

INTRODUCTION

This is a book about the future. Unlike many books, however, it does not make predictions or teach you how to do them. It will not reveal hidden forces in today's society that you can exploit to gain market share or develop hot new products for the year 2000. I can't tell you how to predict inflation or whether we will still depend on Mid-East oil. I have no idea whether the Japanese will continue to dominate high technology manufacturing or whether the Asian Tigers or maybe East Europe will take the lead. This is not a book about prediction; it is a book about the future.

This distinction arises because we are going to discuss a particular kind of future. It involves a world where people and organizations strive to reach objectives. But it is also a world of finite resources, where there are times when we can satisfy our goals only by keeping our competition from realizing theirs. Although this may sound like war, many situations in everyday life belong to this "world of conflict." About six months ago, I had to replace a clothes dryer. I walked into the store with money, and walked out with one dryer. That brand achieved its goal -- a sale -- at the expense of all the others. This is conflict, without violence and without bloodshed. To the contrary, everybody involved in the immediate transaction, the salesman, the store owner, my wife and I, came away very happy. The conflict here was between the manufacturers, in the decisions they made involving features, styling and price. Resolution was achieved not on the battlefield, but by me, the customer.

The future that the manufacturers are interested in is my decision on which brand to buy, and on similar decisions made by you and me and thousands of our fellow customers every day. What the people who make dryers want is not so much to predict what we are going to do (although that plays a part), but to increase the chances that we will buy their product. In other words, they want to cause the future to come out their way -- to shape it -- not just predict or react to it.

That is what this book is about: How to make the future in a competitive or conflict situation come out your way. A book about prediction cannot help you with the future. If you can read it, so can all your competitors, and where is the advantage in that?

Making competitions or conflicts come out your way is the domain of strategy. The core, most basic concept in strategy, and what makes it different from planning or scheduling, is the presence of an intelligent and one must presume motivated competitor. This is why strategists avoid predicting the future. When you say, "They can't bring out one for less than \$150," or even, "Nobody will pay for better quality than we have," what you are really saying is that you can read the competitions' (or the customers') minds. Put another way, you're really saying that your competition is stupid and cannot think of anything else to do. Be careful.

Competitors and customers. How to make your version of the future come out on top. In a word, winning. These are what

this book is about, and it is a very old subject in human thought. About the same time that Hebrew scribes were writing down the books of the Old Testament (particularly Ezra, Chronicles, and others of that era), Chinese scholars were collecting observations and rules of thumb into The Art of War. Attributed to a certain Sun Tzu, The Art of War occupies a place in every War College today, and is required reading in schools of business around the world. We shall return to it many times.

So people have been writing about strategy, that is, how to prevail over the competition, for at least 2,400 years. But a great deal of this dealt with the specialized form of competition we call war. Is business like war? Does war have anything to teach us about business? | The answer is that war, per se, has very little in common with business. | This is a topic we will examine in some detail, but for now, consider that in war, if you defeat the enemy, you win. In business, you can do whatever you like to the competition, but if the customer buys his product anyway, you lose.

We will take a different tack. War is a form of competition that involves groups of people under conditions of great stress and uncertainty. So is modern business. Are there lessons people have learned over the years to win under these conditions that will also help business leaders? The whole premise of this book is that there are such lessons, and that they apply to any situation where groups of people compete. This is the only reason for applying lessons of war to business.

I first ran across the theory behind this book when I was a staffer in the Pentagon in the early 1970s. At that time, an Air Force Colonel, John Boyd, was just beginning his investigation into why bigger and better equipped armies sometimes lost to much smaller or technologically backward ones. John was a fighter pilot who flew jets in Korea, then developed new aircraft and combat techniques for the Air Force.

He and his colleagues spent about ten years exploring competition and conflict over the last 2,500 years. They found that what best described winners was something they called "agility," which they defined as the ability to execute observe-orient-decide-act (O-O-D-A) loops more rapidly than their opponents. Gradually, the Army, Air Force, and Marine Corps adopted this theory and wrote it into their basic doctrines.

O-O-D-A Loops and Business

Meanwhile, I had left government and moved into industry. Boyd and his group were obviously on to some powerful ideas, but their focus was war. There were interesting analogies for business, "defending market share" and things like that, but I wasn't struck by any underlying grand theory. Then Tom Peters wrote Thriving on Chaos. Although he never used the term "agility," much of his advice for responding to an unpredictable world seemed straight out of Boyd.

In fact, after a meeting between them, decision cycles and O-O-D-A loops started appearing in Peters' columns. At about the same time, the business press, from the Harvard Business Review to Fortune, also began publishing articles on how faster decision cycles help businesses cut costs, improve quality, and gain market share. By this time, I could see that we were talking more than simple analogies.

So here was a theory based on success in combat but which also applied to business. Because it was based on cycles, that is, on improvement, it offered a way out of the need to outpredict or outthink the competition. Instead, we get smart by getting our systems in order, and faster, "smarter," systems will enable us to exploit the opportunities that inevitably arise. But even this is too passive. Boyd's work, and the experience especially of the Japanese car makers, suggest that faster decision cycles give us much more of an advantage. They not only allow us to exploit opportunities, but as we will explore in great detail, they actually create them.

And that is the theme of this book. If you do the hard work of creating a fast and opportunistic business system, you will win. You will win not because you are smarter, or richer, or more technologically astute but because your opponents will not be able to see how to use these "advantages" against you.

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Photography

In the first chapter, we will explore a famous battle, actually what strategists call a "campaign," the 1940 Blitzkrieg against France and England. Nowadays, a "blitzkrieg" describes any conflict where one opponent appears to roll over the other.

Most people assume that you would need vastly superior forces to mount a blitzkrieg -- more tanks, aircraft and artillery -- and probably a higher level of technology as well. So it is surprising to learn that the defending Allies had more and better tanks than the Germans, and considerably more artillery as well. How did they manage to lose? We'll consider this question, and also look at a famous blitzkrieg in business that exploited the same basic principles.

The second chapter explores how not to succeed in conflict. Many common techniques of strategic planning actually do more harm than good, exactly in the same manner that their military counterparts would have predicted the losing side in war after war. What does produce a winning strategy? That is the subject of Chapter III, which explores Boyd's concept of agility both from the standpoint of strategy and from the underlying organizational culture that allows one to employ it.

Strategy itself is the subject of Chapter IV. This section may bother people who consider strategy merely a form of planning. Actually, the idea of strategy used here both encompasses and opposes planning. Yet, it traces its roots to successful leaders from ancient China to the present day.

Chapter V returns to the cultural foundations of strategy and specifically applies them to business. It turns out that if you look at what the strategists of the blitzkrieg said about their organizational climate, and what the most successful Japanese and Americans say, they are describing the same culture.

Chapter VI looks at the question, "Once you have established an appropriate organizational culture, what do you do with it?" Basically, it is the application of O-O-D-A loop theory to business, and again, the best competitors of Japan and the United States give us copious examples.

Finally, Chapter VII applies one of the key concepts of modern strategy, the need to absorb ideas from the widest possible variety of sources, literally from Archibald Macleish to Archie Bunker, to modern business. It is a call for people in business to explore the basic source materials of strategy, including the original Chinese and Japanese texts (which are now available in readable translations), the great novelists, and quantum physics. At the very least, you should come away with the conclusion that there is probably nothing that you cannot turn somehow, someday, into your competitive advantage.

NOR THE BATTLE TO THE STRONG

The race is not to the swift, nor the battle to the strong, neither yet bread to the wise, nor yet riches to men of understanding, nor yet favor to men of skill; but time and chance happeneth to them all.

Ecclesiastes, 9, 1

The Blitzkrieg

During the night of May 9th and 10th, 1940, the Germans attacked Belgium and Holland. The French and their British allies rushed forward to meet them, so that when the trenches formed, as the allies believed they must, they would form well outside the borders of France. (Map 1)

Unfortunately, miles to the south, seven German armored divisions, the famous "Panzers," were winding through the dense Ardennes Forest in southern Belgium and Luxembourg. On the morning of May 14, they were across the Meuse River at Sedan and began streaming into France. One week later, they reached the sea. (Map 2)

It all seems so simple, looking back on it now. We write it off to England and France sleeping while Germany rearmed. Or we imagine that the German armies won through sheer weight of numbers or through the technical excellence of their weapons. In fact, none of the above are strictly true.

Should France Have Won?

Although she was still recovering from World War I, France was well aware of the threat to the east. She had spent 12.5 billion Francs on the Maginot Line that protected her eastern border from Switzerland to the town of Longwy, not far from the strategic city of Sedan, where the Germans had won a great victory over the French in 1870, and where the Allies had won the closing battles of World War I. From there to the sea, France placed the preponderance of her armies. Including those of her allies, these totaled 135 divisions, roughly equal to the 138 that the Germans brought to the battle.

What about the two sides' weapons? We sometimes assume that the German tanks were so superior that they simply swept the French from the field. Many people are surprised to learn that one for one, the French tanks were state of the art for the time. (Ref: Liddell Hart, 66) Germany, on the other hand, had suffered under a ban on tanks imposed by the allies from 1918 until Hitler's rise to power in 1933. Catching up proved slow, and she did not produce her first fully modern tank until 1939. German armies still had only 349 of this design by May 1940. (Ref Orgill) In addition, France had a great advantage in artillery, which had been the main killer on the battlefield in the last war.

That the Germans would attack surprised no one. Both Britain and France had declared war on Germany on September 3, 1939, and so had had eight months to get ready. Likewise, it cannot be said that the German tactics were a surprise. Before the war, both British and French officers had written books calling for blitzkrieg-type operations. As for the terrain, the French could read a map and knew about the roads through the Ardennes.

The French had even surmised that the Germans might try an attack in that area. To guard against this possibility, the French Second and Ninth Armies took up positions in Sedan and all along the Meuse River. Although these formations lacked modern tanks and transport, calculations had shown that the Germans would need nine or ten days to bring enough men and artillery across the limited roads in the Ardennes to force a crossing. This would allow French commanders plenty of time to bring up more heavily armed reinforcements.

To summarize the Allies' position, they knew an attack was coming, and they knew where it was coming--in the 200 mile gap between the Maginot Line and the English Channel. In this area, they had about the same number of troops as their enemy, and this in an era when one was supposed to need a three-to-one advantage in order to mount a successful attack.

With all of this going for them, how could the French and British lose?

What Went Wrong?

Military history will tell you the details of what each division did on each day of the battle. But why were the attackers able to make it work? Was it just luck, or was there some underlying strategic principle?

Before exploring this question, there is one caution. Don't become fascinated by the map. You may be tempted to say to yourself, "It was simple. The allies rushed to the north, and the Germans then cut across the south. I could have won that battle." Could you? In the first case, if the French and British had had the God's-eye view shown in the map, they could have easily bottled-up the German thrust through the Ardennes. In military terms, they were operating along interior lines against an enemy who had divided his force.

