
Sales Territory Alignment: An Overlooked Productivity Tool

Andris A. Zoltners and Sally E. Lorimer

The authors have a wide-spectrum of experience in territory alignment arising from research as well as direct interaction with over 300 sales forces. Based on their experience, they believe sales territory alignment is one of the most frequently overlooked sales force productivity areas. Many sales forces are losing millions of dollars each year because of territory imbalances. Well-managed companies are overcoming the many obstacles to good territory design by using a cogent process to realign territories. This process ensures that consistent, objective criteria are used to evaluate alignment needs, yet recognizes the importance of incorporating local management judgment.

Introduction

Sales force productivity is a hot topic. Sales managers, like managers in most areas of business, are feeling the pressure to “do more with less.” Numerous books and articles have been written that discuss how trends like benchmarking (Smith, Ritter, and Tuggle 1995), reengineering (Blessington and O’Connell 1995), total quality (Cortada 1993), and downsizing (Lucas 1996) can be applied to the sales force. Executive courses on sales force productivity at leading universities are among the most popular courses offered. Companies are hiring consultants, establishing task forces, and even setting up entire departments to deal with sales force productivity issues.

The focus on productivity of sales forces is warranted, because they cost American companies over \$500 billion a year (Zoltners 1999). Heide (1998-1999) reports that the cost of an industrial sales call in many industries is over \$200. For many companies, the sales force is one of their most expensive human resource investments.

Companies are fighting back with numerous initiatives aimed at improving sales force productivity. Popular sales force productivity initiatives include sales force automation, account management programs, lead generation systems, telemarketing programs, enhanced training initiatives, and the use of part-time or temporary salespeople.

While all of these initiatives have merit, we have observed that another productivity determinant often has a high impact at a low cost: territory alignment. The work described in this article suggests that many sales forces have significant

imbalances in their territory alignments. We have observed that sales managers are frequently surprised to learn how unequal their sales territories are. When territories are out of balance, too much effort is deployed against low potential customers and too little is deployed against many high potential customers. The result is that companies often leave millions of dollars on the table.

Over the last 15 years, we have gained a wide spectrum of experience in sales territory alignment. This experience arises from research as well as direct interaction with more than 300 companies in 15 industries. We have designed an estimated 300,000 sales territories for companies using structured territory alignment processes. The purpose of this article is to share the insights we have gained through this experience. In addition to sharing general insights, we will include specific case studies from 36 different sales force alignment implementations in eight industries. All of the implementations took place between 1984 and 1998; 28 of the 36 implementations took place between 1993 and 1998. In some cases, we will summarize a single implementation; in others we will summarize data across several implementations. While the results of each implementation are most suited for that individual situation, they also provide insight as to what can be expected in similar situations.

Keep in mind that the companies we cite in this article were interested in increasing their earnings—not in contributing to science. For these companies, post-alignment tracking is expensive, both in terms of time and money. In addition, data get lost, and key project participants move on to new endeavors. For these reasons, the methodologies used in these studies are not always scientifically “pure.” However, as discussed by Bonoma (1985), the insights gained through case research (in this case, hundreds of implementations) can be useful for expanding our sales force knowledge base.

The article is organized into four sections. The first section outlines the benefits of good territory alignment and provides examples that quantify these benefits. The second section discusses the many obstacles that inhibit companies from developing and

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maintaining good alignments. The third section describes a structured, data-driven process for successfully realigning territories. Finally, we conclude with a summary of the managerial implications of the work.

The Benefits of Good Territory Alignment

Good territory alignment is important for several reasons. Good sales territories enhance customer coverage, increase sales, foster fair performance evaluation and reward systems, and lower travel costs. These benefits are discussed further in this section of the paper.

Good Sales Territory Alignment Enhances Customer Coverage

A salesperson in a territory with too much work is unable to cover all the valuable customers and prospects effectively. The salesperson can make his or her goal just by calling on the "easy accounts." As a result, the company misses out on key sales opportunities. A salesperson in a territory with too little work spends too much time with unprofitable customers and prospects. In many sales forces we have observed that many uncovered accounts in high-workload territories are significantly better than the accounts that are over covered in low-workload territories. By realigning territories, good accounts from high-workload territories can be reassigned to salespeople who have excess call capacity. The result is an increase in productivity that leads directly to higher sales and profits.

Figures 1a and 1b show the extent of workload imbalance that existed in several of the sales forces we have worked with. Figure 1a shows territory workloads for a sales force with 200 territories in the cosmetics industry. The account workload in each territory is indexed on the vertical axis. The territories are sorted from highest to lowest workload and each territory is plotted as a point along the curved line. The "ideal territory workload" line represents the annual workload capacity of one salesperson. Territories with indices that are significantly above 1.0 have too much work for one salesperson, while territories with indices that are significantly below 1.0 have insufficient work. It is possible to see the extent of workload imbalance by comparing the points along the curved line (actual territory workload) with the horizontal line (ideal territory workload).

No sales force can expect to have an alignment that is "perfectly balanced." Due to geographic constraints, salesperson differences, trade area considerations, and data imperfections, some variation in workload across territories is necessary and expected. Our research shows that it is reasonable to expect "balanced" sales territories to fall within a range of 15 percent from the ideal workload. This range accounts for the factors described above. We have iterated to this norm, based upon the input of several thousand sales managers who have worked with us on alignments. In Figure 1a, approximately 60 percent of territories have workloads that deviate by more than 15 percent from the ideal.

Alignment imbalances like Figure 1a are typical. Figure 1b summarizes alignment balance data for a representative sample of over 4,800 territories from 18 companies in four industries. Well over half of the territories in this sample have workloads that deviate by more than 15 percent from the ideal. Because of this imbalance, many accounts in high-

workload territories receive inadequate coverage. By assigning some of these accounts to salespeople who have insufficient work, overall company sales will increase.

Good Sales Territory Alignment Can Increase Sales

Companies we have worked with have estimated that poor alignment costs them between two and seven percent of sales. For many companies millions of dollars are being forfeited each year due to territory inequities.

The following case study shows how the cost of a poor alignment is estimated. Figure 2 shows the relationship between territory sales and territory sales potential for a pharmaceutical sales region of 25 salespeople. Each dot on the graph represents a sales territory. The sales potential of each territory on the horizontal axis is measured by adding sales of the company's products to the sales of all competitive products.

The data show the positive relationship between territory potential and territory sales, while the fitted curve reveals that this relationship has diminishing returns. This is because as potential increases, territory workload begins to exceed a salesperson's capacity and hence, not all accounts will be covered effectively and sales opportunities will be lost.

