**Lecture II. Process View & Strategy: Competitive Space and Strategy.**

Welcome to the second part of my talk on process view and strategy! In this talk, I mainly discuss competitive space and strategy. Competitive product space, customers define the product they want in four dimensional space of price, quality, variety and response time. Firm need to define **process competencies in four dimensional space of cost, quality, flexibility, and flow time**. To match these requirements, product attributes and process competencies are defined in the four dimensional space. It is not possible to visualize a four dimensional space. We can represent mathematically, using matrix notation or vector notation but graphically it cannot be represented.

We can graphically represent three-dimensional space, but grasping a concept in a three dimensional space is not as easy as grasping a concept and representing a concept in a two dimensional space. Therefore, throughout the rest of our discussions, while we are talking about four dimensional space, we only represent two of those dimensions. And we assume the other two dimensions at least for the time being are constant. I mean the attributes of the product or capabilities of process competencies in the other two dimensions at least for the time being is constant. For example here we are talking about two dimensional space of variety and quality. Company A has low variety and low quality. Company C has high variety and low quality. Of course Company C is better than company A. Because at least in dimensional variety, Company C is better than Company A. Company B has the same variety as Company A but quality of the product of company B or quality of the process of company B is better than that of A. So B dominates A and D dominates all of them. Therefore in this 2 dimensional space, when we move in this direction or when we move in this direction, we are getting better. Moving outside of the origin makes better products or process.

Now look at this situation: Here we represent quality, the same as before, but in the horizontal direction I have cost instead of variety. Here company A and C are the same as long as quality is concerned but C has higher cost compared to A, A dominates C. B and A have the same cost but quality of B is much higher than A. So B dominates A. D and B have the same quality but cost of B is much lower than D, so B dominates D. In this graph you see in this dimension, in quality-dimension, as I go outwards, I get better, but in the horizontal direction, this direction towards origin is better. In order to make my graphs consistent, instead of cost, I will use cost efficiency, which is one divided by cost. So if product C or process C has high cost, it has low cost efficiency, because the one over cost becomes small. If it has low cost, it has high cost efficiency, which is good, and therefore instead of cost and this dimension, I show cost efficient. Company B is more cost efficient compared to company C or product B is more cost efficient compared to product C or process B is more cost efficient compared to C. C and D have the same cost efficiencies, but D has higher quality. A and D have the same quality, but A is more cost efficient; its cost is lower than D. Now with this graph, as I move outward, I get better. The same is true for flow time. For example, in this graph, I am showing quality versus flow time. For quality, if I move in this direction, I get better. For flow time, if I move in this direction, it means flow time is longer. It takes more time to produce the product. Process requires more time, or customer will get the product in the longer period of time. So if I move in this direction, I will get worse. In this direction, I get better. Therefore, on this dimension, instead of flow time, I show one over flow time. And I call it, responsiveness. Therefore instead of flow time, I will show responsiveness. Company C or product C or process C has a higher responsiveness compared to company B or process B or product B. Product D or process D has high responsiveness, that means it is good, and high quality. Again, in this graph, moving outward makes me better. Therefore, on my graphs, I will show quality and in this direction I get better. I show variety and in this direction I get better. I use cost efficiency and in this direction I get better. And I use responsiveness and again, in this direction I get better. As I move outward, I get better. Let’s look at this situation. Here again I am showing a two dimensional space. I forget the other two for the time being, I see two products: Product A and product B. Product B has high variety, but it has high cost because its cost efficiency is low. Product A has low variety, but its cost efficiency is good: its cost is low. One firm, low cost and standardized product with a small variability; another firm, expensive product and customized product. Which firm is better? We don’t know. It depends on the strategy and the market segment that these companies are looking at and the customer value proposition they have prepared. This one, may be a company like Wal-Mart. This one, a company like a jet manufacturer for very wealthy people. Both may make good profit, or both may get broke in a couple of years.

**Strategy positioning** defines those position that the firm wants to occupy in the competitive product space. The current position and the direction.

