



EAF LLC

...a fusion of engineering & art

Quantitative Strategic Analysis Blaine Bateman

Introduction

Many electronics markets seem continuously to increase in competitive intensity. Even in consolidated markets there is often fierce competition and intense investment both for “the rest” of the market and to take share from the leaders. We could be justified in assuming there is some strategic intent behind decisions to enter highly competitive and consolidated markets¹. Michael Porter created one way to analyze competitive strategies when he introduced the five force model of market structure in 1979 (Porter, 1980). More recently, Joan Magretta revisited Porter’s seminal work, providing some valuable insights (Magretta J. , 2011a).

A significant problem for many firms seeking help from a strategic framework (Porter’s or any other) is that the framework provides a basis for qualitative analysis but does not indicate *what* a firm should do. In many cases the frameworks do not enable an obvious comparative analysis among possible strategic scenarios. Tools are provided to investigate differences among scenarios, but not a clear significance of the difference and thus a *choice* framework. Porter, discussed using techniques such as a BCG matrix (Henderson, 1970) or a more detailed attractiveness analysis, which overlay quantitative choice matrices onto the underlying strategy framework. Later, Porter introduced ideas about the value chain and activity relationships to provide more framework to develop specific strategies (Porter, 1985).

In this paper I discuss an approach using the five forces framework directly to suggest where to focus. In particular, I deal with the problem of a diversified firm seeking strategic insight when activities in some markets (or segments) may be under-performing and the alignment of the firm’s value chain to the different markets may be at varying levels of maturity. The firm may seek options as to possible divestment/harvest strategies to free resources for expansion into new markets. Alternatively, it might be desired to find focus areas for improvement having the most leverage on business performance.

I approach the scenario by developing simple methods to generate quantitative comparisons between markets relevant to the firm. The approach does not establish an absolute measure of strategic value; rather, I employ techniques used in fields such as statistical process control (Webber & Wallace, 2007) and sociology (Bertram, 2007) to convert attribute data to variable data, and generate scaled comparisons of the variables. The core information comes from the firm itself—analyses of the internal value chains aligned to each market, and parallel analyses of the business performance using a strength-weakness analysis.

¹ For example, in media tablets where Apple holds over 50% share (CBS News, 2012), there were over 50 OEMs (Original Equipment Manufacturers) in the market in 2011, and nearly 15 with less than 0.1% market share (IHS-iSuppli, 2012)). These myriad new entrants must each have formulated a strategy that indicated a favorable result. Noting that many media tablet makers have very small market share, and that media tablets represent a small fraction of sales for large players (excluding Apple), we might guess that these strategies are more complex than “become a top 3 player in media tablets” or similar obvious but mainly unachievable options.



Market Segmentation and Market Forces

Porter defined five market forces that determine market structure, availability of profits, ease of entry, etc. (Porter, 1980)². In this analysis I look at the scenario where a firm is engaged in multiple vertical markets or segments, and seeks a strategy to strengthen some and/or possibly exit others. The goal of developing such a strategy and implementing it is optimal alignment of resources and (presumably) a more focused business (the latter does not imply a narrower portfolio of markets or products, simply better focus in those areas the firm chooses to remain engaged). A firm might undertake this analysis if some business activities, aligned to particular markets, appear to be delivering below average results, or if management appears over-extended, or for other reasons.

I define a successful strategy as one that results in profitable business delivering above average (for the market) returns over the long-term³. In this example, the more optimal alignment of resources may or may not increase short-term profits or other short-term metrics, but would (hopefully) lead to a sustainable position for the firm as well as other positive factors providing an overall gain. Many firms, seeking metrics to differentiate between strategic options, (including those in the form of alternative proposals from management for expansion, capital investment, etc.) use some form of net-present-value (NPV) or related financial analysis. I believe NPV is used so much because it is easy to formulate, is quantitative, and many firms have a long tradition of measuring business performance using financial metrics. Management proposals already contain profit estimates as well as direct investment needed to calculate NPV.

Even if NPV estimates are accurate in the context of what the firm typically includes in the costs, true costs may not be included such as marketing (addressing competitive rivalry) or opportunity costs (known or estimated benefits of using the resources elsewhere). Also, benefits from executing a plan may accrue beyond direct profits of the products involved. For instance, an acquisition may alter the competitive environment (Penrose, 2009 (1959)); an expansion into new markets may enhance the brand value, etc. Ideally, the decision to invest resources should be comparative versus realistic alternatives rather than only against a hurdle rate (such as NPV exceeding a multiple of the estimated cost of capital). An objective comparative assessment might include all costs, but still ignore market factors affecting likelihood of success, such as threat of substitutes or market control by buyers.

² The forces defined by Porter are: the Power of Buyers (customers), the Power of Sellers (suppliers), the Threat of New Entrants (ease of entry, new competitors), the Threat of Substitutes (alternatives to a given Product), and Competitive Rivalry (the intensity of head to head competition for market share, particular markets or customers, etc.). Note that Substitutes mean an alternative Product which can perform substantially the same function or fulfill substantially the same market need. Similar Products from competitors are not Substitutes.

³ In a survey conducted in the Strategic Planning Society group on LinkedIn[®] 48% (of 115 respondents) responded that long-term, in the context of the successful strategy definition used herein, is in the 3 to 5 year timeframe. Much of the accompanying discussion centered on sensitivity of the answer the specific market and prevailing economic conditions, unusual events, etc. Many commenters suggested that timeframes for planning are getting shorter, competition more intense, and the possibility that the basic definitions of strategic planning are evolving as a result. In this paper, I leave to the reader to consider their own view of long-term as a factor in determination of success.