The spread of territory potential along the horizontal axis suggests that some realignment of territories is warranted. Productivity will be enhanced if some accounts in territories with high potential are realigned to territories with low potential.

Using the estimated relationship between sales and potential, it is possible to predict how sales will be affected by realignment. Because the relationship between sales and market potential shows diminishing returns, the sales lost by reducing the size of large territories will be more than offset by sales gained by increasing the size of small territories. Having done this analysis for numerous sales forces, we have found that the predicted net incremental gain in sales is typically between two and seven percent.

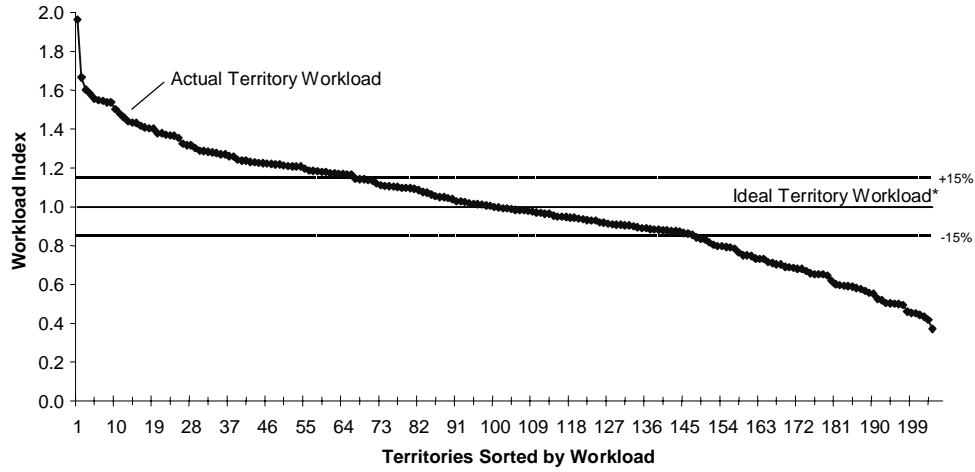
In the methodology above, cross-sectional data analysis provides insight regarding the value of better territory design. Another approach to valuing territory alignment is to study time-series data. One company conducted an experiment to collect such data. A representative sales region with 66 territories was selected as the "test" region. This region used a rigorous, data-driven, technology-based approach to realign sales territories for improved balance and increased productivity. The rest of the country, comprised of 640 territories (control territories), continued to use its traditional "seat-of-the-pants" approach for making territory boundary changes.

A year later sales results were compared. In control territories, the company's sales growth to market growth ratio improved from .9 (in the year before realignment) to 1.1 (in the year after realignment). In test territories, the improvement was much more dramatic. The company's sales growth to market growth ratio increased from 1.0 (before realignment) to 2.1 (after realignment). Better alignment allowed better coverage of customers, which translated into significantly higher sales growth.

Territory Alignment Affects Rewards and Consequently Morale

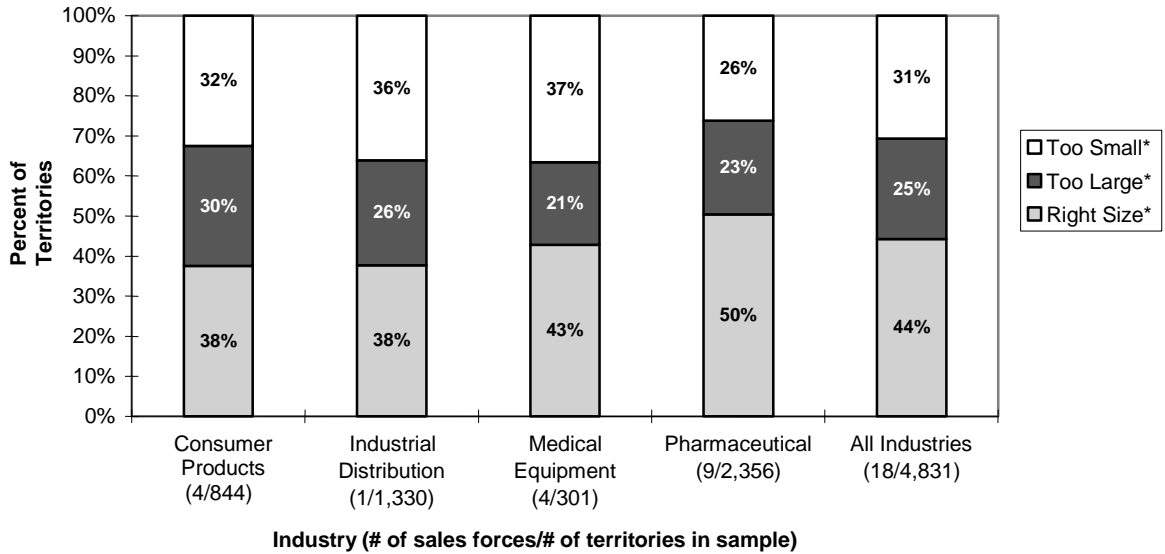
Two case studies reveal how territory alignment affects salesperson rewards. First, a medical device company felt

Figure 1a
Workload Imbalance—Cosmetic Sales Territories



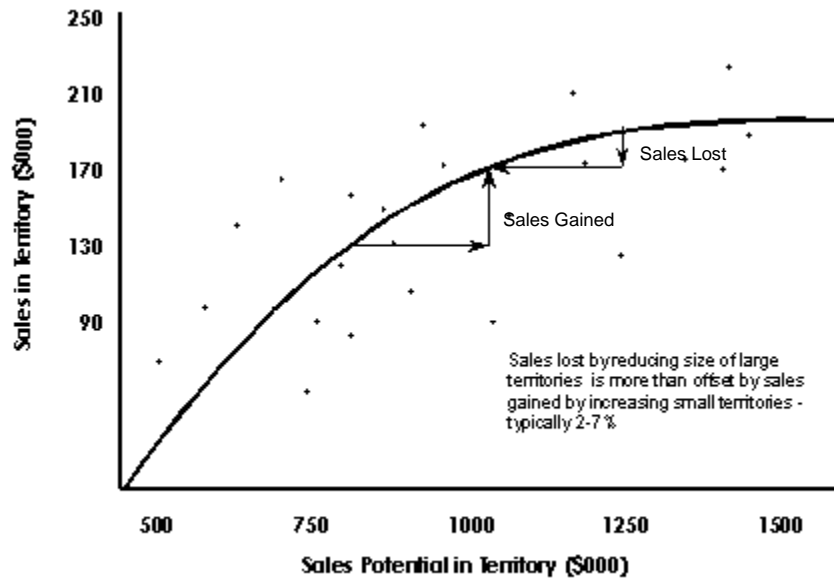
* Ideal territory workload is the annual workload capacity of a salesperson (after backing out time for training, sales meetings, vacation, lunch, and other time off territory).

