QRM It's About TIME

The Competitive Advantage of Quick Response Manufacturing

Appendix B

Practical Examples of Focused Target Market Segment (FTMS) Selection

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APPENDIX B

PRACTICAL EXAMPLES OF FOCUSED TARGET MARKET SEGMENT (FTMS) SELECTION

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QRM Cells are always designed around a Focused Target Market Segment, or FTMS. In Chapter 2, I explain the importance of selecting an FTMS as part of setting the scope of a QRM project for the shop floor. A similar discussion in Chapter 4 describes the importance of FTMS in creating an effective Q-ROC for office operations. In this Appendix, I give you pointers on how to arrive at good FTMS choices for your QRM projects.

START BY IDENTIFYING A MARKET OPPORTUNITY OR BUSINESS NEED

To initiate the discussion in this Appendix, I will briefly restate some points made in Chapters 2 and 4. You should always start your search for an FTMS by looking for a situation where there is an opportunity for benefit through lead time reduction. This is called a Target Market Segment. Note that the term *market* is used in ageneric sense—the customers for your QRM effort can be internal as well as external. An obvious external opportunity would be a market segment where your sales team feels that you could gain market share by offering products with much shorter lead times. An example of an internal customer could be a final assembly area that is often waiting for certain components that are delayed in fabrication steps, and thus causing problems with shipment of the final product. The Target Market Segment in this case would involve those components that are responsible for the delays.

The next step is to narrow and focus the Target Market Segment until you arrive at the Focused Target Market Segment, i.e., the FTMS that you are seeking to define. This process of identifying an FTMS should be conducted by a cross-functional group that includes people from marketing and sales, estimating and quoting, engineering, order entry, purchasing, materials, planning, manufacturing, and possibly other relevant functions. The reason is that brainstorming to get a good FTMS is key to the success of your QRM Cell, and the cross-functional team will include enough expertise to think outside the box for alternatives that may be possible for restricting the various product options and rethinking processing steps.

In the rest of this Appendix, I will give you some pointers along with examples to help your cross-functional group brainstorm about potential FTMSs.

USE ONE OR MORE OF THESE JOB CHARACTERISTICS TO CREATE A SEGMENT

Consider segmenting jobs using one or more of these characteristics. Note that in general these pointers apply to both shop floor and office situations, although the specific examples that I give might be specific to one or the other situation. Also, since the FTMS analysis could be for a situation dealing with a customer request (such as a quote or an order), or for an internal process (like an engineering change), you should note that "job" can stand for a product, an order, or other type of work that makes its way through your organization.

Customers or Markets

This is an obvious way to make an FTMS since the resulting cell will be dedicated to a customer (or a few customers) or to a market area and provide targeted expertise in serving that segment. However, in some cases this is not possible as a given customer may require different products with different characteristics, in which case some of the other criteria can be used instead of—or in addition to—this one.

Statistical Characteristics of Jobs

Analyze jobs by:

- Demand volume
- Order size
- Pricing
- Profitability (margins)
- Current lead times
- Customer lead time requirements
- Competition's lead times
- Finished-goods inventory levels

Degree of Customization

Typical categories are:

- Standard products
- Standard with special request for price variation (e.g., if a customer is placing a large order)
- Modified standard: Standard products with a limited number of customized variations within prespecified parameter limits
- Configured: Products put together by choosing from prespecified options
- Engineered: Products with more customization requiring design engineering

Complexity of Jobs

Separating jobs with differing degrees of complexity helps to streamline flow for each of the categories of jobs. Examples of ways to classify jobs by complexity are:

- Estimated total work content
- Whether high-quality drawings have already been supplied by the customer
- Number of new engineering drawings
- Number of bill-of-material (BOM) changes
- Number of component parts

Of course you can combine two or more of these criteria to create sharper segments. An example from a printing company shows how the first two criteria were combined effectively. This company formed a Q-ROC to serve an FTMS consisting of jobs where high-quality PDF files were received directly from the customer and the total office work for the job was estimated at less than 30 hours. Also, the example in Chapter 4 of the FTMS for engineering changes uses the preceding ideas.

Features or Physical Characteristics

Segment orders by design features, or most popular options or add-ons.
Here are some specific examples from different industries:

- A company making customized shafts created segments based on grade of stainless steel; diameter; whether the shaft required machined features such as slots, splines, keyways, and face milling; tolerances; and surface finish.
- A furniture manufacturer combined market segment with features to get an FTMS consisting of wood furniture with moving metal parts, and only for hospital applications.
- A company that made formed metal tubing used these criteria to create FTMSs in both the office and the shop floor: tube diameter, thickness (gauge), number of bends, types of bends, special finishes, end finishes, whether any assembly was needed, and packaging type.
- A factory that fabricated a high variety of components for large equipment created an FTMS for "large round parts," which included parts such as rollers, pinions, bearing blocks, bushings, retainers, shafts, and gears. This choice of FTMS enabled the company to create an effective QRM Cell just for these parts and reduce their lead time significantly.

You can also segment by physical characteristics of the product such as material type, thickness or gauge; product size, envelope, weight, and volume; and design tolerances and surface finishes.

Job Routing

For office processing ask: Which departments does the job currently visit? Are there subsets of jobs with different routings and are some of these routings much simpler? What are the characteristics of the jobs with the simpler routings and do these help us to find an FTMS? For shop floor cells you can use the job routings in the MRP system to find segments based on jobs with similar routing sequences. However, since the data might be voluminous and overwhelming, there is a way to simplify the task using

intuitive codes, and I will explain this in more detail later.