Magretta illustrated a formulation for strategic comparison by attaching the five forces to a simple profit equation (Magretta J. , 2011b). Figure 1 is an adaptation of Magretta's figure from her book (Magretta J. , 2011c). This equation means that the forces increase cost or decrease price as shown, and the relative impact of forces in different markets thus impacts profitability of the market.

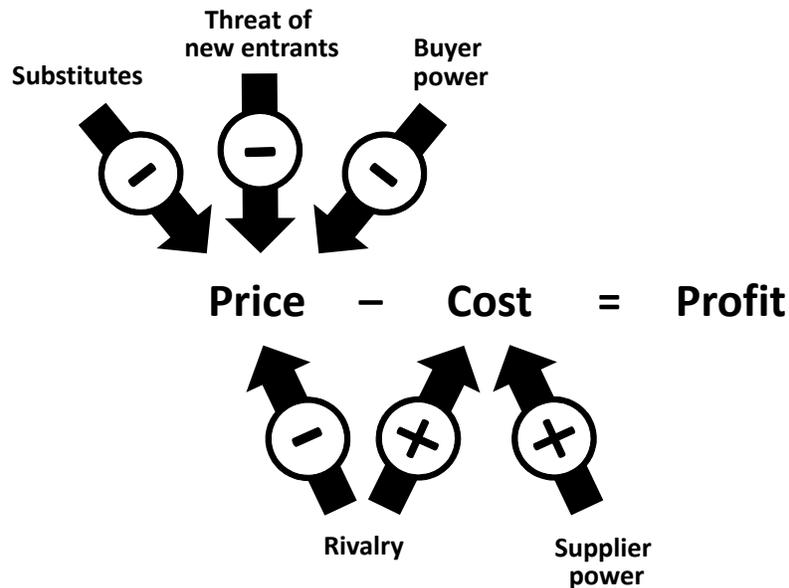


Figure 1. Relationship of Porter's five forces to Profit. (Magretta J. , *The Fundamental Equation*, 2011c) (used with permission)

Price and Cost in Figure 1 include all the underlying factors establishing baseline values, such as a theoretical lowest cost based on best available technology, availability of capital, etc. The market factors then determine the actual price and costs observed by a firm. In principle, if every factor affecting this equation were considered, then strategic choice would reduce to maximizing the right hand side among a set of choices. Costs such as management cost to deal with, say, a market choice with poorer fit but overall attractiveness would add in to the baseline cost, and entry into a highly competitive market would increase the true cost (due to increased management demands, marketing costs, etc.). A product without any substitutes and sold in a market with average competitiveness might command profit X, but appearance of a lower priced substitute would lower the actual price available in the market, resulting in lower profit Y ($Y < X$).

In practice, most proposals contain obvious costs and some of the price factors, but omit or are optimistic on others. What is needed then is to quantitatively assess the market forces and other strategic elements to get to a realistic and usable comparative analysis. Before moving on to develop the quantitative framework, I return briefly to the five market forces.

In the case I'm examining, the firm is selling into multiple markets, with multiple product lines and many products. Commonly, firms view their markets through a product lens. This, in my experience, is especially true for technology firms selling in intermediate markets. "We are a leading power supply company" would be a typical position statement. While "power supplies" could be considered a market,



this categorization does not capture essential market forces, especially on the customer side. Considering markets through the lens of customer wants and needs, and analyzing the market forces in that context, it becomes clearer that a market is significantly defined, or segmented, based upon common customer attributes. In the five force model, a firm and their competitors compete to meet the needs of the customers. The needs may be met by multiple products, illuminating the fact that a firm's choice of products (to make and sell, or to buy and resell, or any hybrid model (Williamson, 1996)) is part of their own value chain rather than a characteristic of the market per se.

Viewed this way, careful analysis and segmentation of a firm's markets automatically leads to a better understanding of the strategic implications of market choices, product choices, and the optimal value chain to meet the market needs. I will explore some recent thoughts on value chain analysis in another paper. Here, I want to emphasize the importance of proper segmentation as an input to strategy analysis. Below I assume the firm has properly segmented their business into markets for the analysis.

Strategy Analysis

The first step is to segment the firm's activities into the real markets being served. Next, the role of each of the five forces in each market is assessed. This is best accomplished with a cross-functional team that includes sales, marketing, product development, product management, business management, and possibly other groups such as operations, finance, supply chain, etc. As a consultant, this step is a data collection endeavor for me, working with the stakeholders in the firm.

Consider a hypothetical firm, Company Alpha⁴, engaged in six unique vertical markets, denoted Market A through Market F. I provide a template to the business team in the firm, asking them to perform an assessment of market force importance in each vertical segment⁵. I assign three possible levels of importance to each market force: Very Important, Somewhat Important, or Not Important. Since I will convert these attributes to scaled data, I provide the template with the scores for each level and have the respondents enter the appropriate value (1, 2, or 3 representing Not Important, Somewhat Important, and Very Important, respectively). The template is shown in Figure 2.