Figure 1b
Comparison of Territory Balance by Industry



* Too Small = Over 15% below ideal; Too Large = Over 15% above ideal; Right Size = Within 15% of ideal

Figure 2
Estimating the Cost of a Poor Alignment



Note: Each dot on the graph represents one territory

their sales force incentive plan was not paying for performance. They observed that the salesperson incentive payouts in the previous year ranged from \$140,000 down to \$14,000. The “best” salesperson received ten times as much incentive pay as the “worst” salesperson. The top ten salespeople (who averaged \$116,000 in incentive pay) earned four times as much incentive pay as the bottom ten salespeople (who averaged \$28,500 in incentive pay). True differences in salesperson performance did not warrant such a dramatic difference in incentive payout. Before changing the incentive plan, this firm evaluated their territory alignment. They observed that the salespeople with the high incentive payouts often had high potential sales territories. They were rewarding the territory and not the salesperson.

Another case illustrating the link between territory alignment and performance comes from a consumer products sales force. The territory that ranked fourth highest out of 250 territories in 1996 sales had been vacant for many months. Analysis revealed that the territory had huge potential, which led to high sales despite the absence of sales force effort.

Territory Realignment Can Reduce Travel Time

Two case studies describe how travel time reduction is possible through realignment. In the first study, the realignment of a large industrial distributor resulted in a 13.7 percent reduction in salesperson travel time. This translated

into almost \$1 million savings in travel expenses alone. In addition, reduced travel time enabled the sales force to increase selling time by 2.7 percent. The company estimated this increase in coverage would result in over \$15 million in additional sales, and over \$3 million in additional profits. Other benefits of reduced travel included more nights at home for salespeople and higher sales force morale.

In the second case study demonstrating travel time reduction, a consumer products company decided not to cover some customers located in remote areas with their field sales force. Instead, they decided to use telemarketing, direct mail, and internet selling to reach low potential, remotely-located accounts. While these approaches were not as effective as face-to-face selling, the benefits of reduced travel time more than compensated for any lost sales. As a result of the realignment, the direct sales force reduced the amount of geography they were responsible for covering by 75 percent and still retained customers who represented over 80 percent of the company’s total sales volume.

Obstacles to Good Territory Alignment

Sales forces must overcome several obstacles to create and maintain good territories. In this section of the paper, we discuss how the resistance to change, the incentive compensation plan, the difficulty of the alignment task, and the lack of data deter many companies from achieving good alignments.

Sales Forces Resist Change

Many poor alignments are sustained because sales managers argue that there is too much business risk associated with reassigning accounts among salespeople. The stress caused by change makes realignments unattractive to salespeople as well. Salespeople must give up existing, comfortable customer relationships and establish new ones. Often, the realigning of even a single account between territories is controversial. It is viewed by one salesperson as losing the best account and by the other salesperson as gaining the worst account. In some cases, it is necessary to relocate salespeople and managers. A large realignment can also lead to changes in reporting relationships. Good manager-salesperson relationships may be severed. All of these changes lead to uncertainty and stress in the sales force.

Disruption of sales force relationships may be difficult for customers as well. This is particularly true in cases where a salesperson needs in-depth customer knowledge to be effective. Account transition concerns can be reduced by implementing a good relationship transition program. For example, the salesperson losing a customer shares records and important information with the salesperson gaining that customer. Then, the customer is introduced to the new salesperson by the exiting salesperson. Together, the salespeople coordinate the transition. The company supports the transition by instituting a transition incentive compensation plan whereby both salespeople share in the continued success of the account relationship.

There is anecdotal evidence to suggest that for some customers, a change in salesperson relationship has a positive impact. When sales calls become social calls because of the high degree of familiarity, the selling process suffers. Bringing a new salesperson with a fresh perspective into a territory can have a positive impact. The new salesperson learns the customer's needs afresh and as a result, may discover ways to increase sales.

To shed light on the controversy over the impact of disruption of salesperson-customer relationships on sales, we analyzed empirical data for an industrial distribution sales force that had implemented a major territory realignment. We tracked monthly sales prior to and following the realignment. We identified two groups of accounts: a "test" group and a "control" group. The "test" group consisted of approximately 4,500 targeted accounts whose relationship with a salesperson had changed due to the realignment. All the accounts in the "test" group had maintained a relationship with the same salesperson for at least eight months prior to the realignment, and then maintained a relationship with a different salesperson for seven months following the realignment. The "control" group consisted of approximately 44,800 targeted accounts not affected by the realignment; these accounts maintained a relationship with the same salesperson throughout the study.

We segmented accounts within each group based on their annual purchasing volume. Six volume segments were created: extra-small volume purchasers (\$2,000–\$4,000 per year), small volume purchasers (\$4,000–\$8,000 per year), medium volume purchasers (\$8,000–\$20,000 per year), medium-large volume purchasers (\$20,000–\$50,000 per year), large volume purchasers (\$50,000–\$100,000 per year) and extra-large volume purchasers (over \$100,000 per year). We tracked average monthly sales for each account segment over a 13-month pre-alignment period and a seven-month post-alignment period, and then compared results for the "control" and "test" groups.

During the pre-alignment period, the monthly sales trend for "test" accounts was similar to the trend for "control" accounts. During the post-alignment period, however, some differences between the "test" and "control" groups emerged. Specifically, the large volume purchasers (\$50,000–\$100,000 per year) in the "test" group purchased significantly less than those in the "control" group. On average, sales to the large volume purchasers in the test group were 20 percent lower, indicating that sales suffered at accounts where the salesperson relationship had changed. These results were statistically significant at the 95 percent confidence level. The estimated total loss in sales at these disrupted accounts was approximately \$2 million.

For smaller volume purchasers (under \$50,000 per year), there was no significant difference in sales to "control" and "test" accounts in the post-alignment period. Nor was there a significant difference in sales to "control" and "test" accounts for the extra-large accounts (those with over \$100,000 in annual sales) in the post-alignment period. A summary of these findings is presented in Figure 3.