Of course, no one was privy to the real map while the battle was raging. What the commanders had, at best, was information about the enemy within a few miles of them. To make things worse, much of this information, as the 19th Century military philosopher Carl von Clausewitz observed about information in all wars, was wrong. It was based on misunderstandings, errors in passing data from one person to another, catching a glimpse of trucks and reporting tanks, seeing our tanks and reporting theirs, the effects

of fear, panic, and fatigue, and so on. Anyone who has been in any military operation, even an exercise, knows how much of this there is.

Harvesting the Fruits of Chaos

This was what people on both sides had to work with, but somehow the Germans had evolved a way to cope with the chaos. As for the French, panic and confusion seemed to snowball as the battle progressed. On the evening of the German attack on Sedan, May 13th, the French 55th Infantry Division began a withdrawal from the west bank of the Meuse River in the face of massive German tank attacks. As sometimes happens, the retreat got out of control and became a rout. There were incidents, for example, where men abandoned their artillery pieces and began to run to the rear. Writer Len Deighton called it the "greatest tank victory in all the records of warfare," because in truth, the nearest German tanks were still trying to get across the river. (Deighton, 227)

About 36 hours later, the French First Armored Division was moving up to attack the German penetration. As they stopped to refuel, Rommel's 7th Panzer Division, joined by the 5th Panzers, ambushed them and destroyed all but 17 out of the original 175 French tanks. Now Rommel did something that characterizes blitzkrieg warfare. Rather than "consolidate his position," or otherwise savor the fruits of victory, he proceeded to use his advantage in

time to neutralize his opponents' forces and weapons. Battle-weary as the must have been, Rommel's troops remounted their vehicles, pressed on to the west, and actually reached the new French defensive line before the French did. (Deighton, 232-233)

These two incidents were repeated, on larger and smaller scales, hundreds of times during the campaign. It seemed that luck chose these two weeks to grant a monopoly to the Germans. Certainly, luck plays a role in war, but it is asking too much to blame luck for something that happened over and over again.

We can get some idea of the more fundamental causes by looking at what the French commanders were telling each other. Up until the end, they were congratulating themselves on having established new lines to seal off the German attack. The situation was improving and the enemy was contained. The front was being "reestablished." (Deighton, 234)

These are terms from the First World War, where in the last days, the Germans devised tactics similar in many ways to the next war's blitzkrieg. The allies well remembered, as Churchill's memoirs make clear, that these attacks always ran out of steam and new front lines always reappeared. But this time, the war was fought on different terms.

Look at what British military historian Basil Liddell Hart had to say:

The issue turned on the time factor at stage after stage. French counter-movements were repeatedly thrown out of gear because their timing was too slow to catch up with the changing situation . . . The French, trained in the slow-motion methods of World War I, were mentally unfit to cope with the new tempo, and it caused a spreading paralysis among them. (Ref Liddell Hart, 131-132)

Or from the British general whom the Germans credit as one of the chief architects of the blitzkrieg, J. F. C. Fuller:

It was to employ mobility as a psychological weapon: not to kill but to move; not to move to kill but to move to terrify, to bewilder, to perplex to cause consternation, doubt and confusion in the rear of the enemy . . . (Ref Fuller, 256)

In other words, the purpose of the blitzkrieg strategy was not so much to cope with chaos, but to cause, and then exploit it.

Blitzkrieg in Business

In an article in the April 1988 Harvard Business Review, Harvard professor George Stalk wrote of a famous business "war" in Japan that had many of the attributes of the blitzkrieg. In 1981, Yamaha built an enormous factory and announced that it would become the world's largest motorcycle manufacturer. At that time, the honor was held by Honda, who had no intention of relinquishing it.

Many American companies, I suspect, would have challenged force with force and built a factory even larger

than Yamaha's. After a while, overcapacity would have reared its ugly head, profits would have turned down, and there would have been the massive layoffs we see in the U. S. auto industry today.

An Alternative to the Obvious

Honda, however, chose to attack through speed and agility. You can read the details in Stalk's article, but the key point is that over the 18 month period of the "H-Y War," Honda introduced 113 new models to replace the 60 it had in the beginning. In contrast, Yamaha was only able to bring out 37.

By the end of the war, a Yamaha looked drab and unimaginative parked next to a Honda. Yamaha accepted a humiliating surrender, publicly stating that "We want to end the H-Y War. It was our fault." (Ref Stalk)

Why was Honda able to turn up the wick and outdevelop Yamaha in new models by 3-to-1? Stalk's analysis is remarkably similar to Liddell Hart's and Fuller's: Honda had "managed structural changes that enabled their operations to execute their processes much faster." Employing a strategy conceptually the same as the German's in the Blitzkrieg, Honda used speed, or more accurately, decision cycle time, to create chaos in the marketplace and then exploit it.

What's To Come

Since the end of the Vietnam War, there has been considerable research into the phenomenon of a smaller, but

more agile, competitor defeating its larger opponents. The next three chapters use some of this research to explore why this happens fairly often, both in business and in war. Of course, it is no accident, and there are some specific "structural changes" that allow it to occur.

These will form the subject of Chapters V and VI, which unfold an organizational climate in which fast decision cycles can flourish. Finally, the last chapter will suggest some additional sources to help you broaden your scope as a business strategist.

II

VISIBLE FIGURES ALONE

He that would run his company on visible figures alone will soon have neither company nor visible figures to work with." W. W. Scherkenbach, quoting W. Edwards Deming (Ref: Scherkenbach, 44)

Why Study War?

The highest level school in the United States Army is the War College. If you pick up any copy of its journal, Parameters, and look at the bottom of the front cover, you will see the following words:

"Not To Promote War, But To Preserve Peace."

We also have no intention of glorifying war, but our purpose for studying it is equally practical, if somewhat less noble. We want to look over the shoulders of today's most innovative strategists and see what we can learn that will help win in business.

We need new theories if for no other reason than because conventional ways of thinking gave us Vietnam. In the business world, conventional thinking gave General Motors a \$50 billion bill for automation, while GM's market share during the 1980's fell by one-third.

Fortunately for our inquiry, a new outburst in strategic thinking began in the mid-1970s, about the same time as the fall of Saigon. It followed the logic that since we cannot predict exactly what a future war might look like, we need to find general patterns of winning that will apply to any battle, conflict, or war. So, rather than engage in a technical "Why did the North Vietnamese win?" enquiry, of which many began at that time, the effort that concerns us simply asked: "What does it take to win?"

Models of Conflict

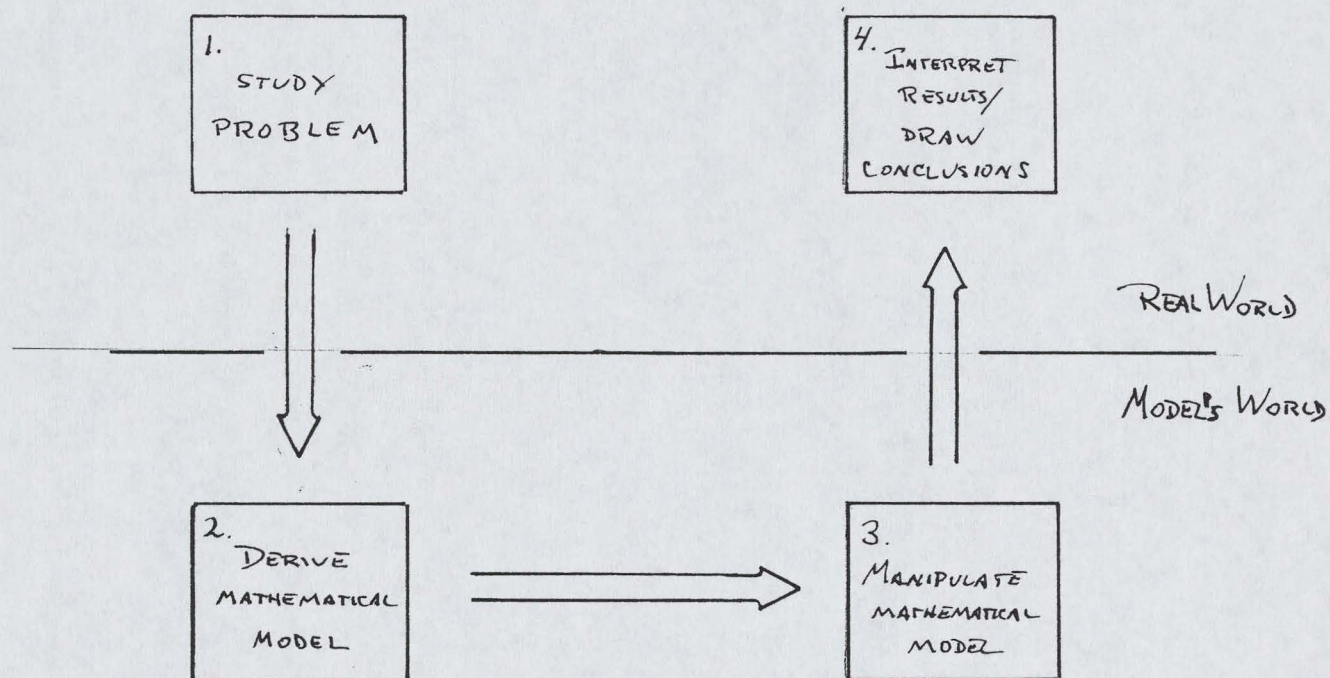
What does it take to win? This is the subject of the rest of the book, which will base its answer on a concept known as agility, to be defined in the next chapter. I can do a much better job, however, of explaining why agility plays a central role in strategy if we spend some of this chapter to introduce a widely used alternative.

Calculating Victory?

One logical way to approach the question of how to win would be to employ a step-by-step analytical technique that uses hard data and proceeds from initial assumptions about forces and weapons to final conclusions about who will win. Thanks to the great increase in computer processing power that has come about in the last few years, many people, particularly in the Pentagon, have done just this and built computer models that try to predict the outcomes of future conflicts.

The question we are going to look at in this chapter is, "Can models (or any "hard" analytical method) predict the results of future conflicts, accurately and on a regular basis, and so prove useful as the basis for future strategy?" (Footnote: Articles describing the limitations of analytical techniques in other "soft" areas, notably public policy, go back at least to 1957. The interested reader may want to look at Charles E. Lindbloom's classic attack on the misuse of analysis that appeared in his 1959 article (see Bibliography). My argument in what follows can be summarized as, "Business strategy is more like public policy than like engineering.") Actually, the great majority of the Pentagon's models don't try to predict the result of a future war at all. Rather, their makers adroitly shift the question to another problem, that is, to estimate the "effectiveness of military forces." They work with this criterion largely because years of relative peace, combined with enormous budgets, have transformed the Pentagon into a place dominated by weapons developers and buyers. In buying new weapons, we justify their costs by pointing out how much more "effective" they will be against the better weapons our enemies will field in, say, ten years. The assumption is that a force the computer rates as "more effective" will also be more likely to win, a hypothesis that will we return to in a few pages.

To calculate effectiveness, one creates a computer program, a model, and then puts in numbers to represent things like the forces under consideration, the enemy they face, and the conditions of the war. the actual process usually includes four steps:



Incidentally, many methods used in business, particularly in strategic planning and for financial projections, follow the same pattern: create computer methodology, put in numbers, interpret results.