I ask the respondents to evaluate the importance of each market force in each market. Practically, the number of respondents is often low, and there is significant subjective variability among them. These constraints lead me to limit the choices to three as shown⁶. The choices and responses are relative to the role of the force in Magretta's equation (Figure 1). Thus, for example, supplier power can influence

⁴ In this paper, the underlying example and data were developed in an actual business study. Names, descriptions, and wording of narrative data have been modified to eliminate any reference to the actual business, but the numerical data presented here were developed from the actual responses and calculated scores from the original study.

⁵ In some cases it is necessary to develop or refine the segmentation first; if the firm has previously defined markets using a product-centric approach, or has not developed a clear enough market segmentation. Broad market knowledge is invaluable at this stage, but the entire process is not described here.

⁶ Note that in a more complex survey procedure, it would be better to provide only the attribute descriptions and ask the respondents to choose among them, scoring them later. In this case, with only 3 choices as a simplification, and the resulting scale not being bipolar (the middle choice is not neutral) there is risk of bias which is a trade-off for the simplifications made.



price of raw materials. If Company Alpha has a strong supply chain organization and there are no monopoly or near monopoly suppliers (single sources) then supplier power would likely be rated not important. Perhaps, however, in one market the customer needs require a very specific material or component to be used, there is a dominant supplier, and sometimes the supplier resorts to allocation among the customers to deal with excessive demand. In this scenario, even a strong supply chain organization would conclude supplier power is very important.

Market Segments-->	Market A	Market B	Market C	Market D	Market E	Market F
forces -->						
Power of Buyers						
Power of Suppliers						
Threat of Substitutes						
Threat of new Entrants						
Competitive Rivalry						

Figure 2. Template for assessment of market forces in the six markets of Company Alpha.

The same thought process is carried out by all respondents for every entry in Figure 2. Figure 3 shows the averaged responses of the stakeholders in Company Alpha.

Market Segments-->	Market A	Market B	Market C	Market D	Market E	Market F
forces -->						
Power of Buyers	2	3	2	2	1	3
Power of Suppliers	1	1	1	1	1	2
Threat of Substitutes	2	3	2	1	2	2
Threat of new Entrants	1	2	2	1	2	1
Competitive Rivalry	3	3	2	3	2	3

1=not important, 2=somewhat important, 3=very important

Figure 3. Responses from stakeholders in Company Alpha to the Market Force survey.



This approach is similar to that used in most surveys and other measurement programs to analyze respondents attitudes towards a concept. The average (or sum) of the numerical responses from all respondents for a given item is a scaled response in the same meaning as the results of measuring with a Likert scale (Bertram, 2007) or other survey scale (Henning, 2009).⁷ The values themselves have no significance having been chosen arbitrarily, however scaling the views to a numerical scale of 1 to 3 gives me values I can use in several ways. First, the difference in scaled responses between two markets for a given force is an indication of the degree of difference between the two markets. Second, the difference in scaled responses within a market between different forces informs about the market structure and where value chain alignment is most critical. Third, I will use the scores for each force as a filter when developing an alignment score from the value chain. The latter technique is enabled by mapping each market force onto one or more value chain element such that an association is made between actual business activities and the market force to which the activities are most strongly responsive. I detail and clarify this in the following sections.

While collecting the responses for each market, I also collect some narrative description to support the scores. This is useful in discussion with the stakeholders to clarify responses and improve uniformity. It is not uncommon to have some iterative dialogue and fine tune the scoring before moving on. Table 1 shows the narratives from Company Alpha for Market A.

Generic Value Chain Analysis

Magretta (Magretta J. , 2011a) discusses the importance of aligning the business value chain to the market structure. Value chain is one of those terms that everyone knows but all have different definitions. In this case, the value chain is the set of connected activities, within the firm, that are carried out to address market needs. The activities and how they interact are choices made by the firm—the value chain is what differentiates one firm (or one business unit, or market focus) from another even with similar products in the same market. In my analysis, I look at the value chain beginning with a generic structure; this is possible because the main components of a value chain are found in most firms—activities such as product development, marketing, or research and development

⁷ True Likert items would be based upon an idea or a position, with each item in the form of a statement regarding some aspect of the concept. The attribute responses for each item would rank agreement or disagreement, from, say, completely disagree to completely agree. Typically, there are five choices, with the center response neutral, forming a bipolar measurement. A survey using Likert items frequently is analyzed by summing the responses for all items for each respondent. If the items are properly designed, the scores for all respondents can be analyzed statistically as members of a data set. Even then, there is disagreement in the literature about using the average values or the distribution of values because the data are, technically, ordinal, and may not be “evenly spaced”. The latter point means that the “distance” between, say, very important and somewhat important may not be the “same” as the distance between somewhat important and not important (using the choices in my method), and the “distance” or relative distance between choices may vary by respondent. In the case here for the market force scores, the approach has been highly simplified (three choices), the items are not Likert-like (i.e. they are not stated as an affirmative or negative and scored on a bipolar scale), and the lack of a neutral choice (such as “unsure” or “neither important or unimportant”) can introduce bias. Nonetheless, I don’t use these particular values to create a score that is used directly in the analysis (in this case the score will be used later as a filter), and I am simply adapting a well-known method to achieve the end goal of a quantitative result.