Figure 3 also provides information regarding the nature of salesperson relationships with the accounts in each segment. This information provides a possible explanation for the results. Salespeople did not have strong relationships with accounts purchasing under \$50,000 prior to the realignment. A change in relationship, therefore, had little or no impact on sales to these accounts. At accounts purchasing over \$50,000, however, salesperson relationships before the realignment were much stronger. Hence, a change in relationship had a significant impact. At the largest accounts (purchasers of over \$100,000), relationship transition was taken very seriously. Due to the special attention that "test" group accounts in this segment received, no sales loss occurred. This provides evidence that a good relationship transition program can prevent a loss in sales from occurring when salesperson-customer relationships are disrupted through realignment.

Sales Force Incentive Compensation Plans Can Work Against Achieving the Best Alignment

The sales force incentive compensation plan influences sales force behavior. This behavior is not always consistent with what is best for the organization as a whole. For example, incentive plans based on sales volume encourage salespeople to want more accounts than they can cover effectively. More accounts mean more opportunities to build sales. Incentive plans based on market share encourage salespeople to want fewer accounts than they could manage. With fewer accounts, a salesperson can penetrate their accounts more deeply and drive out the competition. Finally, growth-oriented incentive plans encourage salespeople to want territories with large numbers of accounts with untapped potential.

Salespeople with good territories do not want to give up income. A salesperson whose territory is targeted to be realigned may fight to keep it with the following argument: "I have done a good job for you. It is unfair that my 'reward' is to have my territory split." If management receives complaints from their best performers they may relent in their realignment effort.

We have found that resistance to realigning sales territories increases as the proportion of pay based on incentive (as opposed to salary) increases. This is because the higher the incentive component of compensation, the more likely a change

Figure 3
Disruption Impact Study—Results Summary

	<i>Extra- Small Accounts</i>	<i>Small Accounts</i>	<i>Medium Accounts</i>	<i>Medium- Large Accounts</i>	<i>Large Accounts</i>	<i>Extra- Large Accounts</i>
Annual Purchasing Volume \$(000)	\$2 - 4	\$4 - 8	\$8 - 20	\$20 - 50	\$50 - 100	\$100+
Total Sales Volume in millions (Percent of total)	\$22.1 (2%)	\$65.2 (6%)	\$220.4 (20%)	\$291.7 (27%)	\$182.4 (17%)	\$306.6 (28%)
Was purchasing affected by change in salesperson relationship? *	No	No	No	No	Yes	No
Did strong salesperson relationships exist before realignment?	No	No	No	Somewhat	Yes	Yes
Was relationship transition program implemented?	No	No	No	No	Somewhat	Yes

• Results are based on statistical tests performed at the 95% confidence level.

Figure 4
A Comparison of Alignment Balance: Mostly Incentive vs. Mostly Salary Territories

	<i>Before Realignment – % of territories that are:</i>		<i>After Realignment – % of territories that are:</i>	
	Balanced	Not Balanced	Balanced	Not Balanced
Mostly Incentive*	38%	62%	64%	36%
Mostly Salary**	53%	47%	84%	16%

* Mostly Incentive data include 1,511 territories at three companies in the medical equipment and industrial distribution industries.

** Mostly Salary data include 1,273 territories at five companies in the pharmaceutical and consumer industries.

in territory boundaries will affect a salesperson's income. Figure 4 compares territory balance (before and after realignment) for companies that pay mostly on salary with companies that pay mostly on incentive.

The companies included in the study were randomly selected. As the data show, balance improved significantly after realignment for both the "mostly salary" and the "mostly incentive" territories. However, "mostly salary" territories were better balanced both before and after the realignment. We suspect fear of the potential impact on salesperson earnings prevented the companies with "high incentive" territories from achieving better alignment balance.

On occasion a sales organization may need to modify the incentive plan to ensure a successful realignment.

Realignment is a Cumbersome Task

A manual sales force alignment is time consuming and personally unrewarding. There are many ways to assign salespeople to accounts. In fact, there are over 1,000 ways to assign just ten accounts to two salespeople. Since the problem grows exponentially with additional accounts and salespeople, one can imagine the challenge of aligning any reasonably-sized sales force. Frequently, the number of possible alignments approaches the number of atoms in the universe. Sales managers and analysts who perform realignments without the aid of computer technologies must pore over maps and account lists. The difficult nature of the task often leads to answers that are far from optimal.

Even when aided by computers, realignment can be a major undertaking. Alignments for some companies are extremely complex. Companies can have multiple specialty sales forces with structures that differ in rural and urban settings. Some consumer product companies have dozens of vertically integrated (or specialized) selling teams focused on individual customers in urban areas. In addition, these sales organizations often contain a mix of full-time and part-time salespeople and a mix of specialists (product, market or logistics). In the pharmaceutical industry, many sales forces have "mirrored" territory alignments, where territories in each sales division line up geographically with territories, groups of territories, or districts in the other mirrored sales divisions. With these alignments, changing just one account assignment may affect many salesperson-customer relationships. Even with the aid of computers, balanced alignments with this complexity are difficult to create and maintain.

Well-managed selling organizations are not intimidated by the difficulty of alignment. The reward of enhanced productivity makes the effort worthwhile.

The Data Required for Realignment Are Often Not Readily Available

Some companies are unwilling to realign because they feel they do not have the right data. For example, entry into a new product category may require developing a new database. Even for existing products, customer databases may be very large or may not be "clean." At some companies, customer

data are maintained by the salespeople and may not be in a consistent format across the sales force. In other cases, sales data by customer may be difficult to obtain due to sales getting "lost" in a complex distribution system. Finally, many companies insist they do not know how to measure the "potential" of existing or new customers, since sales data for their competitors are not available.

Fortunately, the accuracy and availability of data is increasing rapidly as technology advances. The sales force can also help create a database or can enhance an existing database to be used for alignment. We know of hundreds of sales organizations that have developed their own alignment databases. Alignment database development is discussed in more detail in the next section of this paper, including Figure 8 which summarizes useful data by industry.

Regardless of whether or not good alignment data exist, sales forces must develop alignments. Well-managed sales organizations find creative ways to build new databases and/or use existing databases for alignment. In addition, progressive sales organizations anticipate and plan for future changes in data availability and accuracy to further enhance their ability to create good alignments.

A Process for Successful Territory Realignment

Many selling organizations are finding ways to overcome the obstacles to good territory design. We have worked with over 300 sales forces in the last 15 years who use structured processes and technology to realign their sales territories for maximum productivity. In this section of the paper, we discuss a process for successful realignment that has evolved from these implementations. At the end of the section, we discuss ways that companies can maintain a well-balanced alignment over time.