Here, we show two firms in a two-dimensional space of responsiveness and price or cost efficiency. Firm B has higher responsiveness compared to firm A, but its cost efficiency or price efficiency is much lower. The direction of the firm is to even make its price higher and at the same time, increase its responsiveness. Company A has low responsiveness, it takes more time to put this product out of production and into the hands of the customer, but the price efficiency or cost efficiency is quite high. And the strategy of this firm is to even make its price lower, but increase improve its responsiveness. A firm must ensure that its competitors are not capable of imitating its position. **The strategy of a firm shouldn’t look like block** because all other firms can imitate a block. It should look like **a sculpture**, such that if another firm wants to imitate it, it takes a lot of time, energy, budget and so on and so forth. It is difficult for competitors to **imitate an array of interlocked activities**, interlocks processes. When Southwest Airline became successful, many companies tried to imitate what Southwest did. But Southwest created a sculpture; for other companies to become Southwest, they should destroy themselves first. What is the best strategy? We don’t know. There is no single solution.

**Zara**: its strategy is timely, yet limited variety at modest cost and quality. **Aravind and Souldice**: the strategy is low-cost, high quality, minimal variety, average to long response time. Corolla: flow shop, decentralized assembly plants close to market, short flow time, low cost. Ferrari: job shop, a single plant, longer flow time, high cost. **McMaster-Carr**: high flexibility, high quality, quick response time, high price. **Wal-Mart**: short flow time, low inventory, low cost, average quality. Six different enterprises with six different strategies, all are successful.

**Efficient Frontier**

These are different products or different processes or different firms. For example, these two processes have almost the same responsiveness, but this process is an expensive process, and this process is an inexpensive process. Since the responsiveness’ are the same this is a better company.

Look at these two companies. This one has higher responsiveness compared with the other and yet has lower cost. This process/product/company dominates this other process/product/company.

Efficient frontier is the minimal curve covering all the current positions in the industry. So if I want to find the minimal curve, this is the efficient frontier. These are world class organizations that are trying to push the efficient frontier outward. The organizations inside the curve are not world class organizations. However by improving itself in both dimensions, this organization can push itself to the frontier and become world class, without or with little trade-off. If world class organizations along the frontier want to become more responsive, then there is a trade-off, and they must increase their costs. Non-world class organizations inside the curve may improve their standing by improving responsiveness and costs without trade-off.

Focused Strategy

A focused process or a focussed organization occupies a small portion of the four-dimensional space of competitiveness. For example, in a two-dimensional representation, the focused process has small cost variations, and small responsiveness variations. So it can produce products at a given cost or lower cost products at another cost, fast operations in one area, and smaller operations in another.

This is a focused organization, yet not a world class focussed organization because it is not on the efficient frontier. Every organization is focused because everyone occupies some portion of the four dimensional space (or in this example two dimensional space), yet some are world class while others are not. World class organizations will fall on the efficient frontier. For example, as we move right along the graph we are demonstrating low cost and low responsiveness. A non-emergency hospital would be an example of a world class organization falling on the efficient frontier, near the bottom right of the curve, due to its low responsiveness. You can also have the opposite. An emergency room or emergency hospital is an example of a world class organization that would fall on the upper left side of the efficient frontier, due to its high cost and high responsiveness. Both of these examples are focused, because as long as responsiveness is concerned they fall on the upper left and bottom right of the efficient frontier, and as far as cost is concerned they are also placed respectfully along the curve. They do have operations, which do have small variations in cost and small variations in responsiveness. A general, unfocused organization will fall within the center of the graph. This is because it has some operations which are very inexpensive and require a long waiting time, and some operations which are very expensive that require fast responsiveness.

Within a focused strategy, if this graph reflects cost efficiency and quality, the cost of operations will be in the mid level, far right range as pictured below. Quality will also be in a similar small range. A quality focused organization will fall within a small range in the upper left portion of the curve with high cost. An organization within the center area of the graph will produce both high and low quality products. Companies that produce both high and low quality products at a similar cost cannot compete. A focused organization makes or has; all high, or average quality products; high cost, average cost, or low cost products; high, average, or low responsiveness products; high variety, low variety, or average variety in their products. It is impossible however to have a company that produces 1000 items ranging from high to low cost, or high to low quality all under the same management and operations.

A focused strategy is committed to a limited, congruent set of objectives, in terms of demand (product, market) and supply (inputs, technologies, and volumes). When we look at demand, this does not mean we produce 1000 types of products, for 100 different markets. We are committed to a limited number of products for a limited market(s). In terms of supply, we don’t use all types of input (low or high), all types of technologies (manual, or automated).

A focused process is not limited to a few products, but all the products should fall within a small region of the four dimensional product space. If they don’t all fall within that space then we require Plant-Within-Plant (PWP). This business strategy is diverse, but generally the entire business is divided into several mini plants, each with focused processes. One PWP may focus on low cost, while the other may focus on quick response. High and low volume products should be separated into different plants. High quality, high cost products should be produced in a separate plant than an average quality, low cost product. Different plants should also be under different management.