Why might adopting strategies based on computer modeling techniques fail to pick winners? The specific answer, of course, would depend on exactly which computer modeling technique we want to consider. In the general sense, however, they are all subject to problems at each stage:

1. Our study of the problem (in war or business) might not reveal all the pertinent relationships
2. Our mathematical model might not accurately capture these relationships
3. The manipulations inside the computer might not be performed correctly (bugs in the program)
4. We might draw erroneous conclusions when we translate the model's results back into the real world

To illustrate what can happen, I am going to construct a simple military model, point out some of the implications, and then ask you to accept that these factors will apply to a greater or lesser degree, to any computer simulation of combat.

Lanchester's Model

The most basic factor common to all models, military, business, or whatever, is that they follow purely mechanistic laws. In fact, for the methodology used to calculate losses in most military models, it is apparent

from early in any particular engagement who is going to win and who is going to be whittled away into nothingness.

To begin to create our model, we will need some terminology. Let's suppose the two sides are called Red and Blue, and let:

R = number of weapons on the Red side
at the start of the battle
= 100 (just to pick a number)

B = number of weapons on the Blue side
at the start of the battle
= 200 (for example)

r = effectiveness of an individual Red
weapon
= .5 (again, picked for illustration)

b = effectiveness of an individual Blue
weapon
= .25

Let's suppose our study of the real world (previous battles and current exercises, for example) convinces us that at any point during the battle, losses on one side equal the product of the effectiveness of the other side's weapons times the number of weapons that the other side has. If you think about it, this is entirely plausible. Suppose one of my weapons can destroy $1/2$ of an enemy weapon every minute (or equivalently, one enemy weapon every two minutes). Then in one minute, two of mine could destroy one enemy weapon, four could destroy two, and so on -- the product of effectiveness ($1/2$ in this case) times the number I have.

Thus when the model begins, Red's losses will be:

$$\begin{aligned}\text{Red losses} &= \text{Blue Weapons times Blue Effectiveness} \\ &= 200 \text{ times } .25 \\ &= 50\end{aligned}$$

and

$$\begin{aligned}\text{Blue losses} &= \text{Red Weapons times Red Effectiveness} \\ &= 100 \text{ times } .5 \\ &= 50\end{aligned}$$

Our model will compute Red losses and Blue losses, maybe even minute by minute, subtract these from each side, make other adjustments, recompute, make more adjustments, and so on. (Footnote: Although this model is quite simple, it is not irrelevant. Something very much like it lies buried at the heart of many models used by the Department of Defense.) Just looking at the numbers, you might guess that the two sides are evenly balanced. After all, losses on both sides are the same (both equal 50). But, if we continue the game, and draw graphs of how many forces each side has left at any time, we get something like this:

Need Graph

That is, Red not only disappears, but he does so very quickly. Had Red been a mathematician, he would know that to predict who is going to win in this type of model, you have to look at effectiveness times the square of the force size. (FN: Although this may seem strange, it follows from the assumptions in the previous paragraph. Try it on your home computer) In this case:

Force Effectiveness

For Red, .5 times 100 times 100 = 5,000

For Blue, .25 times 200 times 200 = 10,000.

Hence, the Lanchester-square technique. Since Blue's "Lanchester coefficient" was twice Red's, it was apparent from the very beginning who was going to win. So if we were going to base our strategy on this model, we would build a large force of low-to-moderately powerful weapons. But would our force win in an actual war?

Strategy by Machine

This is the question of whether "effectiveness" means the same as "ability to win" that I alluded to on p. . In other words, when we translate the model's results back into the real world, does it make any sense? Does it give us anything useful for strategy? The answer depends on whether the "combat" being modeled by the computer bears any strong resemblance to what we find in real war.

As our first clue, ask yourself this: Why does the Red commander just sit there and take it? Would you? Strangely enough, there have been times in history when the loser annihilated himself, exactly as the model predicted. Let's examine some of these cases to see what type of strategy they represent.

The period when most of these battles occurred ran from the rule of the Prussian King Frederick the Great (mid-1700s) up to the end of WW I. This time in history coincided with the great increase in destructiveness brought on by modern technology. As a result of his famous charge, for example (Battle of Gettysburg, July 1863), Confederate General George Pickett lost about 75% of the men in his division, while failing to take the federal lines. (Ref: Montross) This is not glory, and this is certainly not strategy.

A particularly famous incident of this sort occurred during the Crimean War (between Britain and Russia) in 1854. At one point in the Battle of Balaklava, the 600 cavalrymen of the British Light Brigade charged the massed guns of the Russians. Despite horrendous losses, the British continued their attack. Only 150 made it back to their own lines, leading a French observer to note wryly, "C'est magnifique, ma c'est ne pas la guerre." (FN: It is magnificent, but it is not war) British Poet Laureate at the time, Alfred Tennyson, was less amused: "Someone had blundered."

Anytime a military commander gets into a "battle of attrition," as these Lanchester engagements are called, and gets his people attritted to dust, he deserves the "blunder" label.

Instead of something useful, we were guided towards a strategy that has produced some of the worst blunders in military history. How could this have happened? To recap what we did, we studied the problem, warfare, in this case, extracted a model that seemed reasonable, almost intuitive, and then ran the model on a computer. Looking back at our list of potential problems on p. , we might immediately latch onto the first point. Our model has only a few equations. Maybe it didn't capture all the important relationships. We put in nothing, for example, to account for different types of weapons, or for resupply, or movement rates, or a hundred other factors. Maybe the problem is that our model is too simple.

Now it is true that every modeleer worth his consulting fee can produce "fixes" to any objection. If, however, we continue along this line of reasoning, we will soon notice that the models get bigger, and more expensive, but they still exhibit mechanistic behaviour, more complex perhaps, but similar to, what we found in the basic Lanchester equations. Problems arise because the more complex the model becomes, ^{we} the more trouble will have ~~have~~ at the other end of our problem list, where we try to

interpret what the results of the model mean. "Why did the model do that?" can be a difficult question where hundreds of equations are involved (assuming, of course, that all the programming is correct -- Problem 3 of our list). So the larger your model becomes, the more factors you can account for, but the harder it also becomes to relate the results back through the inner mathematics to the real world, where a decision maker can find plausible bases for action.

The upshot is that any attempt to add validity by adding detail will lead to a corresponding increase in complexity (which increases considerably faster than the simple increase in the number of factors considered), with all of the attendant problems we have mentioned. As one of the more distinguished practitioners of the art recently noted:

Many defense analyses conceal spurious content beneath protective layers of mathematics and statistics . . . Stacking details and complexities in an effort to capture reality simply has not resulted in much useful or productive insight.
(Ref Brewer)

In fact, many models in wide use today conclusively prove that the Arabs defeated Israel in every war since 1947.

The Blitzkrieg Wasn't A Fluke

There is a saying to the effect that the battle is not always to the strong, but that's sure the way to bet. If by stronger, you mean bigger, or more advanced technologically, you are going to lose your bet fairly

often. Strategists down through history have held the "bigger is better" notion in special contempt. To cite some examples, the noted Chinese strategist Sun Tzu (c. 4th Century b.c.), who is still widely studied today, dismissed the fascination with size thusly: "Numbers alone confer no advantage." (Ref: Griffith) Japan's favorite strategist, the 17th Century samurai warrior-philosopher, Miyamoto Musashi, wrote with blunt contempt that "it is difficult to win only with brute strength." (Ref: Musashi) A larger force, for example, can be more susceptible to confusion, jealousy, and, panic.

We will explore how this is done in the next chapter. For now, you can see the truth of Sun Tzu's remark by looking at how often the smaller side has actually won:

Figure

Quite Often the Smaller, or Less Technologically
Advanced Side Wins

Arabs vs. Persia, Byzantine Empire, etc.	633-732
Mongols vs. China, Russia, Moslems, etc.	1211-1260
American Colonies vs. Great Britain	1775-1781
Germany vs. France & England	1940
Israel vs. Arab States	1947-1973
Algeria vs. France	1954-1961
Vietnam vs. United States	1958-1975
Afghanistan vs. USSR	1980-1988
Chad vs. Libya	1987

Any good book on military history will repay many hours of browsing through these wars. One striking fact is that the great generals of history almost always fought outnumbered, especially during the periods when they achieved their most spectacular victories. Another phenomenon that has fascinated strategists is that a winner in one period can forget everything it learned almost overnight.

Vietnam, for example, defeated the United States in 1975, then three years later became bogged down in a quagmire of its own in Cambodia. The Soviet Union gloats over the US debacle in Vietnam, then marches into Afghanistan. Tiny Israel takes on the entire Arab world between 1947 and 1973 and wins. Yet the Israelis were forced to retreat from Lebanon, and their mighty army has yet to deal with a civilian uprising, the Palestinian Intifadah.

The point here is that these real world events are exactly counter to what models would have us believe. It isn't that models fail to produce useful strategy. It is that their misuse can produce some very bad strategy. Real strategy, which is intended to produce winning results, appears to depend on something other than ^{just} the physical dimensions, like quantity of high tech weapons, that models can capture.

There's Something Going On Here

In May 1863, during the Civil War, the Confederate cavalryman Nathan Bedford Forrest finally cornered a Union Colonel named Streight. After a suitable display of force by Forrest's troops, Streight figured the game was over and honorably surrendered his 1700 men to what turned out (to his horror) to be Forrest's 400. He was still demanding his guns back when Forrest put his arm around him and uttered those immortal words of strategy, "Ah Colonel, all is fair in love and war, you know." (Ref: Herr)

That sort of thing wins wars, and as we shall see, it wins in business as well.

What do strategists say? Here is a sample:

Figure

Perhaps Lanchester Does Not Describe Real War

"All warfare is based upon deception." - Sun Tzu

"War is trickery." - Muhammad, Prophet of Islam

"Mystify, mislead and surprise." - Stonewall Jackson
(Ref: Liddell Hart)

"Float like a butterfly, sting like a bee." -
Muhammed Ali, world
heavyweight boxing
champion

Notice that not one held that you win by multiplying weapon effectiveness times the square of the number of

weapons (or some such). In fact, the things that these observers found important are practically impossible to capture in a computer program, since it is difficult to get silicon to panic.

A former commander of all U.S. Army troops in Europe, and holder of a distinguished war record himself, summed this all up with, "We have been led astray by computerized war games and map exercises because the primary determinant of victory in these exercises is a preponderance of fire-power ..." (Ref: Polk) The models could only capture what could be easily quantified, and had to gloss over such critical factors as generalship, training, and fatigue. Other "soft" but decisive effects, which models find difficult but strategists insist on, include:

Things We Want To Have On Our Side:

Sense of Mission
Morale
Leadership
Harmony
Teamwork

Which Allow Us To:

Sieze The Initiative
Be Deceptive
Appear Ambiguous
Exploit Opportunities
Create Surprise

Which Cause These In The Enemy:

Bickering
Jealousy
Scapegoating
Confusion
Panic

Models in Business

I certainly have no objection to model building, since I have spent the majority of my professional career in that occupation. There are many perfectly valid situations that call for models and other "hard" analytical techniques. Where we really do understand the underlying physical processes, as in an engineering simulation, we can extract relationships and build models that make useful predictions and which may provide answers that we can get no other way. But this type of situation -- "man against nature" --

does not concern strategy. Here we enter the arena of "thinking human against thinking human," and so if a model, or any technique, is to guide strategy, it must capture those things that are important in winning against a hostile intelligence.