A Successful Realignment Process

An effective approach for a successful realignment typically involves developing a centrally-derived alignment to act as a benchmark, followed by local adjustments. The centrally-derived benchmark alignment should be developed by someone with a broad perspective using objective business criteria. It should use consistent logic for determining staffing needs across the country and provide quantifiable criteria against which all alignments can be judged. Local adjustments to this central benchmark can ensure local conditions are taken into account. Incorporating local input also facilitates acceptance of the realignment by the entire sales organization.

Figure 5 illustrates an 8-step process for realignment, which integrates central benchmarking and local adjustment. In Step 1, alignment criteria such as "balance workload" and "minimize disruption" are selected. In Step 2, a database is developed. The database usually includes customer and prospect locations, travel time data, and alignment attributes such as market potential, sales, and workload. In Step 3, optimal sales territory centers (or salesperson locations) are determined centrally, based on business needs. With any alignment, it is important to determine good salesperson locations first, before creating territories. It is impossible to create good territories if salespeople are located in the wrong places. In Step 4, territory centers are audited and finalized by the national and regional managers (the sales managers reporting directly to the vice president of sales or national sales

manager). At the end of this step, management can start hiring salespeople (if an expansion is planned), decide who stays with the sales force (if a downsizing is anticipated), or decide who is relocated (if several sales forces merge and are integrated). In Step 5, regional alignments are developed centrally, based on well-defined, objective criteria. In Step 6, the regional alignments are audited and finalized, again by the national and regional managers. In Step 7, optimal territory alignments are developed centrally. In Step 8, alignments are audited and finalized with the help of first-line sales managers (managers who manage the salespeople directly; they usually report to the regional sales managers).

The process illustrated in Figure 5 facilitates successful implementation of alignment changes. The process builds an alignment that is "good for the business" because the central benchmarking activity defines consistent, objective alignment criteria that support the sales force's strategic goals. A central benchmark also ensures that salesperson resources are distributed appropriately across the nation. At the same time, the process builds an alignment that is "good for the people" because the input of local management is a fundamental part of the process.

Figure 6 summarizes territory balance improvement for a representative sample of nine companies who implemented this alignment process. The sample included over 2,800 sales territories. Sales forces in the pharmaceutical, industrial distribution, building, medical equipment, and consumer products industries are included in the sample.

The table shows that a systematic alignment process can produce a significant improvement in the distribution of territory workload.

Techniques for Success

Four of the steps of this process shown in Figure 5 require a deeper look. In the following sections of this paper we discuss techniques that can lead to success in Step 1 (Determine Alignment Criteria and Objectives), Step 2 (Develop Database), Step 7 (Develop Territory Alignments), and Step 8 (Finalize Territory Alignments—Review and Modify with First-line Sales Managers).

Determine Alignment Criteria and Objectives (Step 1). To encourage a successful realignment, a sales force must determine which alignment objectives are consistent with its sales force strategy. The four following alignment objectives are the most common: 1) balance workload across territories so that sales force coverage of customers and prospects is optimized, 2) balance potential across territories to allow fair salesperson evaluation and rewards, 3) minimize disruption of relationships to facilitate a smooth transition to the new alignment, and 4) build geographically compact, workable territories to minimize travel time and travel costs, and to improve coverage.

These objectives cannot always be achieved simultaneously. For example, if significant change is required to "balance" territories, disruption to existing relationships may occur. Also, territories that are geographically compact may sacrifice workload and potential balance, particularly in sparsely populated areas. Often it is not even possible to achieve workload and potential balance simultaneously. While workload and potential are closely correlated, territories with a greater proportion of large accounts will have a higher potential to workload ratio, while those with a greater pro-

Figure 5
A Process for Realignment–Central Benchmarking with Local Review

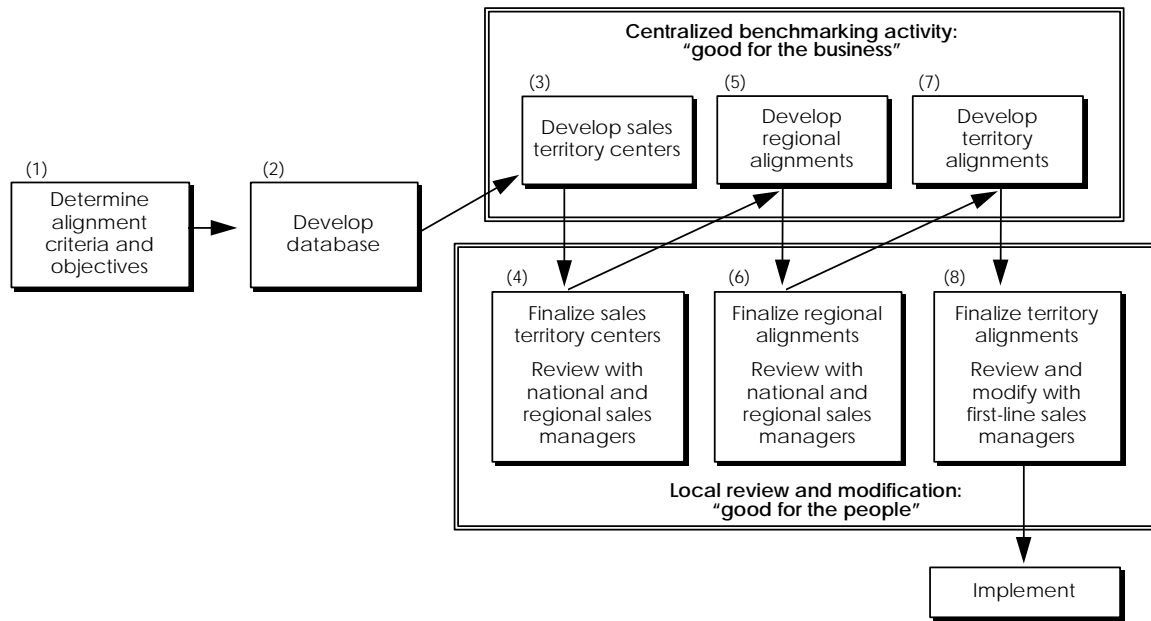


Figure 6
Percent of Territories by Workload – Before-After Comparison

	<i>Right Size*</i>	<i>Too Small*</i>	<i>Too Large*</i>	<i>Total</i>
Before Realignment	45%	31%	24%	100%
After Realignment	74%	15%	11%	100%

*Right Size=Territory Workload within 15% of ideal.
 *Too Small=Territory Workload over 15% below ideal.
 *Too Large=Territory Workload over 15% above ideal.

portion of small accounts will have a lower potential to workload ratio.