(R&D). I lay out a set of these generic elements and ask the firm or sub-area within the firm to describe what is unique in their implementation of each one. As will be seen later, a comparative assessment is

Market Structure Detail--Market A

Power of Buyers	2	Somewhat important	The buyers in Market A frequently have long industry experience and have a good knowledge of the supply chain, costs, and competitive landscape. This is disadvantageous in that the buyers can apply strong price pressure as they are able to estimate purchased material costs accurately. On the other hand, the more experienced buyers are willing to pay for performance and recognize value in suppliers who can deliver higher performance.
Power of Suppliers	1	Not important	The suppliers in this market have limited power because most materials are generic or commodities, and available from multiple suppliers.
Threat of Substitutes	2	Somewhat important	Substitution in this market would come from the industry defining a new standard that was incompatible with current technology, and having that standard adopted by the large end-market players in Market A. At present this seems of low likelihood.
Threat of New Entrants	1	Not important	Due to the sophistication of the buyers and the premium for technology, there are significant barriers to entry. However, there is ongoing threat of the end-market customers in market A vertically integrating the design of the products currently supplied by Company Alpha and competitors. At present, there are niches of product where this has occurred, but Company Alpha is operating in niches we believe are sustainable and not threatened by back integration from our customers.
Competitive Rivalry	3	Very important	This market is very competitive with several key competitors and several more occasional competitors with whom Company Alpha competes constantly. For those key competitors who can approach the performance of Company Alpha's products, price competition is an issue. Brand presence is less of an issue for key customers as the sales are relationship-based. However, channel sales are sensitive to brand awareness which increases competition for those customers.

Table 1. Narrative detail supporting scoring of market forces for the firm's analysis of Market A.

made to the industry (market) as a whole, and to the key competitors of a firm in the industry (market). A pictorial of this generic value chain is shown in Figure 4.

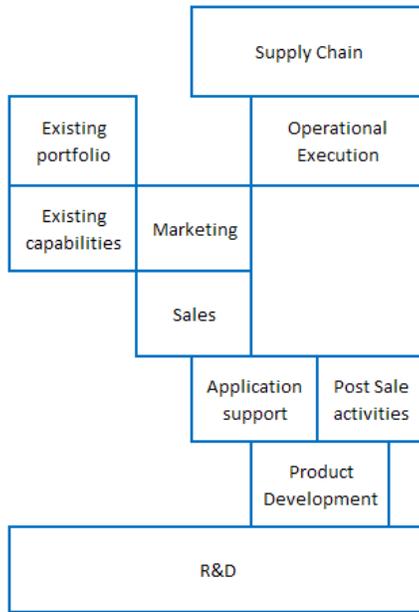
The particular elements included in the value chain analysis are tailored to the specific firm or sub-business under analysis. The firm's management team may believe that a certain function or activity is important to include, such as product management or field service. These more detailed activities may be added to the generic diagram; the key is to capture all the critical activities related to meeting market needs, and in particular where differentiation is present. Enough breadth is needed to ensure a realistic comparison across markets or segments can be made, thus most of the generic elements shown in Figure 4 are always included even if some or many of them are not highly differentiated. In this example, I will use only the elements shown in Figure 4.

Each value chain element can be mapped to a market force to which the element is most strongly responsive. This is by nature an inexact process, but enables use of the market force assessments as a filter to generate a focused alignment score. Effectively, the method used is a weighted average, where elements that are aligned to non-important market forces are weighted zero, and other elements are weighted one. Table 2 shows the mapping used in this example.⁸

⁸ In an optimized value chain, many elements not only are responsive to more than one market force, but the activities interact within the value chain as well. It is likely that a more robust formulation of mapping and scoring can be developed than that shown here. My use of this method so far has favored simplicity to get to the analysis quickly, but I am certain improvements are possible.



Define unique aspects of each element tailored by your business to address the market structure, focus on those aspects unique to your business vs. the industry or key competitors.



Supply Chain can include sourcing product to re-sell. If that is a unique or differentiated part of this business vs. the industry then note that. Do not duplicate Supply Chain differentiation in the Operational comments. Supply Chain includes managing suppliers (bears directly on Supplier Power).

Operational Execution includes manufacturing (in-house, out-sourced), logistics, quality, etc.--steps to make/deliver product. If make/buy choices are strategic & provide unique advantage, then highlight them (see comments in Supply Chain). If you have special process capabilities, better/more capital in place, or better ongoing capex than industry norm, state that. Anything that you do from raw material to product at the customer's location that is tailored to this market and provides unique advantage should be noted.

Sales and Marketing frequently are considered generic but may in fact be a source of differentiation. For example, if you trade off higher costs to have a more technical sales force than competitors, note that.

Application support may or may not be distinct from Product Development/Customer Engineering. In many businesses there are FAEs or other Application Engineering/Support resources in addition to Product Design Engineers and related resources. If application support is a unique strength then note that (should be consistent with market structure).

Post Sale activities include service, repair, ongoing integration support, on-site engineering, etc. The focus should be are you doing unique, tailored activities aligned to your market? If not, then this isn't important, as every business has customer service.

Product development (or product engineering or customer engineering) is where customization is designed. This is distinct from R&D which are generic activities intended to produce new capabilities or products but not for specific customers. If your product development/CE function is a strength, is unique, is above industry norms, then highlight that.

R&D activities are generic activities intended to produce new capabilities or products but not for specific customers. If you have better R&D or something unique in the industry, note that. If R&D exists elsewhere in the firm but supports this business, note that if it provides unique advantage.