We have seen in the preceeding sections that military models deal in the "hard" factors that can be quantified, things like the size of the opposing forces and the level of technological sophistication of their weapons. We have also seen that except for military blunders, neither of these have played a dominant role in deciding the outcome of battles down through history.

Could the same be true of business? On the one hand, it is possible to model at least one factor that military strategists say contributes strongly to victory, the effects of faster decision speed, a subject we will spend considerable time on in the coming chapters. A type of model that illustrates decision speed was invented in the late 1950s by Jay Forrester at MIT. His "industrial dynamics" models clearly show how slow decision speeds can cause companies to over or under react to events. (Ref: Stalk) You can learn some useful things from models like these.

On the other hand, suppose you decided to base your business strategy on a model, industrial dynamics or whatever the consultant has sold you. In other words, you

are going to commission a model of your company, then you will base your decisions that concern customers and competitors on what the model says.

First, we must confront the four problems from earlier in the chapter (p.). For example, in military models, we found complexity creeping in as we attempted to capture more and more relationships in the real world. Similarly, your business model would have to be terribly complex to capture all the major interactions within a whole company. This assumes that you could convince yourself you had indeed captured all the significant interactions. Think for a minute: How would you know?

Also in common with military modeling, you would have to consider your human opponents, whom, in business, we call "competitors." So it's not only the interactions within the company, but your model would have to predict with high accuracy how customers and competitors will react to anything your company does. Who do you know that has equations (that work) for this? And don't forget the government. And foreign governments.

2
1

Next, let's look at an aspect that is vitally important to a company but which is rarely considered in military modeling. Most companies like to see improvement, and practically everybody today has some type of program underway designed to achieve continuous improvement, what the Japanese call kaizen, in their major operations.

Unfortunately, your model isn't going to help you much here. Even if done perfectly, your model would only capture the current company system. It would give no information on how entirely new systems and concepts would affect the company's performance. If your company, for example, had a traditional "push" type production system, and you created a perfect model of it, you could tweak it for ideas on how to improve that system, but you would get no insight at all into what might happen if you installed a "pull" or "just-in-time" system. For this, the company would need an entirely new model, and you couldn't simply go out and measure the values it needed from the current system. You would have to assume them.

And finally, let's suppose you succeeded anyway, despite my arguments, and built the Great Strategy Generator. Why can't your competitors build one even better? Maybe steal yours?

Econometric Models

Some readers may have noticed a parallel between my views on using models and similar analytical techniques as the bases of strategy, and the debate over using similar methods as the foundation of economic policy. In fact, it is precisely in this area that Forrester's modeling techniques have found their greatest acceptance. Essentially, these programs consist of thousands of equations that are supposed to describe the relationships

between various components of the economy. So there might be a set of equations that tie the inflation rate to stock prices, and another set that relates unemployment to housing starts, and so on. The idea is that once all these equations are joined together, you can raise the discount by one-half point, and the model will tell you the effect on unemployment (or whatever).

Unlike military models, where we hope we never get the opportunity to check our creations against the real world ("validate" them, as we say in the trade), we can test econometric models every day. Simply watch what the Fed does to the discount rate and see what happens to unemployment. So you might think that by now, someone would have invented a model of the economy that works. Then, at least in theory, economic policy making would be simple: Play with the model until you get a result you like (or can live with) and then implement the policy (the model inputs) that produced it.

Why, then, are we greeted evening after evening by congressional debates on whether something as simple as a capital gains tax cut would be good for the economy? Will it increase the deficit or stimulate investment? It all depends on whether you like the models run for the Wall Street Journal or those paid for by the New York Times.

Why should this be the state of affairs? We have spent a lot of money on these models, and the best are all

based, to the extent possible, on relationships we actually observe in the real world. Maybe the problem is, as I have suggested for strategy, that modeling itself is the wrong technique to use.

This case is eloquently made by Nobel Laureate Frederick Hayek in his book, The Fatal Conceit. Hayek is inveighing against the notion of ever being able to plan an economy that works. He argues that the formal planning methodologies -- which are essentially models of how an economy works -- do not capture what really drives an economy, things like the daily competition between, and the resulting decisions made by, thousands of competitors in each sector of the economy worldwide. And we can't specify beforehand (as we would need to in a model) exactly what these decisions will be or which ones will prove successful. Every businessman thinks at the time that he or she is making good decisions, but many, of course, will fail.

This is the soft, messy, impossible-to-model but critical aspect of the economy, and it was the attempt to ignore it, to deal only with what could be quantified and controlled, that lead to the fiasco of communism.

Inside the Company

Hayek is a theorist of macroeconomics, of the economy as a whole. But if we look carefully, we can find pieces of his work echoed by those who study microeconomics, the

theory of how an individual company works. For example, the "softer" aspects dominate the recommendations from W. Edwards Deming, recognized by the Japanese as one of the main forces behind their success (and after whom they named their most prestigious award, the Deming Prize). When Deming's name comes up, people usually think of hard techniques such as statistical quality control. However, Deming based his best selling 1986 book, Out of the Crisis, on his "Fourteen Points for the Transformation of Western Management." All of these principles deal with culture, values and skills: Institute Leadership; Drive Out Fear; Eliminate Slogans, (Numerical) Targets, and Exhortations for the Work Force and so on. None even mention the word "statistics," although that art plays a critical role in their application. (Ref: Deming)

If you look at what the business journals have been publishing, you find much the same thing. My favorite example comes from the series of articles in The Harvard Business Review written by Kenichi Ohmae, Managing Director of McKinsey & Co.'s Tokyo office, surveying the modern state of the strategic art. In his third article, Ohmae took on the question of what actually helps companies win. His conclusion: that companies succeed because of things like motivation, creativity, persistence, and what he calls softer variables like values and skills. (Ref: Ohmae) In

other words, things very much like what appeared in Table .

One more example, this time from practicing executives. Although many still pride themselves on only working with the hard data, others recognize the role of judgement and insight. One such study, Dartmouth Professor James Brian Quinn's research on senior managers' views of strategic change, found that "few of these issues lent themselves to quantitative modeling techniques or perhaps even formal financial analysis techniques." (Ref: Quinn)

So it should be clear by this point that formal techniques, using only hard data and things that can be proven, will not provide us the basis for strategy. They will not produce victory time and again, where we face thinking, motivated competitors. There must be something more, and what this something more might be is the subject of the rest of this book.

III

WHAT AGILITY IS AND HOW TO GET IT

... slip around past the formation ... then break the enemy formation into meaningless chunks that didn't know that they were doing ... the way they fought seemed like the only intelligent way ... the only possible way. (Orson Scott Card, Ender's Game)

Why Some Sides Always Seem To Win

Do not base your strategies on becoming larger than your competitors or spending more on technology than they do. You may at times do these very things, but they should be tactics for the occasion and not the focus of your strategy.

So how do the winners do it? The first thing to notice is that in war, it does not usually pay to challenge your opponent in his strength. The bloodbaths in the trenches of World War I immediately come to mind. Like Balaklava on a monstrous scale, those terrible battles killed hundreds of thousands of people and gained no strategic purpose. We have already been through that experience in this century and we do not need a repeat.

We can generalize this principle. In the last chapter, we saw that to create a computer model of combat, we had to assume that war proceeded according to predictable, mathematical patterns -- that combat forms a system. (Ref: Gagliano) We also found that on many

occasions, the smaller or less technologically advanced side won, confounding as it were the predictions of the models.

The reason was that these smaller forces achieved high levels of things like morale, harmony, and initiative. This allowed them to act decisively when opportunities arose for surprising the enemy, avoiding his strengths, and generating terror and confusion. The end result was that they did not become predictable systems in the eyes of their larger opponents. In other words, if you can be modeled by a computer, you can be defeated.

Fine, but how does the smaller side get away with it? He doesn't always, of course. The Confederacy lost to the Union, Poland lost to Germany, and Germany eventually lost to practically the rest of the world. But the fact that the smaller side wins at all, and not infrequently, is what excites our interest. To start to answer the question of what it takes to win, let's take a closer look at our initial case study, the blitzkrieg.

Key Attributes of the Blitzkrieg

The rest of this chapter uses concepts derived from the blitzkrieg to illustrate several principles of strategy. Some people may object, citing the terrible crimes committed by the Nazis against whoever did not fit their mold of acceptability. By using German strategy,

and their own words to describe it, are we not condoning or even glorifying Nazi actions?

This is not my intention. The reason for studying the blitzkrieg is that it was the case most intensely examined by the American defense strategists who derived the strategic concepts in this book. They were struck by the brevity of the campaign and relatively low number of casualties, both of these in contrast to the years-long bloodbaths which had been fought over this same terrain a mere quarter century before.

Another reason why strategists focused on the blitzkrieg was that many of the people on both sides were still alive and willing to talk in great detail about their experiences. This allowed the type of give and take needed to develop a coherent theory of what happened. Although other armies use these principles today, notably the Israelis and a number of guerilla movements, few of these were willing to sit down and go into great detail on strategies, which, particularly in the case of the Israelis, they were still employing.

Thus the blitzkrieg provided an almost ideal case study for the strategist, despite its connections to an abhorrent cause. By noting what American researchers saw in the German strategy, and why it worked, we can begin to derive ideas that will prove useful in other competitive endeavours, namely business. This is our only purpose.

After the war, American strategists got the opportunity to talk at length with many of the practitioners of the blitzkrieg. Amidst all the war stories, a pattern became clear: The roots of success in 1940 lay in the German system for dealing with people; it was cultural, rather than technical. Here, I am using "cultural" in the sense of "business culture," not as a national trait. From his conversations with the German generals, and his study of their experiences, a retired US Air Force colonel, John R. Boyd, extracted the following four concepts as the major factors underlying the Germans' success:

Figure

Key Attributes of the Blitzkrieg

Einheit -- Mutual trust; literally, unity

Fingerspitzengefuhl -- Intuitive feel for complex and chaotic situations

Auftrag -- Mission; a "contract" between superior and subordinate

Schwerpunkt -- Focus and Direction

You don't have to be a tank commander in central Europe to exploit these cultural properties. Col Boyd calls them "an organizational climate for operational success," and the organization can be a business, a political campaign, or, of course, an army. This climate

will give a competitive advantage to any group of people who must work together in a confusing and threatening environment. Chapter V will discuss in detail how these principles apply to business, so for now, let's just take a brief first look at the various components.

Einheit -- Mutual Trust

Mutual trust underlies everything. Pick up any book written for military leaders. Go get the one by retired US Army Colonel Mike Malone (which would be a good idea anyway) and read the advice this decorated combat infantry leader gives young officers and NCOs. You cannot, he admonishes, give in to the urge to check and control everybody. In the heat of battle, there just isn't time (Ref: Malone) You have to trust your people and subordinate leaders to do the right thing under the stress of combat. But, and this is the key point, this trust cannot just be wished for or assumed. It must be earned through some period of training and working together, as the German Army did between the two world wars.