Different alignment criteria often suggest very different alignments. Figure 7 provides data for one company that was evaluating different alignment criteria. Notice that territories that are well balanced when measured by one set of criteria may be significantly out of balance when measured by another. Hence, choosing the right criteria is critical to achieving a good alignment.

The importance of different alignment objectives/criteria depends on the mission of the sales force, the compensation plan, and the nature of the sales force's relationship with customers. For example, in a recent realignment study for a part-time merchandising organization in the consumer products industry, the primary alignment objective was to build compact territories with manageable workloads. This would enable salespeople to perform their required duties at stores (stocking shelves, setting up displays, taking inventories) without exceeding the weekly hour limit for part-time personnel. By contrast, in a recent realignment study for a highly commissioned chemical sales force, the primary alignment objectives were to balance potential and minimize disruption. Re-

lationships were extremely important, due to the complex nature of the selling process. In addition, it was essential to have an equitable distribution of market potential across sales territories to equalize the earning opportunity for the salespeople.

The alignment criteria/objectives need to be defined and agreed to up front, typically by top sales and marketing management. It is also helpful to get input from a few selected field sales managers or salespeople. Field input ensures that "real world" issues are addressed and enhances sales force buy-in.

Develop Database (Step 2). Good data are critical to a successful realignment. If field sales managers do not have confidence in the alignment data, they will not accept a realignment. A company should plan to spend a significant amount of time creating, evaluating, and verifying any data that drive alignment decisions. Data must be accurate down to a very detailed level in order to be useful for alignment. The required level of detail depends upon the geographic size of the sales territories. In the United States, very large sales territories can be created using data at the state or metropolitan area level. As the geographic size of territories decreases, data at the county, ZIP Code, census tract, or individual account level may be required.

Figure 7
A Comparison of Territory Balance for Different Alignment Criteria

	Percent of Territories	
	Based on Alignment Criteria 1**	Based on Alignment Criteria 2**
Too Large*	8%	16%
Right Size*	83%	53%
Too Small*	9%	31%
Total	100%	100%

*Too Large = Territory over 15% above ideal.

*Right Size = Territory within 15% of ideal.

*Too Small = Territory over 15% below ideal.

**Alignment Criteria 1 include counts of high potential accounts and competitive sales data.

**Alignment Criteria 2 were determined by segmenting customers and applying frequency and call duration standards to each segment.

Good alignment data are free of any geographic biases. If the data are not complete in certain states or geographic regions of the country, alignment decisions will be sub-optimal. For example, one company obtained a database of prospective customers that was complete in metropolitan areas, but was missing many prospects in rural areas. As a result, the company placed too few salespeople in rural areas and missed out on key sales opportunities.

Good alignment databases typically include a mix of company internal and external data sources. Company internal sources, including customer lists and sales history, reflect the company's experience with their customers. Internal sources enhance acceptance by the sales force, especially when salespeople are familiar with the data and play a role in creating the data. Company external sources, on the other hand, provide an outside perspective, and help prevent biases that can exist in internally created databases. Customer call lists created by the sales force, for example, are often biased. In one case, a pharmaceutical company asked its salespeople to rank the physicians in their territory as "A," "B," or "C," based upon the potential value of the physician to the company. To help guide the sales force, management told salespeople to identify approximately 50 "A" physicians, 100 "B" physicians, and 100 "C" physicians. While these data were useful as a targeting tool for salespeople, the data were not useful for alignment. Every territory had approximately the same number of "A," "B," and "C" physicians by design. All sales territories appeared to be balanced, however, an "A" physician in one territory did not necessarily have the same value as an "A" physician in another territory. In this case, the company obtained an outside database that valued physicians based on the actual number of prescriptions they wrote. This enabled them to apply consistent criteria for defining "A," "B," and "C" physicians across the country, which in turn allowed them to identify many productivity-enhancing realignment opportunities.

Having more than one data source helps protect against biases in any single database. Most companies develop databases for alignment that contain data from two to five separate sources with multiple attributes from each source. Attributes are the measures that reflect the workload and potential for the sales force. On average, good alignment databases contain between 20 and 100 different attributes. An example of the types of attributes used by companies in several different industries is provided in Figure 8.

Innovative selling organizations will use creative approaches to fill in any "gaps" existing in their alignment databases. For

example, a consumer products firm in the Dominican Republic lacked a computer-readable geographic account database so they created one with the aid of Global Positioning System (GPS) technology. The company equipped its salespeople with GPS receivers. Salespeople stood at each account location and recorded attribute information (such as the name of the account) on the GPS receiver; at the same time, the exact geographic coordinates of the account were captured from satellite signals overhead. It took approximately one month to create an electronic database containing exact locations for over 20,000 accounts. In addition to providing the necessary data, the sales force's participation in the data collection process enhanced their acceptance of the entire realignment process.

Many companies have a geographic account database, but do not know how to use the database to measure workload; this was the case at a medical supply company. In order to transform an account list into a true workload database, the company first classified its customers into categories by type of customer and by historical sales volume. Next, management determined the frequency and desired length of each call for each account segment. By applying the frequency and call duration standards to each account in the database, a simple account list was transformed into a workload database. This analysis is illustrated in Figure 9.

Develop Territory Alignments (Step 7). There are countless ways to align sales territories for even the simplest sales organizations. Territory optimization software is useful to develop a benchmark alignment. This software uses algorithms to search the space of all potential alignments and find the best one. The best territory optimizers take into account a number of important factors including territory workload and potential balance, minimal disruption, minimal drive time, and trade area integrity.

Many territory alignment models and algorithms have been developed, including those developed by Hess and Samuels (1971), Easingwood (1973), Lodish (1975), Heschel (1977), Segal and Weinberger (1977), Richardson (1979), Zoltners and Sinha (1983), and Skiera and Albers (1996). Many models have been adapted for use on personal computers today and good alignment optimization software is commercially available.