Figure 4. Generic value chain. Labeled boxes represent generic activities carried out by the firm or sub-business. The uniqueness of the firm's activities for a particular industry or market is to be detailed by the respondents from the firm. The context of certain activities is defined on the right for clarity. In this diagram, relationships between activities or flow from one to another activity are not explicit. The horizontal relationship is a rough approximation of the importance of an element over the sales life cycle. In this example the possibility of developing new products for a market or customer need is included. If considered as time flowing from left to right⁹, the position of elements does not imply they come into or cease existence but rather their application in a given cycle. For ongoing sales of existing products the activities continue indefinitely to the right.

Value Chain Element	Mapped Force
Supply Chain	Power of Suppliers
Portfolio	Competitive Rivalry
Operational Execution	Threat of New Entrants
Capabilities	Threat of New Entrants
Marketing	Competitive Rivalry
Sales	Power of Buyers
Application Support	Power of Buyers
Post Sale activities	Power of Buyers
Product Development	Threat of Substitutes
R&D	Threat of Substitutes

Table 2. Mapping of Value Chain Elements onto Market Forces.

⁹ In many diagrammatic representations of value chains, a sequential relationship is implied (see, for example, Brisbane, 2006). Many examples can be found showing "arrows" flowing from left to as if a linear sequence of activities describes the process from concept to delivery. This was not the message in the original work (Porter, 1985); some confusion or at least loss of information results from the simplification of combining the description of elements and their temporal relationship in a "chain of events". Thus, I present a more generic representation and focus on the functions and differentiation within each element. I have done recent work on adapting Porter's activity diagrams (Porter, 1996) into a multi-dimensional description of the value chain, and will describe that formulation in a future paper. Here, I use the simple generic formulation shown in Figure 4.



Business Performance

To achieve a useful result, I want to generate a score for the value chain alignment. Although most of the components have been developed in the discussion above, I divert here to consider metrics for business performance. My overall goal is to correlate value chain alignment to a measurement of business performance in each segment. The expectation is that such a correlation will inform both opportunities to increase value chain alignment and business factors which can result in increased alignment and performance.

Before developing the performance metric, it is important to emphasize again that differentiation is contained within the value chain. The value chain is precisely the set of activities used to engage the market. So, value chain alignment is a measure of how optimally the firm’s choices address the market forces. Alignment is distinct from differentiation; so additional analysis is needed to understand whether the business has a sufficiently unique position. Most strategic experts (including Porter and Magretta) argue that a differentiated position is necessary to achieve sustainable, above average results, which I define as the criteria of success. In my approach, I incorporate differentiation into the analysis of critical alignment factors to build a complete metric.

In my process, assessing the business performance is data collection from the business team(s) within the firm. I developed a set of factors for a strengths and weaknesses analysis, a version of which is shown in Table 3.

	Strength	Neither Strength nor Weakness	Weakness
Financial			
Capital Investment			
Channels			
Management			
Corporate Parent			
Vertical Integration			
Product			
Product development			
R&D			
Intellectual Property			
Technology			
Processes			
Operational Excellence			
Marketing			
Brand			
Sales			
Service			
Cost			
Price			
Market Share			
Growth			

Table 3. Template to measure stakeholder attitude towards business elements.



The stakeholders are asked to indicate one of the three choices for each item; for instance indicating financial strength means the general financial position of the business is considered a strength. Note that in this case, the business (as distinct from the firm) is both the shared elements within the firm and any dedicated elements aligned to one of the served markets. Thus, I expect scores to differ for the different markets/segments addressed, or sub-businesses within the firm. The range of items is designed to measure the internal business environment, market position, and other factors important to building or maintaining a market position. As with the value chain, elements can be tailored to the type of firm, markets addressed, etc. Table 3 is based on a firm addressing technology markets where product, technology, and intellectual property may be important, along with the other business elements. Assigning values of -1, 0, and 1 to Weakness, Neither, and Strength, respectively, allows calculation of score for each market, equal to the sum over all the elements. The score indicates the relative attitude of the stakeholders about the ability of the business to address the market. For example, financial strength and capital investment reflect on the ability of the business to deal with demand fluctuations, needs for capability or capacity improvements, overall market changes, etc.

Table 4 shows the hypothetical ratings for Market A and Market B. In the view of the management, the firm is under-investing in vertical integration for Market B. This may be related to the weakness denoted for the product cost for Market B, which means Company Alpha has a higher than desired cost structure for the products provided to Market B. In both cases, the management sees Marketing as a weak area, as well as growth (measured in sales revenues) in both markets. The infrastructure is viewed generally positively, although more so for Market A. Company Alpha has a clearer brand identity in Market A than in Market B.

	Market A			Market B		
	Strength	Neither Strength nor Weakness	Weakness	Strength	Neither Strength nor Weakness	Weakness
Financial	X			X		
Capital Investment	X				X	
Channels	X				X	
Management	X			X		
Corporate Parent	X			X		
Vertical Integration		X				X
Product	X			X		
Product development	X			X		
R&D		X			X	
Intellectual Property	X			X		
Technology		X			X	
Processes		X			X	
Operational Excellence		X			X	
Marketing			X			X
Brand	X				X	
Sales	X			X		
Service	X				X	
Cost		X				X
Price		X				X
Market Share	X				X	
Growth			X			X
Score	10			2		

Table 4. Performance ratings and summative score for the business elements of Company Alpha addressing Market A and Market B.