It is no accident that trust heads the blitzkrieg list. One of the primary inventors of the blitzkrieg was, oddly enough, a British strategist, J. F. C. Fuller, whose works before WW II were carefully studied by the Germans. Although General Fuller was a pioneer of modern mechanized warfare, he also wrote that "...the essential factor in primitive tribal warfare was concord between members of the tribe... Normally the same holds true among civilized states." (Ref: Fuller, 73)

If there is a universally accepted truth in military science, the fundamental role played by trust may be it. Twenty-four hundred years before Fuller, Sun Tzu had concluded that, "He whose ranks are united in purpose will be victorious." (Griffith, 83) The Arab historian ibn Khaldun, who is generally credited with writing the first modern analysis of history, echoed this theme in 1377 a.d., "What is in fact proven to make for superiority is the situation with regard to group feeling." The rule is simple: The side with the stronger group feeling has a great advantage. (Ref: ibn Khaldun, 230)

Thus German General Heinz Guderian, when asked about what makes a good commander, replied that first, they did not lead from the rear, and second, "they commanded on the basis of mutual trust." (Ref: Battelle, 25) Postwar military analysts agreed: "Teamwork was the key to German superiority." (Ref: Macksey, 35)

During its period of greatest triumph, from 1956 to 1973, the Israeli Army went to great lengths to build mutual trust. You could not, for example, come into the army as an officer. Everybody started as an 18-year old draftee. From among this crowd, the best were selected to become NCOs and finally officers. Now here is the critical idea: While they were moving up, from squad leader to platoon leader and company commander, they generally stayed in their original units. All of the officers and

sergeants shared a common background, knew each other's strengths and weaknesses, and could communicate rapidly using very few words.

So perhaps it is ironic that today, some Israelis credit *einheit* for much of the success of the intifada, the largely unarmed Palestinian uprising that is causing Israel far more problems than terrorist attacks ever did. Intifada leaders, it turns out, built mutual trust through years of organizing within Israeli prison camps. This *einheit* has proven stronger than the factional rivalries that had divided these leaders before they were jailed. (Ref Ya'ari)

The leadership of the intifada earned mutual trust through their shared experiences in prison. Israeli military leaders acquired it through a similar crucible, by working and fighting alongside each other during the constant crises and frequent wars of the country's early history. Such a furnace of experience appears to be a necessary ingredient in forging a strong bond of trust.

Boyd concludes that to be most effective, training and shared experiences must gradually expose the organization to more and more complex and dangerous situations so that people finally learn to trust each other in the confusion of conflict. The result can win wars:

Through the long years of fighting in hard conditions of dangers and privations, our officers and men have loved each other like blood brothers, sharing hardships and joys together, united for life and in death. North Vietnamese Defense Minister Vo Nguyen Giap (1961) (Ref: Giap, 123-124)

Certainly this is propaganda, published for our benefit. But that's the point. This is what Giap thought would impress his English-speaking readers. He didn't have the technology or the size to go head-to-head with the United States, but his message was that he wasn't going to fold easily, either. And in fact, he didn't.

Fingerspitzengefühl -- Intuitive Skill

Literally a fingertip feeling, it is usually translated as "intuitive skill or knowledge." It provides its owner an uncanny insight into confusing and chaotic situations. The U.S. Army's senior tank officer calls it the "ability to feel the battle." (Ref: Tait) During the North African campaign, the British ascribed this seemingly mystical quality to Rommel because he always seemed to know what the British were going to do. (Ref Fisher). Time and again, the Desert Fox would suddenly appear out of nowhere to scatter British units and sow terror and destruction.

As General Gaedcke described it, at the right moment, "for which they all had a sure feel, (his commanders) would step into their airplane or vehicle and go to the critical point of action to see whether everything was in order -- or, occasionally, to really shake things up." (emphasis added) (Ref: Gaedcke, 26)

Zen and other oriental philosophies talk at great length about intuitive knowledge, but they also stress that it comes through years of experience and self discipline.

In medieval Japan, Samurai warriors practiced with the long sword until it became as an extension of their arm. When the fight starts, you haven't time to stop and think about the fundamentals.

Auftrag -- The Contract of Leadership

Once your team has achieved *fingerspitzengefuhl* by individuals and *einheit* among them, then you can practice *auftrag*, the concept of mutual responsibility between leader and subordinate. Although hierarchies are not the only type of human organization, I am going to use terms like "subordinate" *faute de mieux*. If this bothers you, substitute "the person who has the vision for what needs to be done" for "superior" and "a person whom he or she is going to ask to help accomplish it" for "subordinate."

In any case, *auftrag* was designed to allow maximum room for individual initiative, while still accomplishing the unit's mission, during the chaos of war.

Auftrag can be thought of as a contract between superior and subordinate. If I am your superior, and I order you to disrupt and delay enemy forces east of XYZ river, you have two choices. You can accept, in which case enemy forces east of XYZ river get disrupted and delayed. There is no excuse for anything else, even if you and all your men get killed trying. Note that how you accomplish the mission is up to you, within any constraints that I put into the order.

Your other choice, if you believe that you do not have the resources to carry out the order, or that it is just plain dumb, is to challenge it. The German system encouraged this, but once agreement was reached, the superior could assume that the mission would be accomplished.

Now this sounds pretty brutal, almost a caricature of Prussian discipline. But auftrag is effective only as part of an overall cultural milieu that includes such other elements as mutual trust and an intuitive sense of strategy. Under einheit, I know what you can do, and I trust you to do it if you agree to it. You trust me not to order you to do something that you cannot do or that will endanger you for no important strategic reason. How do we all know these things? Because we have trained and fought together over an extended time and earned einheit. We can make these decisions very rapidly and accurately because of our fingerspitzengefühl.

Schwerpunkt -- Focus and Direction

This brings us to schwerpunkt, which is any device or concept that gives focus and direction to our efforts. The distinguishing characteristic of a schwerpunkt is that all other activities of the organization must somehow support it. Conversely, subordinates are expected to use their own initiatives to exploit opportunities, even if it means setting aside a previously issued order, whenever they can

1 materially ^{the} further accomplishment of the schwerpunkt. As you can see, this is a powerful concept for motivating subordinates, while at the same time harmonizing their energy to accomplish the commander's intent.

For the attack on France, Guderian's thrust at the southern edge of the campaign provided focus and direction for the whole operation. All the activity at the north was intended to set up the allies, mentally and physically, for Guderian's attack in the south. This notion of "setting-up" activities followed by a knockout punch is as old a concept as mutual trust. Its known roots go back thousands of years, and the ancient Chinese even had expressions for this type of strategy, calling the setting-up, "Cheng maneuvers," to be followed at the decisive moment by the "Ch'i" knockout punch. (Ref Boyd)

By 17th Century, the feudal period in Japan, the concept of Ch'i/schwerpunkt had evolved to a high degree of sophistication and had taken on the psychological overtones that we will examine later in this chapter (p.). Thus, the best known samurai, Miyamoto Musashi, designated the spirit of the opponent as the schwerpunkt: Do not even consider risking a decision by cold steel until ~~until~~ you have defeated the enemy's will to fight. (Ref Musashi)

This is a very revealing statement by a man reported to have won some sixty bouts, virtually all of which ended in the death of his opponent (not surprising, when you

consider that the samurai long sword, tachi, was a four foot long blade of steel, sharp as a modern razor, and strong enough to chop cleanly through a water pipe.) Once you accept Musashi's dictum as a basic strategic principle, then you might ask how to carry it out, how to actually defeat the opponent's spirit. One way, the theme of this book and what we will turn to after a few more pages, is to carry out the program outlined in Table , on p. .

But first, so you won't think that I am glorifying everything the German Army did, it is interesting to note that the Germans themselves violated the schwerpunkt principle one year after their blitzkrieg had so spectacularly defeated France. In his critique of the attack on Russia, Field Marshal von Runstedt noted that instead of a clearly designated schwerpunkt against Leningrad in the north, Moscow in the center, or Stalingrad in the south, they simply tried all three (Ref Liddell Hart, Generals, 148). (Map) Part of the reason for this strategic lapse undoubtedly came from the dismal performance of Soviet troops against Finland, and part reflected Hitler's belief in the innate superiority of some "Aryan race." In any case, an arrogant disrespect for the opponent can quickly transform anyone from a winner into a loser.

Implicit Communication

The German organizational climate encouraged people to act, to take the initiative, even during the terror and chaos of war. Within this climate, the principles of *einheit* and *fingerspitzengefuhl* make much of implicit communication, as opposed to detailed, written instructions. The Germans felt they had no alternative. As the Chief of the Prussian General Staff, Field Marshall von Moltke, observed in the mid-1800s, the greater risk is the loss of time that comes from trying to always be explicit. (Ref: Fuller, 114). Or as General Gaedcke commented about his unit in WW II, if he had tried to write everything down, "we would have been too late with every attack we ever attempted." (Ref: Battelle, 38)

It is true that the Germans did not always apply these principles well, and sometimes forgot them entirely. Len Deighton even claims that there was only one true blitzkrieg, the May 1940 attack on France. (ref Deighton) Defense analyst Pierre M. Sprey, who conducted several of the interviews with the German generals, estimated that the climate was only fully implemented by maybe one-half of one percent of the army -- the small circle around Guderian that Sprey calls "brilliant rebels." In this sense, the Israeli Army of 1956 was far superior, man for man, to the German Army of 1940. (Ref: Sprey telcon, 4/13/90)

Meanwhile, Back In The States

Then-Lieutenant John Boyd noticed that although the best Russian fighter of the Korean War, the MiG-15, was roughly equal to his F-86 (and in some ways was even better), Americans won ten air battles for every one they lost. Sure, part of this was better training, but even when we got our hands on MiGs later on, and flew them with our own pilots, the F-86 still won more than it should.

Many years later, Boyd tried using his "energy maneuverability" concept to explain why the F-86 was able to compile such a lopsided record. Energy maneuverability (EM) is a mathematical technique for telling under what conditions one fighter will be able to turn tighter or accelerate faster than another. Experience had shown that the fighter that could turn or accelerate better usually gained a decisive advantage. But even EM could not explain the F-86's advantage because the MiG's numbers were at least as good. The secret turned out to be that the F-86 had full power hydraulic controls, which is simply power steering for fighters. *and better canopy*

Although the MiG could, in certain circumstances, turn tighter than the F-86, its heavier controls meant that by the time the MiG pilot had his airplane doing one thing, the F-86 was already doing something else. The MiG rarely got to use its theoretically tighter turn.

After a lot of thought, Boyd decided that the F-86 won because it could generate something he called "asymmetric fast transients." This meant that it could set up conditions and exploit them before the other side could react. It soon became clear that air-to-air combat was not the only area where such capabilities were important, and Boyd and his colleagues soon expanded the idea to conflict in general. In most any form of competition, they inferred, if you can do things before the other side reacts, you can greatly increase your chances of winning. And this is the interesting thing: It doesn't make much difference how big or how strong the other guy is.