Territory optimizers are especially useful for setting up alignments for entirely new sales forces. They are also helpful when dramatic change is required to an alignment, such as when two or more sales organizations are merged into one. Finally, territory optimizers are valuable when fast realign-

Figure 8
Sample Attributes by Industry

General

Actual and/or Projected Sales
By Product
By Customer Type (Retail, Wholesale, Industrial)
Market Sales
Rep Home Locations
Number of Accounts
Sales Goals

Pharmaceutical

Doctor Specialty Counts
Patient Volumes
Epidemiology Data
Influential Doctors
Teaching Institutions
Managed Care/Buying Affiliations
Surgical Procedures
Total Hospital Beds

Health and Beauty Aids

Retail Outlet (Merchandiser, Drugstore, Grocery)
Store All Commodity Volume
Call Activity Requirements

Office Products

Number of White Collar Workers
Office and Distribution Locations
Headquarter Locations
Number of Accounts
Customer Types

Newspaper

Classified & Retail Advertising
Account Size
Merchandise Types
Advertising Potential
Consumer Spending

Diagnostic Equipment

Testing Volume
Installed Machines
Contract Information

Building Materials

Housing Starts
of Architects, Builders, Contractors
Projected Population Growth

ment is required and it is not important to control which accounts are reassigned. This was the case for a book publisher who used a territory optimizer to redesign their part-time merchandising sales territories at the start of each six-week promotional period. The optimizer used a mathematical model that guaranteed no merchandiser had too much work or had to travel further than a specified distance from their home. Previous alignments for this company were done manually by local merchandising managers. Using the optimizer saved the company thousands of hours of tedious manual work.

Finalize Territory Alignments-Review and Modify with First-line Sales Managers (Step 8). Using territory refinement software, first-line sales managers have a chance to review and modify an alignment quickly and easily. Numerous territory alignment software programs are now available, including MAPS™ (ZS Associates), TerrAlign (Metron), MapInfo ProAlign (MapInfo Corporation), GEOLINE (Ketrion), Tactician (Tactician Corporation), and StarManager (TTG, Inc.). These software programs combine a computerized map of territories with market, sales, and account workload data. A sales manager makes territory changes online using a mouse to see how sales, market potential, workload and other important factors are redistributed.

Sales managers may want to use territory refinement software to study a map of the current alignment, evaluate the balance of workload and potential, and experiment with changes to improve territory balance. Alternatively, if an alignment requires significant change, managers may want a map of territories created by a territory optimizer. Using the territory refinement software, they can familiarize themselves with the optimal alignment, compare it to the current alignment, and make appropriate changes based on their knowledge of local conditions.

Many companies have established well-defined processes for using territory refinement software to implement their alignment changes. Sometimes companies bring all their first-line sales managers together at a central location to complete

a realignment. A work room is set up with a computer and printer for each sales manager. A trained facilitator works one-on-one with each manager to explore alternative alignment scenarios. Since all managers work together in the same room any conflicts or "border disputes" can be resolved immediately. Realignment sessions usually take about a day to a day-and-a-half to complete and managers leave with a complete set of printed maps and territory account listings for their area. The session is an excellent forum to discuss important implementation issues such as how to communicate the realignment to the sales force.

Companies that are unable to bring all their managers together for a realignment session have discovered other ways to take advantage of the power of territory refinement software. At one company, first-line sales managers work one-on-one with a centrally-located territory refinement facilitator without ever leaving the field. Using laptop computers equipped with modems and remote communications software, managers dial into a territory refinement program at a central location. At the same time, they telephone a trained facilitator working with the same territory refinement program on the central computer. The facilitator helps the manager use the software to complete the analysis needed to make a good alignment decision. The facilitator and the manager work together as a team even though they may be hundreds of miles apart.

Many companies use territory refinement programs continually to evaluate all alignment changes proposed by field sales managers. MAPS™ (ZS Associates) alone has been used by over 125 companies. Most of these companies have a staff at headquarters supporting the territory refinement needs of the field. Several companies have the software available in regional offices. A few companies download the software to every first-line manager's laptop computer. Using territory refinement software forces field managers to justify alignment changes based on a consistent set of criteria aimed at enhancing productivity.

**Figure 9
Workload Definition for a Medical Supply Company**

<i>Customer Segment</i>	<i>Sales Volume</i>	<i>A Annual Calls</i>	<i>B Hours Per Call</i>	<i>C Customer Count</i>	<i>AxBxC Total Hours</i>	<i>% of Total Hours</i>	<i>Sales \$(000)</i>	<i>% of Total Sales</i>
Hospitals > 300 beds	> \$10,000	12	6	333	23,976	14%	28,617	22%
Hospitals > 300 beds	< \$10,000	8	6	730	35,040	20%	19,606	15%
Hospitals 100-299 beds	> \$10,000	8	6	179	8,592	5%	7,865	6%
Hospitals 100-299 beds	< \$10,000	12	3	1,821	65,556	38%	29,022	23%
Hospitals < 100 beds	> \$10,000	10	3	140	4,200	2%	4,975	4%
Hospitals < 100 beds	< \$10,000	4	1	4,200	16,800	10%	12,054	9%
Nursing Homes	> \$10,000	10	3	246	7,380	4%	7,365	6%
Nursing Homes	< \$10,000	0	0	11,051	0	0%	1,609	1%
Distributors	> \$10,000	6	2	399	4,788	3%	12,412	10%
Distributors	< \$10,000	2	1	2,363	4,726	3%	3,679	3%
TOTAL				21,462	171,058	100%	127,204	100%

**Figure 10
Summary of Alignment Insights**

<i>Insights</i>	<i>Evidence Supporting the Insights</i>
Most sales territories are not the right size.	A study that examined 4,800 sales territories from 18 different companies in four industries revealed that 56% of territories were either too large or too small.
Good sales territory alignment enhances customer coverage and increases sales.	Empirical studies suggest that sales will increase by 2-7% when sales territories are realigned to optimize customer coverage. A pharmaceutical company that realigned one sales region to test the value of good alignment found the sales to market growth ratio for the test area one year after realignment was almost double that of the rest of the country.
Sales territory alignment affects performance evaluation and rewards.	Our experience suggests that due to poor alignment, companies often over reward territories and under reward salespeople. A study comparing high-salaried sales forces with high-incentive paid sales forces found that the greater the incentive component of compensation, the more difficult it is to balance sales territories.
Good territory alignment reduces travel time.	The realignment of a large industrial distributor resulted in a 13.7% reduction in salesperson travel time. This allowed almost \$1 million annual savings in travel expenses, a 2.7% increase in selling time, and over \$15 million in additional sales. A consumer products company reduced travel time significantly by reaching low potential, remotely located accounts through telemarketing, internet selling, and direct mail.
The cost of disrupting the sales force through realignment can be managed.	Analysis revealed that after an industrial distributor realigned, sales decreased at only some of the large accounts that were reassigned to a different salesperson. Sales were not affected at small accounts or at large accounts where a relationship transition program was implemented.
Realignment does not have to be a cumbersome task due to new computer technologies.	The number of possible alignments for many sales forces exceeds the number of atoms in the universe! Territory alignment optimization and refinement software saves sales managers hundreds of hours of tedious manual work.
Lack of data should not prevent a company from realigning.	Companies have employed numerous creative approaches to developing or utilizing existing data for realignment. Many companies have created their own alignment databases.
Successful realignment usually involves central alignments that act as benchmarks, with local adjustments.	An 8-step process for developing alignments that are both "good for the business" and "good for the people" is presented in this article. This process has been implemented with numerous companies.
Alignment is not a one-time event.	Well-managed sales organizations audit their alignment annually and proactively manage territory vacancies.