The performance scores are scaled measurements, and I have made similar simplifications and trade-offs as described earlier to keep the task for the stakeholders as easy as possible. I find it can be difficult to get responses in a timely manner, even when a firm has engaged me specifically for this purpose. Easing the task by having fewer choices seems to improve responsiveness.¹⁰ In this case I use a bipolar scale with the 0 response being neutral, although bias isn't really a problem because of the eventual use of the scores in a comparative correlation to the alignment scores. I'm now ready to complete that picture.

Constructing an Alignment Score

Using the generic value chain, I ask the team to evaluate each element, as it applies to each market, and describe what, if anything, differentiates that element in the market. As already noted, there may be dedicated resources in elements for particular markets, or resources may be shared, or a hybrid. For example, if a firm makes all products in one factory with one operations organization, that element is shared across all markets served by the firm. On the other hand, perhaps there are dedicated sales resources for some or every market addressed. Regardless of shared or not, the respondents are to describe element differentiation for the each value chain element for each market separately.

Along with this evaluation, I ask two additional questions for each element. First, with respect to each element, compared to the market norm (as understood by the business team), is the alignment better than, average, or worse than the norm. Since I am looking at individual value chain elements in a comparative way to what is typically found in the market, the responses bear directly on the attitude of the respondents to the alignment of the element to the market and the degree of differentiation of the element compared to the market.¹¹ I ask the same question a second time, but with respect to key competitors. Here, I make the assumption that the strongest or most likely to threaten competitors represent potentially better (more useful differentiation) or more optimally aligned value chains than others in the market. In general, it is these key competitors with which the firm is most concerned, so this focus is informative on the specific competitive environment under analysis. See Table 5 for the complete responses from Company Alpha for Market A.

At the right of each response (worse, average, better) is a score based on -1 = worse, 0 = average, and 1 = better. The scores are summed at the bottom for three cases. As mentioned earlier, the rating of the market forces can be used as a filter, effectively creating a weighted average. For example, in Table 5 values for Very important or somewhat important represent averaging the element scores with the weighting of 0 if the corresponding market force was rated as Not Important, and 1 if the corresponding market force was rated either Very Important or Somewhat Important. It would be feasible to apply a more complex weighting, giving higher weights to the elements aligned to Very important market forces, but for this analysis I chose the simpler 0:1 weighting scheme.

¹⁰ I use some tools which require narrative responses, for example. Compared to the simple multi-choice survey-like tools, it is usually much harder to get complete responses quickly for the narrative-type tools.

¹¹ I assume (this would be known for an actual engagement) the firm or business is not a monopoly or near-monopoly.



Value Chain Element	Mapped Force	Differentiation	Result vs Industry Norm	Score	Result vs Key Competitors	Score
Supply Chain	Power of Suppliers	Company Alpha has more global scope and scale than many of the typically smaller competitors.	Company Alpha is better	1	Company Alpha is average	0
Portfolio	Competitive Rivalry	Company Alpha's products have higher performance and more robust design than many competitors, especially those in lower value markets. Market A tends to value design and performance to specification more than, say, market E.	Company Alpha is better	1	Company Alpha is average	0
Operational Execution	Threat of New Entrants	Most competitors have low-cost manufacturing.	Company Alpha is average	0	Company Alpha is average	0
Capabilities	Threat of New Entrants	Company Alpha's proprietary design tools result in better performing products at lower cost.	Company Alpha is better	1	Company Alpha is better	1
Marketing	Competitive Rivalry	None	Company Alpha is worse	-1	Company Alpha is worse	-1
Sales	Power of Buyers	Company Alpha has better technical sales than competitors, the result of hiring sales managers with engineering background.	Company Alpha is better	1	Company Alpha is better	1
Application Support	Power of Buyers	Company Alpha has good application support personnel but insufficiently staffed globally. However, many competitors do not provide global support.	Company Alpha is average	0	Company Alpha is average	0
Post Sale activities	Power of Buyers	Company Alpha maintains close, ongoing interaction with key customers. In Market A, which is dominated by larger customers, this is the expectation.	Company Alpha is average	0	Company Alpha is average	0
Product Development	Threat of Substitutes	Company Alpha makes good use of proprietary design tools and strong engineering. Although the design capability is very high, the market continues to shift to lower cost, simpler, less complex products as the underlying (end-product) technology improves, so this has erased the differentiation here.	Company Alpha is average	0	Company Alpha is average	0
R&D	Threat of Substitutes	None. Company Alpha has little true R&D. Most technology resources are focused on custom design tasks for key customers, versus developing new technology capabilities.	Company Alpha is worse	-1	Company Alpha is worse	-1
			averages	all elements	0.2	0.0
				Very important	0.0	-0.5
				Very or somewhat important	0.0	-0.1

Table 5. Business responses regarding the level of differentiation in each element of the generic value chain for the business elements addressing Market A. On the right, with the narrative as a basis, the management team has scored the value chain element comparatively to their perception of the Market A norm, and to their perception of the level of the key competitors to Company Alpha in Market A. Using the previously collected ratings of the market forces in Market A as a filter, the average scores at the bottom are shown for all elements, for only those elements responsive to market forces rated as Very important, and for those elements responsive to market forces rated as either Very important or Somewhat important. The latter score will be used in the correlation analysis to the business performance scores.



Performance vs. Alignment

A summary of all the scores for all six markets for alignment and performance is given in Table 6.

