

### How to Define a Market Segmentation Map

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#### Situation

The Company maintained an aging instrumentation product family with most revenues generated from mature, slow growth markets. There were two primary markets that were well exploited, and many sub markets that were one hit wonders. Management was anxious to define worthwhile new product development projects, but the way we were looking at, and tracking, sales was so fragmented that we could not see a broad market opportunity. We needed to create a market segment model that helped us identify coherent sets of needs to fuel growth and competitive advantage.

Order Entry Checklist

The image shows a dense, multi-column checklist titled "Order Entry Checklist". It contains numerous small text items, likely representing different product specifications, customer requirements, and administrative tasks. The text is too small to read in detail but appears to be organized into several columns and sections.

Many scientific instruments are sold as one or a few unit transactions across a broad market of customers, each with very specific measurement needs. The Order Entry Checklist that sales filled out was both complex and granular in some respects, and so broad as to be useless in others. Our sales people usually just resorted to checking the lowest common broad category available, like "materials science." Also, the business was comprised of two distinct product families as the result of a merger. One product line was sold into scientific research, while the other was sold into the quality departments of production operations – these two business units did not see the synergy or cross-selling opportunities in their technologies.

#### How Technology Marketing Course Concepts Apply

From the course, our cross-functional team of managers had seen that a Market Segmentation strategy is analogous to a map of the world. With a market model you can think of mapping the world by continent, then by country, then by city.

We started by thinking of our broad segment categories of USES, or applications, as continents. The idea of countries within continents allowed us to think of USE sub-segments. For instance, if Semiconductor is a continent, then some natural countries within that continent (sub-segments) would be bare wafer inspection, semiconductor material properties, front end of line characterization (device level), and back end of line inspection. To get to the city level we felt we could gain insight leverage by employing a dimension that described communities of instrument users.

The addition of a USER or Community dimension to our segment model thinking was a real breakthrough. One benefit of this thinking was that it formalized the goal of understanding "who" is using our product, their professional and business objectives, not just the "what" of the application.

### Strategy

Through extensive team review of detailed sales history, our first decision was to define a rational set of segments that encapsulated a majority of our customer's applications or USES. As we have a strong presence in leading edge nanotechnology research, we realized that we needed to have one "open" segment to allow us to flag new and unknown applications of our products. However, once we realized that, it was easy to identify 4 broad segments. Once we identified the continent segments, we chose 4 – 5 country sub segments that further stratified the segments (see table below). These sub-segments started to point to areas of interest for new product development.

While working on this strategy, and in the midst of a Voice of the Customer exercise, we realized that while we shared USE segments between the two product groups, the USERS of the tools were quite different. One line of products are primarily used in industrial settings to monitor processes or to improve manufacturability, while the other line of products were often used in basic research, in universities or government funded laboratories. We thus defined USER communities where the channels and ancillary solutions we created around our basic product platforms would need to be very different.

### Tactics

The continent segments and country sub-segments are laid out below in a table:

<i>Data Storage</i>	<i>Semi / MEMS</i>	<i>Materials</i>	<i>Bio Instrumentation</i>	<i>Other</i>
Wafer	Bare Wafer	Metals	Cellular Biology	Must Specify
Slider	Semiconductor Materials	Polymers	Cell Dynamics	
HGA / Suspension	Production FEOL	Electronic Materials	Molecular Biology	
Media	Packaging BEOL	Paper and Non-woven	Implants, devices, etc.	
		Glasses		

At this point the team undertook the task of defining the cities, or groups of USER communities. The USER segments we added, cutting across USE segments and sub-segments include:

Teaching – Used in an instructional setting
Principal Investigator – purchased by a researcher for a specific project
Multuser facility – Shared Laboratory with multiple projects
Analytical Services Lab – centralized analytical lab with multiple technologies
Process and Method Development
Quality Control and Assurance
Failure Analysis

Key – Blue academic & government labs, Red Industry/corporate

This list was the culmination of a long and contentious debate. The most amazing aspect is that when we started this exercise the technical stakeholders scoffed that we could not possibly come up with a scheme to break our market into such a compact representation. Their “aha” moment when we started testing the hypothesis’ with sales history and customer input was remarkable. None of them could break the model. It was at that point that we realized that we had a winner, and truly had captured the essence of our market opportunity.

### Results

With a valid model for segmenting our sales, we have a tool that is helping us identify critical areas of our business that were previously mired in minutia and confusion. We are working to create a streamlined vehicle for gathering the segment, sub-segment and the USER information. Our inclination is to leverage our CRM tool to gather and report on this information as it has become our most real time source for forecasting business trends, and has the advantage that it can be modified without adjusting data that is reported to Wall Street.

Additionally, in the process of analyzing thousands of past sales events we were able to identify several adjacent markets that offer a significant opportunity for revenue expansion. These adjacent segments had been lightly served, but never isolated, understood, and given the focus needed for growth.

### Lesson Learned

Analysis of sales and customer test support history data bases was very helpful to the process, and should be one of the first team activities in working through the debates about segmentation models that generally accompany this type of project. Also at the same time we were doing our sales analysis it was helpful to look at industry market research reports to see how consultants were segmenting our market. As we were finalizing our market model we saw that it was much more consistent with industry views than we had originally assumed, with the benefit being we could use industry data to help generate market share tracking by segment.