Maintaining Good Alignment Over Time

Realignment should not be viewed as a one-time event. Many events require companies to adjust their territory alignments. We have observed many sales forces that up-size, downsize, or restructure every two to three years. In addition, ongoing market change can affect the balance across territories and make realignment necessary. For example, customers change, a new regional competitor enters the market, or a new product launch shifts market opportunities. Demographic shifts also affect alignments. We recommend that sales organizations audit their alignment at least once a year to ensure their territories are keeping pace with market and demographic change.

Another way sales organizations can maintain a good territory alignment is by managing territory vacancies. Salesperson turnover creates opportunities for sales organizations to re-deploy sales effort without relocating salespeople. A vacant territory in a low potential area can be closed down, and a new person can be hired in another location with greater opportunity.

One national sales manager keeps a sales force location map in his desk drawer. The map is the future blueprint for his sales organization. Each territory on the map is represented with a dot in one of three colors. Green dots are existing territories with good future potential, black dots are existing territories with poor future potential, and yellow dots are proposed new territory locations. Each time a territory becomes vacant, the manager checks the map. If a vacancy occurs in a black dot territory, the territory is closed and a new territory is opened up in a yellow dot location. A proactive attrition management program such as this enables sales organizations to maintain an alignment that maximizes productivity without relocating salespeople.

Summary and Managerial Implications

Figure 10 summarizes the evidence suggesting that the benefits of good alignment are significant and it is possible to overcome the obstacles to good alignment at a reasonable cost.

Over the last two decades we have made considerable progress in sales territory alignment. We have elevated awareness of territory alignment. Optimization models and effective alignment software have been developed. We have successfully implemented alignment processes with many firms. Yet, more research needs to be done. A convenience survey of alignment consultants suggests the following important issues still need to be addressed:

- What are the criteria that help determine whether a realignment is necessary? What are the triggers?
- How can specific salesperson factors such as experience and historical performance be incorporated into an alignment model?
- How can competitive measures be incorporated? Some markets and segments face more significant competition than others do.
- How can we measure the cost of disruption precisely relative to the value of improved coverage, without running an experiment?
- What are the conditions under which compensation plans need to be reformulated when territory alignments are modified?
- How can alternative alignments be compared? Is there a metric that can be developed? How difficult is it to estimate the profitability of an alignment?

In summary, sales territory alignment is an overlooked sales force productivity tool. Our research indicates that many sales forces are losing a significant amount of money each year due to territory imbalances. Well-managed companies are overcoming the obstacles to good territory design by using a structured process to ensure that their alignment enhances sales force productivity. Research issues continue to arise—their resolution will enhance the process.

References

- Blessington, Mark and William O'Connell (1995), *Sales Reengineering from the Outside In*, New York: McGraw-Hill.
- Bonoma, Thomas V. (1985), "Case Research in Marketing: Opportunities, Problems, and a Process," *Journal of Marketing Research*, XXII, 199-208.
- Cortada, James W. (1993), *TQM for Sales and Marketing Management*, New York: McGraw-Hill.
- Cravens, David W. (1995), "The Changing Role of the Sales Force," *Marketing Management*, Fall, 49-57.
- Easingwood, C. (1973), "Heuristic Approach to Selecting Sales Regions and Territories," *Operations Research Quarterly*, December, 527-534.
- Heide, Christen P. (1998-1999), *Dartnell's 30th Sales Force Compensation Survey*, Chicago: Dartnell Corporation.
- (1996-1997), *Dartnell's 29th Sales Force Compensation Survey*, Chicago: Dartnell Corporation.
- Heschel, Michael S. (1977), "Effective Sales Territory Development," *Journal of Marketing*, April, 39-43.
- Hess, Sidney W. and Stuart A. Samuels (1971), "Experiences with a Sales Districting Model: Criteria and Implementation," *Management Science*, December, 41-54.
- Hise, Richard T. and Edward L. Reid (1994), "Improving the Performance of the Industrial Sales Force in the 1990s," *Industrial Marketing Management*, 23, 273-279.
- Lucas, Allison (1996), "Leading Edge --Down and Out: Corporate Layoffs Tighten the Belts of Company Sales Forces," *Sales and Marketing Management*, February, 11.
- Lodish, Leonard M. (1975), "Sales Territory Alignment to Maximize Profit," *Journal of Marketing Research*, February, 30-36.
- MapInfo Corporation (1997), "MapInfo ProAlign-Introduction and Overview," Available at URL: <http://www.mapinfo.com/software/proalign/align1.html>.
- Richardson, Robert J. (1979), "A Territory Realignment Model—MAPS™," Presented at the New Orleans ORSA/TIMS meeting, May 1.
- Sales and Marketing Management (1996), "Software Directory," *Sales and Marketing Technology (Supplement)*, December, 39-65.
- Segal, M. and D. B. Weinberger (1977), "Turfig," *Operations Research*, May-June, 367-386.
- Skiera, Bernd and Sonke Albers (1996), "COSTA: Contribution Optimizing Sales Territory Alignment," Working Paper at Christian-Albrechts-Universität zu Kiel, Germany, October, revised August 1977.
- Smith, George A., Doris Ritter and William P. Tuggle III (1995), "Benchmarking: The Fundamental Questions," *Marketing Management*, Summer, 43-48.
- U.S. Coast Guard (1997), "Answers to Frequently Asked Questions about GPS," Available at URL: <http://www.navcen.uscg.mil/faq/gpsfaq.htm>.
- Wotruba, Thomas R. (1996), "The Transformation of Industrial Selling: Causes and Consequences," *Industrial Marketing Management*, 25, 327-338.
- Zoltners, Andris A. and Prabha Sinha (1983), "Sales Territory Alignment: A Review and Model," *Management Science*, November, 1237-1256.
- (1999), "Sales Force Management Program --Trivia Contest," Executive Education Program, J. L. Kellogg Graduate School of Management, Northwestern University.