	Market A	Market B	Market C	Market D	Market E	Market F
Alignment	-0.1	-0.4	-0.2	0.5	0.0	-0.1
Performance	10	2	3	12	6	5

Table 6. Alignment and Performance scores for the six markets addressed by Company Alpha.

In Figure 5 I chart performance vs. alignment using the data in Table 6. It is apparent that performance as measured is correlated to the alignment scores. Correlation is not proof of a causative relationship. Nevertheless, if I assume a causative relationship between the two scales, the result informs on the potential to shore up weak areas which should then improve alignment, and conversely, to focus on weakly aligned elements in the value chain to improve performance.

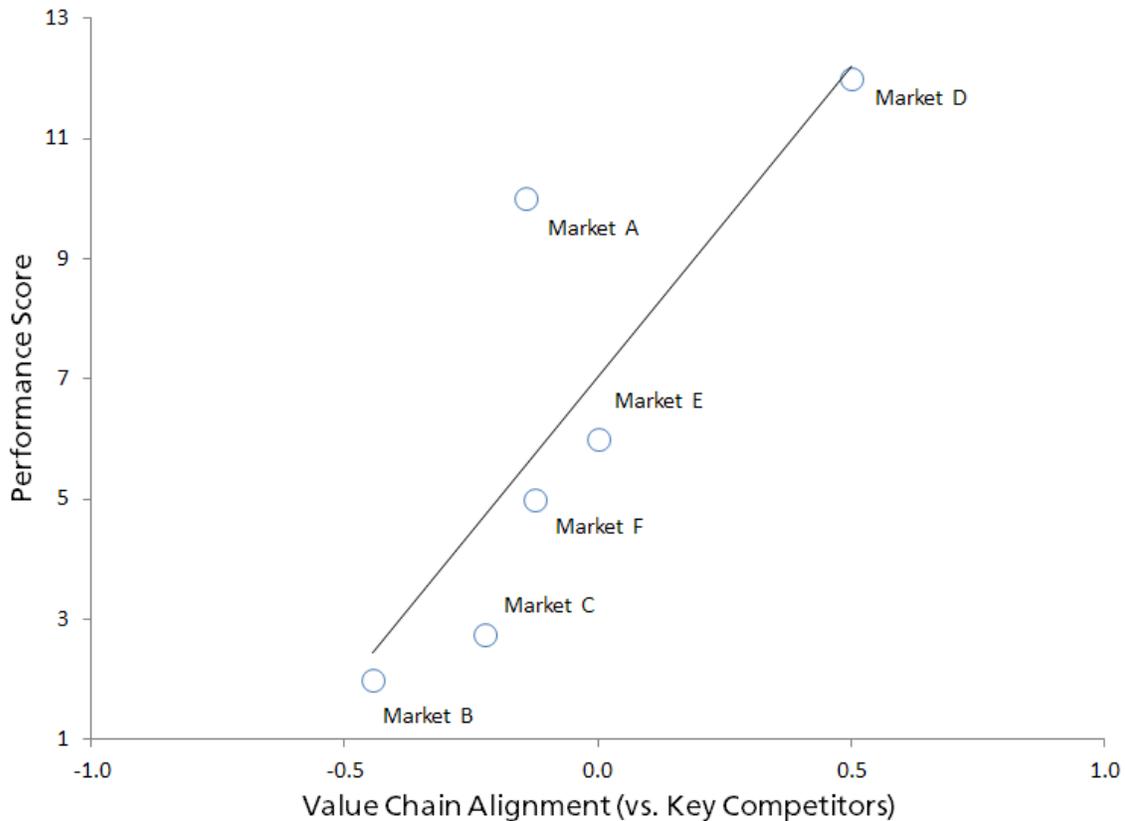


Figure 5. Performance vs. Value Chain Alignment for the business elements of Company Alpha addressing each of six markets. The value chain score is the average score for value chain elements responsive to Very important and Somewhat important market forces, for the comparative analysis to key competitors. The performance score is the summative score from the strengths and weaknesses analysis.



A benefit of the quantitative development is the ability to prioritize between markets and on those elements most affecting the scores in the focus markets rather than dealing with every sub-optimal element of every value chain. For example, the firm might conclude that the business addressing Market B is so poorly aligned and under-performing by such a margin that a divest or harvest strategy is the best course, and could be used to free resources to focus on improving the position in other existing markets, or to enter new markets. Markets C and F might be identified as strategic foci and a plan devised to improve the business value chain alignment and differentiation in these markets. Table 7