Agility: Meet OODA Loop

This last observation is crucial, because it offers a way out of the bigger (or more expensive) is better syndrome. The great Olympic and professional boxer Muhammed Ali had said virtually the same thing when he described his strategy as "float like a butterfly, sting like a bee." It doesn't make any difference who the opponent is, if he can't hit you, he can't hurt you.

To be really useful, the new theory needed to be extended outside the realm of air combat. After examining many different operations and their associated engagements, Boyd synthesized his now famous (in military circles, anyway) O-O-D-A Loop model. A participant in a conflict, any conflict, cycles through four phases:

First, he must observe the environment, which includes himself, his opponent, the physical, mental, and moral situation, and potential allies and opponents.

Second, he must orient himself to decide what it all means. Boyd calls orientation a "many-sided, implicit cross-referencing" process of the information observed in the first phase.

Third, he must reach some type of decision.

Finally, he must attempt to carry out that decision, that is he must act.

Hence the O-O-D-A loop. We will spend a lot of pages on O-O-D-A loop concepts, but for now, here are a few introductory remarks:

"Observe" means much more than "see." "Absorb" might be more descriptive if it did not have a passive undertone. "Go out and get all the information you can by whatever means possible" is even closer. You can never be sure beforehand which stray idea will later provide the key to unlock some fatal dilemma. The best German strategists recognized that this was as important to the soldier in the foxhole as for a general in his headquarters. As General Balck, whose regiment was one of the first across the Meuse during the blitzkrieg, put it, "The training of the infantryman can never be too many-sided." (Ref: Balck, 2) In other words, everybody in your company is in market intelligence (to paraphrase former Northrop Chairman Tom Jones), and with any luck, you can get your customers to play, too.

"Orient" is the key to the process. An orientation is basically a mindset, and it is driven by your genetic heritage, the culture, your previous learning, and the current environment. During the process of orientation, your mind combines fragments of ideas, information, conjectures, impressions, etc., to form the "many-sided, implicit cross-references," which become your new mindset.

How well your orientation matches the real world is largely a function of how well your observe step is carried out. Anything that restricts the inflow of information or ideas can cause mismatches (disorientations) between what you think is happening and what actually is.

Decisions transition us into the action stage. For an individual, the decision is usually straightforward. If observe and orient were done well, you just know what to do. Fingerspitzengefühl. (Ref Boyd, telcon. 2/1990) For groups, decisions can serve to set and when needed to shift the schwerpunkt, that is, they can focus and give direction to large numbers of individuals.

Finally, something has to happen. (Footnote: In this sense, a decision now to do nothing produces, if executed properly, no action that can be observed by the enemy.) Keep in mind the difference between decision and action. A decision to act is merely an intention; action is what actually happens. The cycle begins again when you observe any mismatches between your conception of the world and the

way the world really is, in other words, between orientation and reality.

If you cannot or do not spot these mismatches, and your orientation becomes badly detached from reality, then, since decision flows from orientation, your decisions will be wrong and your actions inappropriate. Short of sheer dumb luck, you are going to lose.

What All This Does To The Other Side

Boyd got the idea for O-O-D-A loops (the dashes indicate that the steps are not distinct, but flow into each other) from observing the effects of agility in combat. For now, we will define "agility" in this very way: A side in a conflict or competition is more agile than its opponent if it can execute its O-O-D-A loops more rapidly. <Footnote: Chapter VII contains a slightly different definition>

What Boyd discovered was that the side with the faster O-O-D-A loops began to exert a strange and terrifying effect on its opponent. Faster O-O-D-A times cause the slower side to begin getting farther and farther behind events, to begin to lose touch with the situation. Acting exactly like the "asymmetric fast transients" experienced by fighter pilots, these mismatches with reality cause the more agile side to start becoming ambiguous in the mind of the less agile.

Now, if something vital, such as life itself, is at stake, beginning to lose track of a deadly threat can quickly lead to confusion, panic, and terror (which was the idea behind those Alfred Hitchcock classics), which in turn will cause the entire decision-making of the less agile party to break down. At this point he can easily be finished off.

Friction

"Friction," wrote the 19th century Prussian general and philosopher Carl von Clausewitz, "is the only conception that more or less corresponds to that which distinguishes real war from war on paper." (Ref: Clausewitz, 164) He had observed that war is Murphy's Law run riot: communications become garbled, attacks get bogged down in mud, the simplest activities become very difficult.

Clausewitz goes on to say that doing things in battle is like moving in water. This doesn't sound too bad, but imagine that you are trying to escape from a pursuing sheriff's posse. Hounds are braying; bullets zing overhead. Suddenly you run off a bank and plunge into a river. As you thrash around waist deep, you find that the faster you try to go, the harder everything is. Your life depends on moving faster, but you can't, and the harder you try, the more frustrated you get. It won't take much of this before panic begins to sink in, and your ability to make rational decisions disappears entirely.

Partly, friction comes from the natural problems of trying to get people in groups to work together. But Boyd found that in a competitive situation, friction need not be left to nature. It can be generated and magnified in the mind of the opponent, and the way to do this is through operating at a faster decision tempo -- faster O-O-D-A loops. As ambiguity and frustration grow in the decision making councils of the slower side, Clausewitz's friction will grow right along with them.

O-O-D-A and the Blitzkrieg

The Germans were able to execute and sustain fast decision cycles, even against the friction of war, because they had instilled an organizational climate or culture -- the "Key Attributes of the Blitzkrieg" -- that mitigated some of friction's effects. It wasn't that the Germans were smarter than the French and British, or had better planning, or could peer farther into the future. No, their secret of success lay in that organizational climate, which enabled a small fraction of them to better exploit the chaos that would come, and in fact that they were helping to create.

We will return to this process and apply it to business in Chapter VI. Even now, however, ideas should be forming in your mind for using these concepts in your own business. As a first example of how modern organizations apply the ideas we have been discussing, this chapter will

close with a brief look at how the U.S. military have incorporated agility into their doctrines.

Agility in U.S. Military Doctrine

The Army was the first to put the concept of agility into formal written doctrine. In the latest version of their Field Manual 100-5, Operations, the Army tells its soldiers that:

"Agility -- the ability of friendly forces to act faster than the enemy -- is the first prerequisite for seizing and holding the initiative."

The Army considers initiative practically an object of worship, so you can see what a strong statement this is. On the other hand, they don't bring out the notion that agility means considerably more than just acting faster, nor do they stress the effects a more agile force has on the mind of its opponent.

The Air Force takes a more sophisticated view. Instead of "agility, they call it "timing and tempo," and their Basic Doctrine Manual makes it very clear what they expect to accomplish:

Timing and tempo allow friendly forces to "dominate the action, remain unpredictable, and create uncertainty in the mind of the enemy."

For a strategist, this is much more powerful. If you can do those three things, you are well on your way to victory in any competition.

The most advanced combat doctrine belongs to the U. S. Marine Corps. Their new manual, Warfighting, lays out a

concept of maneuver warfare entirely consistent with the ideas of agility that we have been exploring:

By our actions, we seek to impose menacing dilemmas in which events happen unexpectedly and faster than the enemy can keep up with them (author's note: asymmetric fast transients) . . . The ultimate goal is panic and paralysis, an enemy who has lost the will to resist."

Thus the Marines subscribe to Musashi's designation of the schwerpunkt as the enemy's spirit (see page). At this point, the battle is won, and all that is left is to march the prisoners off to camp.

Agility is a natural concept for the Marines. They form a striking force that hopes to get ashore and consolidate a beachhead before the enemy figures out what is going on. Very much like creating a market niche, one might say.

IV

WHAT STRATEGY IS AND WHAT IT CAN DO FOR YOU

The Americans would be less dangerous if they had a regular army. British General Frederick Haldimand, Boston, 1776. (Ref: Weigley, 18)

A Real-Life Example

Figure ____ is a real example, slightly sanitized, of a strategy for a publicity campaign. See what you think.

If nothing else, it seems a little complicated for a simple publicity campaign. This aside, the crucial question is whether it helps achieve the goals and ambitions of the company, where competitors are courting the same customers for the same dollars. A time-proven way of winning in such a world, as we saw in the previous chapter, is to become more agile than your competition, to develop the ability to create and exploit confusion in their minds by rapidly executing O-O-D-A loops. In the case of the publicity campaign, the case is clear: Any O-O-D-A loop that comes across this thing is like a runner who blunders into quicksand.

Another consideration is whether a proposed strategy might help further the smooth working of the company team in the chaotic real world environment. We explored one

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such scheme, the Key Attributes of the Blitzkrieg, in an earlier chapter, and we will use it now as a frame of reference. I can find nothing in all this that gives focus and direction (schwerpunkt) to the effort. As for the "contract" between superior and subordinate (auftrag), an explicit scheme like this leaves little room for the initiative auftrag is designed to encourage.

Detailed plans like this are also poor at developing intuitive feel (fingerspitzengefühl), since people have very little latitude to learn by exploring new and different ways of doing things. Finally, there is mutual trust (einheit), which, if this company had any of it, it wouldn't need such a complex, explicit scheme in the first place.

By interfering with such key elements as schwerpunkt and auftrag, the "strategy" in Figure ___ would actually hurt the company's ability to survive and grow. We will return to the idea of worse-than-useless strategic concepts in the last section of this chapter. For now, let's look at what a winning strategy should contain.

On Your Own Terms.

"If you don't know where you're going," runs a saying I first heard in the Air Force, "any road will take you there." In a highly competitive environment, not knowing where you're going will get you killed. Your ultimate goal is to survive and grow on your own terms in a threatening

and confusing world. But survival per se will hardly arouse the passion and commitment you need to win. Prisoners survive. Hostages survive. Your goal, to paraphrase Faulkner, is not merely to survive, but to prevail.

Down through history, people who had endured conquest and economic privation have turned and fought to their very destruction for ideas. During the early Middle Ages, an itinerant preacher named Peter the Hermit persuaded thousands of peasants to join him in "liberating" the Holy Land. They set out across Europe in 1096, and three years later, the scant few who survived, joined by later contingents of knights, conquered Jerusalem. (Footnote: An inspiring story, but one without a happy ending. When the Crusaders entered Jerusalem, they proceeded to the Al Aqsa Mosque, where the Muslim population had gathered under a white flag, and slaughtered every man, woman, and child. When Saladin reconquered the city ninety years later, he could certainly have returned the favor. Instead, he accepted the Christians' surrender and personally guaranteed their safe passage out of the city. Even today, Muslim writers cite this incident as evidence of their moral superiority.)

So winning requires more than just the promise of survival. It must offer an idea of such power and appeal that people will, at times, neglect their other responsibilities to work nights and weekends and extend

trips to make it happen. This is the connotation of "survival on your own terms." For this reason, the first task of strategy is to define and win agreement on what "your own terms" really means.

Goals and Visions

These higher purposes are sometimes called "overarching goals" (Ref Bradford & Cohen) or "unifying vision" (Ref Boyd, POC, 143, 144). Competitive businesses have this sense of purpose, above just making enough profit to survive. As Bradford and Cohen demonstrate, simply going through the process of deriving your organization's mission in life will give it an initial competitive boost.