Supply Chain and Subcontracting Issues
Consider segmenting by material lead times, component lead times, and whether outside operations (such as plating) are needed. For example, if an FTMS has a few products that have long-lead-time components compared with the other products, that might ruin the flow of jobs for that FTMS, and those products might belong in a separate FTMS that can focus on dealing with those long-lead-time components.

Types of Tasks
Limit the FTMS to a few specialized tasks that it can then perform quickly. A practical example of this is the following: A company's Engineering Department had long lead times for processing engineering changes and this often led to holdups or worse, parts still being made to obsolete specifications. We identified two types of tasks that could be included in an FTMS: requests for simple documentation changes (involving minor changes) and requests for component part changes (for components that were preapproved and would not require functional testing). A Q-ROC could be formed to serve this FTMS and process these requests within a day.

Strategic Needs of Jobs
Focus the FTMS on a subset of jobs that should be treated differently for strategic reasons. Some practical examples are: Quotes where customers need samples in addition to the quote, and the potential sale involves a large dollar amount. Instead of these quotes and sample production going through the normal processes, you could create an FTMS for these jobs.

- Instead of all procurement going through the same purchasing process, separate out R&D purchasing and purchasing for sample production— I give you a detailed discussion on this issue in Chapter 4, when discussing rapid new-product introduction.

HOW TO ORGANIZE PRODUCT-ROUTING DATA TO GET INSIGHTS INTO FTMS FORMATION

I mentioned earlier that for shop floor cells you can use the job routings in the MRP system to find segments. However, my experience is that this data is not presented simply in the MRP system and also does not enable brainstorming. So I suggest the following procedure, which I have found to be useful at companies that make a very wide variety of products.
First, cull down the overall set of products using some of the other characteristics (such as market segment, demand volume, features, and so on), so that you are working with a smaller subset to begin with. For this subset, then code the main operations using easy-to-recognize abbreviations. Next you can sort the resulting sequences

by volume to pick off some typical FTMSs, and finally you refine these with some brainstorming. I will illustrate this set of steps with an example.

For a company making formed metal tubing, the set of products for a particular market segment were coded by the main operations needed, for example: S—Straighten, C—Cut, P40—Press (40 ton), P80—Press (80 ton), Ex—Extrude, Ch—Chamfer, T—Turn, Th—Threading, Dh—Drill horizontal, Dv—Drill vertical, W—Weld, and so on. Then each product was labeled by the sequence of its operations, such as S-C-Ex-T or C-P80-T-Th. The set of products was sorted by these sequences, and for all the products with the same sequence the demand was added up. Then the sequences with the highest total demand were analyzed for the potential of creating cells. Also, note that because QRM Cells are very flexible, you can combine multiple (but related) sequences in one cell to create an FTMS that has more volume if needed. For instance, if you have a cell for products with sequence S-C-Ex-P80-Dv, then products with label S-C-P80 and S-C-Dv can also be fabricated in the cell since they use a subset of the resources. In fact, you can brainstorm further and realize that products that need a 40-ton press can also be done on an 80-ton press, so if needed you can also bring products with sequences like S-C-P40-Dv into the S-C-Ex-P80-Dv FTMS if needed. Such an exercise of FTMS creation is not only useful for the QRM project, but also brings teams of people together to look at the set of processes being used. Often it results in more rationalization of the manufacturing or even design processes with benefits to the company that go beyond the formation of the QRM Cell.

USE CROSS -FUNCTIONAL BRAINSTORMING AND AN ITERATIVE PROCESS TO REFINE THE FTMS

In most cases, you will end up using a combination of the preceding criteria. Also, remember that this is an iterative process. As you home in on the FTMS, the cross-functional group will come up with ideas to modify existing processes, designs, or policies, to sharpen the FTMS choice. The following is an example of brainstorming and iterations that occurred at a company making small machined parts.

This company had several dissatisfied customers and was losing market share because of long lead times. Its management homed in on QRM as a way to turn the company around. For the first project the QRM Planning Team identified a market segment based on a subset of customers and types of products. Within this segment, the team then used routings to focus the selection of products for the FTMS. Specifically the team picked products that used the following operations: CNC lathe for roughing operations; CNC lathe for finish turning; CNC mill; deburring; and finishing operations. For the first pass on this FTMS, the team eliminated products with outside operations such as heat treat, plating, or threading—all of which went to subcontractors that had long lead times. However, upon examining this FTMS and a proposed cell to process these products, the team realized that the volume of production would be too low. (Although in QRM you strive for spare capacity, if you have very low production volumes, then you can't justify the cell even using the methods presented in Chapter 5.) So then the team

went back to brainstorming and came up with several ideas:

- The team realized that many of the products that needed threading could be done in the cell if some additional tooling could be purchased for the lathes. (This had not been done in the past because of standard cost calculations that showed that it was cheaper to outsource this operation.)
- With the purchase of a small oven that could be placed right in the cell, some other products could be brought into the cell as well. (Note that Appendix C on the enclosed CD has several more pointers to help teams come up with such ideas.) The end of the story is that these two ideas along with some other brainstorming enabled the team to expand the FTMS to the point that it could justify the investment in the QRM Cell for that set of products. Management approved the QRM project and the company reduced its lead time for these parts by over 70%, and was soon rewarded by additional orders from its major customers.

FOR FURTHER READING

See Chapter 12 of *Quick Response Manufacturing: A Companywide Approach to Reducing Lead Times*, by R. Suri (Productivity Press, 1998), for a detailed case study describing how a company making cutting tools arrived at an FTMS and formed a Q-ROC around it. This reference also describes several tools to help with FTMS selection and Q-ROC formation.