In a two dimensional space, with functions of cost efficiency horizontally and responsiveness vertically, unless world class organizations can push the boundary of the efficient frontier there is no way to increase or decrease cost without a trade off to responsiveness. Everything else within the curve is not world class unless it is along the frontier, yet it can move without a trade off by pushing simultaneously in multiple directions, on more than one dimension. One way to push the boundary of the efficient frontier is with new technologies.

Firms located on the same ray share strategic priorities. They all have the same cost efficiency, responsiveness, or tradeoffs. A trade off is simply the inability to increase one dimension or attribute, without decreasing, or without consequence to another. Firms on the frontier must trade off. Strategic positioning is the direction of the improvement from the previous position, or where the company wants to occupy along the efficient frontier. By not being able to move without tradeoffs, world class companies try and push the boundaries of the efficient frontier. As technology and management technologies advance, they help to push the frontier outward, yet this is not the same across all industries.

Different companies intentionally choose different processes to achieve the same goal, for instance, McDonalds vs. In’N’Out. These different processes lead to different advantages and disadvantages, so we are always facing tradeoffs. Delivering books at a low cost can be easy. Delivering books fast can be easy. Delivering books fast and at a low cost however is not easy. You also cannot work and study for exams at the same time. The more you work, the less time you will have to study, and therefore the worse you will do on exams. The more you study, the better you will do on your exams, yet you will have less money. There is therefore a trade off between doing work and studying. We are always facing tradeoffs.

Operations management is a set of tools, techniques, and philosophies to create smooth flow. Operations management is also the knowledge necessary to understand tradeoffs, and come out with optimal tradeoffs. To create smooth flow we are forced to have high quality products, with little inventory, because products are made and quickly leave. In such a system, if there is a change in customer preferences, or a change in technology, or a change in inputs, and requires variation, the system can immediately respond. Smooth flow means flexibility, short flow time, and high responsiveness. As soon as someone desires our product, we can quickly get it to them. Smooth flow also means low cost, because products have less time to absorb overhead costs. By creating smooth flow we can determine the optimal tradeoffs. Operations management allows us to produce efficiently and determine the optimal levels of trade off.

Operational Effectiveness

Operational effectiveness is developing an operations strategy (encompassing the resources, processes values, and competencies within the four dimensional space of cost, quality, flexibility, and time) that supports the strategic positioning (customer value proposition), better than competitors.

In management the general definition of effectiveness is doing the right things. If the thing you are doing is right then you are effective. Efficiency is doing things right. You can be efficient but not effective. You may be doing something wrong very well or quickly, this does not make you effective. To be both effective and efficient, you should do the right things while doing things right.

In operations management however, we define efficiency as cost efficiency. A process is efficient if we can produce output with minimal inputs and resources. Low cost operations. An effective process is a process that supports the execution of a company’s strategy in the four dimensions of cost, quality, flexibility, and time. A synchronized process does well in all four dimensions, while supporting the customer value proposition. We are efficient if we do well in the cost dimension. We are effective if we are doing well in all four dimensions.

**Efficient Frontier**

The small circles scattered around the graph are different products or different processes or different firms. For example, these two processes, highlighted in green, have almost the same responsiveness, but the left process is an expensive process, and the right process is an inexpensive process. Since the responsiveness’ are the same the one on the right is a better company.

These two companies, highlighted in red, demonstrate differences in responsiveness. The company on the right, along the efficient frontier, has higher responsiveness compared with the other and yet has lower cost. This process/product/company dominates this other process/product/company.

Efficient frontier is the minimal curve covering all the current positions in the industry. So if we want to find the minimal curve, it is on the efficient frontier. The processes/products/companies on the curve are world class organizations that are trying to push the efficient frontier outward. The organizations inside the curve are not world class organizations. However by improving themselves in both dimensions, these organizations, such as the one circled in blue, can push themselves onto the frontier and become world class, without or with little trade-off. If world class organizations along the frontier want to become more responsive, then there is a trade-off, and they must increase their costs. Non-world class organizations inside the curve may improve their standing by improving responsiveness and costs without trade-off.

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A focused process or a focused organization occupies a small portion of the four-dimensional space of competitiveness. For example, in a two-dimensional representation, the focused process highlighted in yellow below, has small cost variations, and small responsiveness variations. Thus, it can produce products at a given cost or lower cost products at another cost, fast operations in one area, and smaller operations in another.

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