Close your eyes and imagine what your company should look like. I worked in manufacturing for several years, and some of my most vivid memories are of being too near the door at quitting time. Suppose we changed things. Suppose we made the company such an exciting and fun place to work that when the horn sounded you didn't see anything different right at first. Then people would start filtering out, mostly in groups. Every now and then, the groups would stop, get into excited discussions, and a few people would go back into the plant, furiously gesturing about some unsolved problem that couldn't wait.

Although this is not the only possible vision of a winning company, one whose people have this level of commitment and initiative will be tough to beat. What,

specifically, got them all excited? I don't know -- it's your business and your industry. Ask yourself what gets you excited (This stuff is usually contagious).

Perhaps strategists should not involve themselves at this level of detail. What we need to do is to get people thinking about and arguing over the type of company they want, and, in the process, building the excitement and trust that will move the company in that direction.

Strategy

Now that we have an idea of where we want to go, let's talk about strategy. In a chaotic and dangerous world, strategy fills the gap between our present goals and our future actions. Over the years, people have devised many definitions of strategy. Since you are bound to get into "What is strategy" arguments, every strategist should collect definitions. Here are several to get you started, and Appendix contains a more extensive collection.

Figure
Some Definitions of Strategy

War:

The art and science of employing the armed forces of a nation or alliance to secure policy objectives by the application of threat of military force. U.S. Army Field Manual 100-5, Operations.

Victory is achieved in the heihō of conflict by ascertaining the rhythm of each opponent, by attacking with a rhythm not anticipated by the opponent, and by the use of knowledge of the rhythm of the abstract. Miyamoto Musashi, samurai strategist, 17th century Japan.

Business:

Strategy is a deliberate search for a plan of action that will develop a business's competitive advantage and compound it. Bruce Henderson, Founder, the Boston Consulting Group.

Strategy isn't beating the competition, it's serving the customer's real needs. Kenichi Ohmae, Managing Director, McKinsey & Co., Tokyo Office.

Everyday Life:

The art of the possible in a world where constraints force us to choose between unpleasant or imperfect alternatives. Pentagon official Franklin C. Spinney, author of Defense Facts of Life.

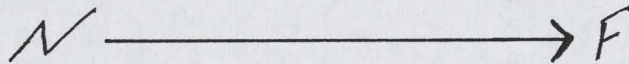
As you can see, there is no agreement on a general definition, although all contain the idea of achieving some goal. None of these definitions are right or wrong, and each can provide you with useful ideas. The question is whether, unlike the example that opened this chapter, your concept of strategy will help you win in a competitive environment.

Strategies and Plans

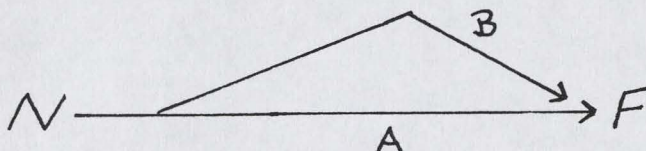
Because the future is unpredictable, a strategy can only be built from intentions; it is not a fact, or a forecast, or a schedule, or a roadmap to the future. Is a strategy a type of plan? In this book, I am going to draw a distinction between the two concepts, and consider a plan as something more specific than a strategy. A plan is an intention about how to get from where we are now to where we want to be in the future. It is an intention because although we may plan to accomplish certain things, whether we actually do, and whether they have the effects we want, depends on factors beyond our control: customers, competitors, governments, and acts of God, just to name a few.

Plans deal with the future, and so does strategy. We could regard strategy as simply an offshoot of planning, as the Army definition suggests in the table above. However, as Burns observed about the best laid one of mice and men, plans are poor tools for dealing with uncertainty, ambiguity, and confusion -- what distinguishes real business from business on paper (or in a computer). We need a higher-order concept that will give us a competitive advantage when things go awry, knowing with certainty that they will. To construct such a device, let's create a crude model of the planning process. Let N represent where we are now, and F represent our vision for the future.

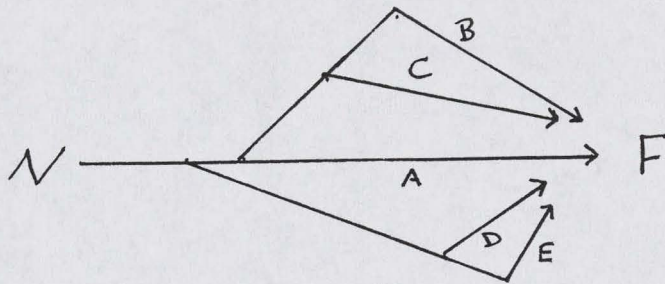
Plans are what we intend to do to get from N to F. To build a specific a plan, we have to make assumptions about what the future will bring. In other words, we have to construct a scenario. We can represent one such plan, with its embedded scenario, as a simple arrow:



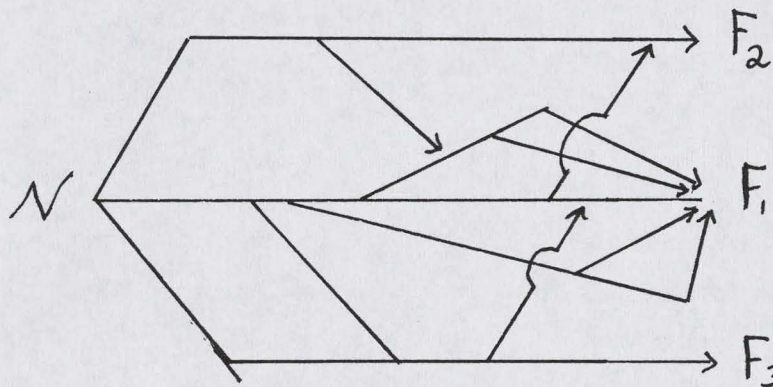
In real life, of course, things don't always work out according to plan. For example, our original plan, which we'll call Plan A, might have called for us to develop a certain device in-house. Of course, that scenario might not happen, that is, we might not be able to develop it ourselves in the time required or a competitor might bring out one just as good while ours is still in development. So we might consider an alternative scenario, and an associated (back-up) Plan B, to accelerate advanced features (for example) if we get leapfrogged by the competition:



Likewise, we might have Plans C, D, and E, which account for other possibilities:



Similarly, we might have alternative goals for the future, $F_1, F_2, F_3, \dots$. If our R&D effort succeeds very early, we might try to bring out a more advanced product, saving our original design as a hedge. As a general rule, it is not a good idea to bet the company on a single vision of the future. At this stage, our planning process looks something like this:



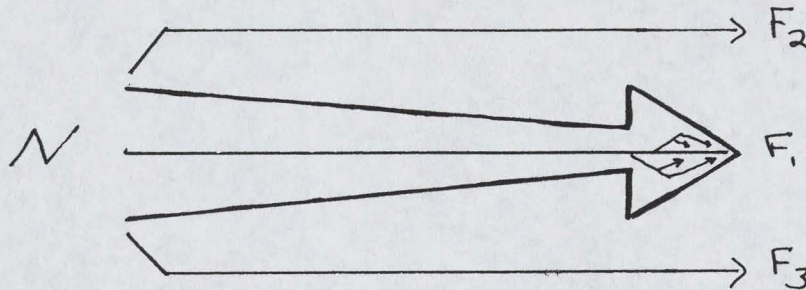
If you keep this process up, you will discover two things. First, you will spend a lot of time trying to map out the future: "If this happens, I'll do that. On the other hand, if that happens, I'll do this. On the third hand," You might want to add a fortune teller or a

prophet to your staff. At the same time you'll discover that these models, which are called "decision trees," become complex very quickly. Instead of helping you deal with the confusion of the world, this approach will add to it.

Even if you stopped right here, overcome by the proliferating futures, arrows, and "what ifs," the process (as distinguished from the final plan itself) will probably have done some good. Your organization will have thought about the basics of your business -- the objectives, customers, competitors, skills, and technologies that make you what you are. Good offsite, corporate retreat stuff, but where in all this is the antidote to the confusion and chaos? Do you believe that you can create a plan for every eventuality? Each scenario will suggest ten more, and you will soon wrap yourself in a web of nodes and arrows from which you will never escape.

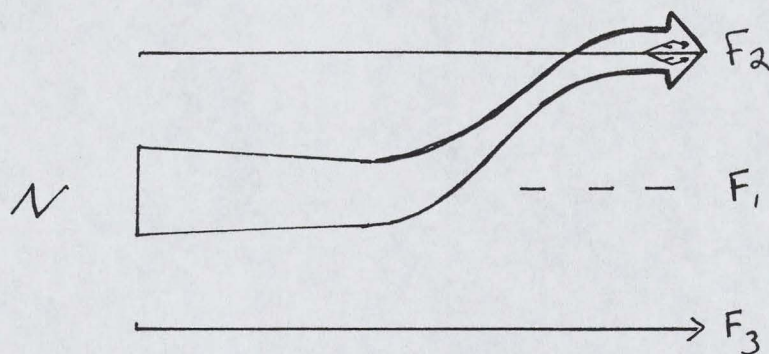
But there is a way to preserve the benefits of planning while avoiding the prophetic nature and the complexity of formal decision models and which will help you exploit the chaos of the real world. You can use strategy to give this process a shape that the human mind can work with. But what type of strategy will do this? The basic idea revolves around the notion of "schwerpunkt" that we discussed in Chapter III, a device for adding the "focus and direction" that the decision tree so obviously needs.

Thus using a schwerpunkt, we might look at our world like this:



What this says is that F_1 is the idea of the future that best defines what we want for ourselves. It is what you see when you close your eyes and imagine your organization as you would like it to be tomorrow. The ideal case. At the level of strategy, don't worry too much about the specific plans inside the big arrow. As strategist, your concern is: "Is F_1 the vision or objective to which I want to attach such importance that all other activities of the organization must support it?" This is responsibility enough, since presumably we have people to work the details of the plans.

As a part of this responsibility, we also keep an eye on the alternative visions of the future, F_2 and F_3 . At some point, largely determined by our judgement and experience, our "fingerspitzengefühl," we might shift the schwerpunkt. We might, to take one possibility, sense that customer preferences are changing from what we originally expected, and so we make a shift in the market niche we are aiming for:



A Definition

We can work all this into a formal definition by incorporating several of the concepts we have already discussed. The most basic concern of any strategy is to increase our ability to survive on our own terms in a threatening and confusing world. Because companies and armies are groups of people, strategy should serve to harmonize the efforts of individuals in their attempts to deal with this world. If we add the notion that strategies are made up of intentions, not realities, then we have Col Boyd's definition:

Strategy is a mental tapestry of changing intentions for harmonizing and focusing our efforts as a basis for realizing some aim or purpose in an unfolding and often unforeseen world of many bewildering events and many contending interests. (Ref Boyd SG, 58)

Creating a Concept of Strategy

This raises the questions of how to create a strategy and what does the tapestry look like? This is not a "how-to" manual. In fact, even attempting to create a step-by-step approach would contribute

to rigidity and defeat the purpose of strategy.
Still, there are some observations worth making, and
to this end, it will be helpful to start with what we
might want a business strategy to do:

TABLE_____

What Good Strategy Does

First, in business, strategies are concerned with the customer, filling his needs, not directly with the competition. You beat the competition when the customer buys your product or service instead of those of your competitors. This is a major difference between military and business strategy.

