumes.

Call centers sometimes manage volume fluctuations in this way. Another example might be a retail operation with a senior position who knows and does any of the jobs as they require the resources. This method works well where:

- *there are not too many categories of work*
- *turnover is too high or the work too dissimilar or complex to maintain a staff of generalists.*

A histogram can help you evaluate and design this approach to handling your volume. For example, if daily volumes for each specialty range between 1800 and 2200, you might staff specialists to handle 1800 transactions per day. Then combine the excess volumes across all the different specialties into another histogram and staff to handle this additional "mix-uncertain" volume with your multi-skilled staff. Establish a smooth and automatic way to distribute the work appropriately.

Cross-training
Cross-train people so that they can move into the positions with excess demand when necessary. Retail operations often use this method. More help is paged to come to the cash registers when lines reach a certain length.

This method works in situations where the business has:

- *the ability to effectively cross-train people to handle several different jobs with good quality*
- *an easy way of signaling when individuals should change what they are doing to accommodate the excess demand and when to change back*
- *ability to quickly shift resources.*

Cross training does not work well in situations where the cross-trained individuals do not spend enough time in each role to maintain their skills. Nor is it as effective at handling demand variation where one cannot move quickly and easily between the jobs.

In addition to the above three models for organizing staff to handle demand variation in service industries, the following three tips can help you reduce your vulnerability to demand variation:

***Shift as much volume** as possible to a different customer interface that is less time sensitive.*

***Use self-service technology** where the customer can complete the transaction on-line instead of waiting for a customer service representative to become available. Examples include:*

- *On line loan applications*
- *Internet order businesses such as Amazon.com, where no one has to wait for the next available cashier to purchase books. Bubbles in ordering patterns equivalent to rush hours at a retail establishment are smoothed out through the workday as orders are packed and shipped in the order in which they are received.*

***Utilize technical support operations that shift communication** from telephone consultation to e-mail so that they can handle the daily random and cyclical surges in demand without creating unacceptable call wait times.*

So, while you cannot escape variation in customer demand, you will be able to handle variation at lower cost and higher service levels by selecting the most appropriate staffing model and by employing technology and process designs that reduce your vulnerability to it. ■