Value Chain Element	Mapped Force	Market F				Market C			
		Result vs Industry Norm	Score	Result vs Key Competitors	Score	Result vs Industry Norm	Score	Result vs Key Competitors	Score
Supply Chain	Power of Suppliers	Company Alpha is average	0	Company Alpha is average	0	Company Alpha is average	0	Company Alpha is average	0
Portfolio	Competitive Rivalry	Company Alpha is worse	-1	Company Alpha is worse	-1	Company Alpha is better	1	Company Alpha is average	0
Operational Execution	Threat of New Entrants	Company Alpha is average	0	Company Alpha is average	0	Company Alpha is better	1	Company Alpha is average	0
Capabilities	Threat of New Entrants	Company Alpha is better	1	Company Alpha is better	1	Company Alpha is better	1	Company Alpha is better	1
Marketing	Competitive Rivalry	Company Alpha is average	0	Company Alpha is average	0	Company Alpha is average	0	Company Alpha is worse	-1
Sales	Power of Buyers	Company Alpha is average	0	Company Alpha is worse	-1	Company Alpha is average	0	Company Alpha is average	0
Application Support	Power of Buyers	Company Alpha is average	0	Company Alpha is average	0	Company Alpha is worse	-1	Company Alpha is worse	-1
Post Sale activities	Power of Buyers	Company Alpha is better	1	Company Alpha is average	0	Company Alpha is average	0	Company Alpha is average	0
Product Development	Threat of Substitutes	Company Alpha is average	0	Company Alpha is worse	-1	Company Alpha is better	1	Company Alpha is average	0
R&D	Threat of Substitutes	Company Alpha is average	0	Company Alpha is average	0	Company Alpha is worse	-1	Company Alpha is worse	-1
averages		all elements	0.1	.....	-0.2	0.2	.....	-0.2	
		Very important	0.4	.....	0.0	.....	.....	.....
		Very or somewhat	0.3	.....	-0.1	0.2	.....	-0.2	

Table 7. Comparison of value chain alignment to Market C to value chain alignment to Market F.

compares the detailed value chain element alignment in Markets C and F. Company Alpha could implement a strategy to develop better aligned product for these markets, perhaps adding capabilities to product engineering. At the same time, training in Application Support and Post-Sales Support in the unique needs of customers in Markets C and F could be undertaken to improve those elements. Improving alignment in these three areas by one point on the scale would potentially move the businesses in these markets on par with the business addressing Market E.



From the performance metrics, the business elements for Market C and Market F rated Price as a weakness¹². It is likely this is related to the indicated weakness to design product optimized for the market needs. Thus, including achieving a lower cost structure for the new products as part of the strategy to improve product development should result in further improvements in position in both markets.

An interesting observation about Figure 5 is the performance score for Market A seems high relative to the apparent trend of the other markets. A finding like this requires additional dialogue with the business team to address fully. For example, are performance responses for Market A biased because Market A is a “core” business for the firm? Are there market dynamics occurring such that Company Alpha has shifted some internal focus (value chain alignment) away from Market A but is still reaping the benefits of past focus and investment? Or, is the business that is addressing Market A outperforming the other business elements, and can that inform an improvement strategy for other segments?

Conclusions

An approach has been illustrated to gain quantitative, testable insight into the performance of a diversified set of business elements within a firm. The approach involves analyzing the value chains within the firm or sub-businesses for each segment, along with analyzing the current business performance. Drawing from simple techniques to transform attribute data (qualitative responses about alignment, strengths, and weaknesses) into variable data, the method then enables a correlation to be made between business performance and value chain alignment for various markets. The benefits of the method include identifying specific value chain elements and/or business elements for improvement versus attempting to address the entire value chains across multiple markets.

¹² The detailed responses for Market C and Market F are not shown in this paper, but price was a weakness in both cases.



EAF LLC

...a fusion of engineering & art

Bibliography

- Bertram, D. (2007). *Likert Scales*. Calgary, Alberta, Canada: Retrieved May 18, 2012, from the University of Calgary Department of Computer Science website: <http://poincare.matf.bg.ac.rs/~kristina//topic-dane-likert.pdf>.
- Brisbourne, N. (2006, November 29). *More on the future of TV*. Retrieved October 21, 2012, from The Equity Kicker: <http://www.theequitykicker.com/2006/11/29/more-on-the-future-of-tv/>
- CBS News. (2012, June 19). *Top 5 manufacturers of tablet computers in 2011*. Retrieved September 29, 2012, from cbsnews.com: http://www.cbsnews.com/8301-501366_162-57456438/top-5-manufacturers-of-tablet-computers-in-2011/?%E2%80%A6
- Henderson, B. (1970). *The Product Portfolio*. Retrieved October 17, 2012, from https://www.bcgperspectives.com/content/Classics/strategy_the_product_portfolio/
- Henning, J. (2009, August 28). *Resources > White Papers*. Retrieved October 23, 2012, from Vovici: <http://vovici.com/resources-web/survey-white-papers.aspx>
- IHS-iSuppli. (2012). *US Tablet Q1 2012 Market Tracker*. El Segundo, CA: iSuppli.
- Magretta, J. (2011a). *Understanding Michael Porter: The Essential Guide to Competition and Strategy*. Boston, MA: Harvard Business Press.
- Magretta, J. (2011b). *ibid*, pp. 40-41.
- Magretta, J. (2011c). *The Fundamental Equation. Reprinted with permission from "Understanding Michael Porter: The Essential Guide to Competition and Strategy" by Joan Magretta*. Boston, MA: Harvard Business Press (all rights reserved).
- Penrose, E. (2009 (1959)). *The Theory of The Growth Of The Firm, 4th ed*. New York, NY: Oxford University Press Inc.
- Porter, M. (1980). *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. New York, NY: Free Press.
- Porter, M. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*. New York, NY: The Free Press.
- Porter, M. (1996). *What is Strategy. Harvard Business Review*, 61-78.
- Webber, L., & Wallace, M. (2007). *Quality Control for Dummies*. Indianapolis, IN: Wiley Publishing, Inc.
- Williamson, O. E. (1996). *The Mechanisms Of Governance*. New York, NY: Oxford University Press, Inc.