Next, a strategy is a focusing and harmonizing device. Every strategy must designate the schwerpunkt.

Another consideration, and this is a problem with too many strategies, is that it must not contribute to rigidity. If you've ever heard, "Sorry, we can't do that. It's not in this year's plan," you've seen pseudostrategy in action.

Finally, and this is the most important point, strategies are for uncertainty, menace, chaos -- those sorts of things. Because the future is inherently unpredictable, be wary of any "strategy" with lots of boxes and arrows. When you think you know what is going to happen, you're down to the level of plans and schedules.

A Concept of Strategy for Business.

No book can tell you what strategy you should use, because that depends on you and your specific business. The most an outside source can do is give you a framework for generating

strategies that will work for you. Here is one that is based on what we have seen so far in this book:

1. Form a very clear and explicit (but not rigid and unchanging) view of what "survival on your own terms" means for you.
2. Install an organizational climate, such as the Attributes of the Blitzkrieg, that will encourage your business to operate at increasingly faster O-O-D-A loop speed.
3. Remove structural barriers that hinder decision cycle speed.

The next two chapters will share some ideas on implementing the second and third points in a business environment. For now, it is worth noting that this does not just set strategy on a cultural foundation. Rather, the decisions you make to create a competitive culture form an inseperable part of your strategy, and you should not view these social aspects in isolation from the rest of strategy. It is the actions of real people that will decide whether your intentions ever get realized. That these "pre-conflict" decisions form an integral part of strategy is an ancient idea. The Chinese commentators on Sun Tzu summarized it as, "Victorious warriors win first and then go to war, while defeated warriors go to war first and then seek to win." (Ref Cleary, 56, 12)

Does this three-sided approach really deliver strategy? Absolutely. Let's compare it to the points listed in Table .

<u>Attribute of Strategy</u>	<u>How the Attribute Gets Into Your Strategy</u>
Customer Orientation	"Observe" Phase Of O-O-D-A Loop; Designation of customer-focused objectives as schwerpunkts
Harmony & Focus	Deciding What "Survival On Your Own Terms" Means; Use of Schwerpunkt; Einheit.
Eliminating Rigidity	Reorientation (During Successive O-O-D-A Loops); Auftrag (Encourages Initiative by Subordinates)
Exploiting Uncertainty	What Rapid O-O-D-A Loops Do; Fingerspitzengefuhl

Some readers may be uncomfortable with a concept of strategy that does not look like a super-plan. This approach, on the contrary, envisions strategy as looking out into the future to decide where you want to go, then putting in place a culture complemented by agile systems that will ameliorate confusion on your side, while magnifying it in your competition. Although this may take some getting used to, the idea that strategy is a process, rather than the result of a process (e.g., a plan), has been used by successful leaders since people started writing about strategy.

Thus, the Chinese, in their commentary on Sun Tzu, summarized the essence of strategy as "respond to changing circumstances and devise expedients." The strategy is in the responding and devising (what O-O-D-A loops do), and not in the expedients (e.g., plans & tactics) themselves. One can almost hear the sarcasm in their voices as they asked, "How can you know beforehand what you will do?"

Much of this ancient wisdom had been forgotten by the 18th century, when strategists were faced with the problem of coping with the frightful casualties that modern weapons, combined with rigid tactics, had caused. As we have seen from the mass slaughters of the American Civil War, it took a while to work things out. During the second half of the 19th century, a few farsighted leaders realized that inflexible control systems and linear formations (troops lined up in neat rows) were not great ideas against modern artillery and machine guns. They began to explore alternatives that encouraged initiative on the part of subordinates to avoid lethal threats and search for advantage elsewhere. Eventually, some of the most creative returned to the ancient idea of strategy as a means of devising solutions against clever opponents in an unpredictable world. By the end of the 19th century, Helmut von Moltke, whose armies had won the wars that unified Germany, concluded that, "Strategy is a system of ad hoc expedients." (Ref: Earle, 190) (Footnote: Most of the military establishment had not received the message by the start of World War I in 1914, and were still throwing men and horses headlong against the new weapons of mass destruction.)

This notion even extends to areas where we don't confront a human adversary, and thus aren't strictly problems in strategy as we have been using the word. In R&D program management, for example, the nature of the activity creates an environment with much of the ambiguity, uncertainty, and levels of stress that we see in conflict. And as in war, program managers cannot simply assume a small set of scenarios and make clean, neat plans just for it. Perhaps program management now is at the same stage that military strategy was in von Moltke's day, that is, in transition from a rigid, linear mindset to a more fluid world view. If you talk closely with people who have run successful programs, some of this comes through. One such R&D manager, Dr. Linda Beckerman of Westinghouse, summed up her strategy as, "Keep your eye on the target, stay light on your feet, and look for things you can exploit in today's situation," which is certainly in the Sun Tzu/von Moltke tradition.

You have a strategy, even if by default. It is simply the ever-changing collection of decisions (which are, of course, intentions) that you have made as a result of your O-O-D-A loops. The concept of strategy that I am espousing tries to shape your collection of decisions in ways that will give you a better chance of winning in the real world by, for example, ensuring that one decision designates the schwerpunkt at any given point in time and that others constantly improve your competitive culture. All of the other usual trappings of strategy, such as what lines of business to be in and how to

allocate resources, will fall out of the orientation and decision phases of your decision cycles. But if you cannot execute rapid O-O-D-A loops, it won't make much difference how well you plan. You will still get eaten alive by your more agile, and so more opportunistic, opponents.

A Strategy of Agility

The first thing agility -- rapid O-O-D-A loops -- will do for you is allow you to better track your environment. In particular, you will be able to tuck-in tighter under your customer's wing, and more rapidly discover his needs and wants and respond to them. An agile company can also track changes in customer preferences much better than its slower competitors, since it will bring in data from the world (cycle through the observe and orient phases) more often during any given period of time.

While this is an important effect of agility, it represents the passive component. Much more interesting to strategists is what agility can do to the mind of a slower competitor. Col Boyd's graphic description comes back: "generate uncertainty, confusion, disorder, panic, chaos, ..., to shatter cohesion, produce paralysis, and bring about his collapse."

In business, this is probably too much to hope for (most of the time). But, as Boyd points out, these wonderful effects are produced by an accumulation of mismatches between what your competitor expects and what he actually experiences. You cause these mismatches via agility -- by shaping the environment more rapidly than your competitors can re-orient themselves.

Companies have produced Boyd-like effects in their competitors, and so can you. While these may be exciting, they are totally wasted unless the customer buys your product instead of your competitors'. So in business, we look to agility to have a two-fold purpose: Keep the competition off balance while also leading the customer into new ways of conceiving the product or service. The good news is that it works, and in fact is exactly what Honda did in the H-Y War described in Chapter 1, where it made newness per se a desirable feature.

Japanese carmakers now routinely use their superior O-O-D-A loop speeds to find and shape what the customer really wants. They even have a name for it: miryoku teki hinshitsu, which roughly translates as "What the customer finds so beguiling or fascinating that he cannot live without it." Mazda brags that "It just feels right." Detroit engineers, who must compete using O-O-D-A loops sometimes only half as fast, complain that U.S. offerings look two years old by the time they come out. (Ref: Risen, A12, A13)

This is no coincidence, because the Japanese are using their superior agility to help U.S. buyers define what "new" and "old" mean. This confers a formidable competitive advantage: If I can help shape customer preferences, and you can only react, you are playing a strategy that will leave you farther and farther behind, until finally you no longer have a viable market share. Thus in business, the cumulative mismatch now becomes between what your competitor thinks the customer wants and what he really wants.

How You Can Tell It's Working

Go find the best chess player you can and offer to play for \$1,000 under the following conditions:

1. You move first.
2. You move twice for every move of his or hers.

In fact, you can even offer to give up some pieces, to make it more fair. You will find that, unless you are playing somebody at the grandmaster level, you can give up practically everything and still win. Keep the knights and maybe a rook.

This is a very graphic illustration of how the smaller side, using agility, can overcome a very large disadvantage in numbers. Does it strike you as farfetched and a little removed from what happens in the real world? Remember the Detroit engineers from page ____, and consider that Honda and Toyota can bring out a new model in roughly 2 to 3 years, with superb quality, while it takes Detroit 4 or 5. (Ref: Bower & Hout)

Entropy, and Other Strange Effects.

The truly strange and exciting effects of agility go far beyond the chess game analogy, where everybody can see what the other side is doing. In war, where the situation is never this clear, the less agile side starts doing dumb things, a few of which are shown in Figure ____.

Figure ____

Signs Your Strategy Is Working
In War

Vehicles or couriers blundering into your lines

Shelling of your last position after you left

Surrender after token resistance

Rations still being cooked (Ref: Polk)

The slower side's view of the world becomes less and less accurate. Recall Liddell Hart's observation on the French in 1940, "their timing was too slow to catch up with the changing situations," and it caused their ability to make decisions to break down.

There is a well-known name for this detachment from reality that strikes the less agile side: the fog of war. Boyd's observations on the effects of agility boil down to the conclusion that by becoming more agile than your competitor, you can cause the fog of war to grow in his mind, thereby decreasing the quality of his decisions and eventually attacking his ability to make effective decisions altogether.

A similar effect, a breakdown in the quality of energy, is well known to all students of physics as "entropy." The energy is still there, it just isn't available for doing work. The insidious thing about entropy is that within a closed system, it always increases. In other words, closed systems run down.

In a competitive situation, the less agile competitor will begin to act like a closed system and the fog of war, or the fog of business, for that matter, begins to grow within him.

Clausewitz, perhaps the most widely quoted of the 19th Century strategists, said that war generates effects that act like friction, to slow down even the simplest activities (see p.). Agility magnifies friction in the slower side. As your strategy begins to work, events will correspond less and less to your competitor's expectations, and frustration compels him to spend more and more time focused internally, pointing fingers, spreading blame, and grasping at straws.

Ernest Hemingway put a description of this frustration into his great war novel, A Farewell To Arms. After one particularly bad defeat, the Italians screened all their retreating soldiers, and executed any Italian officers they found above the rank of captain. Not that we, of course, would ever do anything like this in business.

How to Tell Its Working in Business

Unfortunately, I have no eyewitness account of what went on in Yamaha's executive suites during the latter stages of the H-Y War (p.). But I expect it wasn't too different from Juran's classic description of what happens to a company that is starting to lose:

"Lacking victories over their competitors, and unable to defend themselves from their bosses, they lash out at each other, making unity of purpose even harder to achieve." (Ref Juran, p. 74)

This is the business version of what results from a successful Boyd-style operation: "pull adversary apart, produce paralysis, and collapse his will to resist." Boyd notes that by being more agile, you can fold your competitor in on himself so that he complains, like Jack Welch, CEO of General Electric, that:

"This internal focus has wasted our time, wasted our energy, frustrated us, made us so mad some nights over some bureaucratic jackass boss that we'd punch a hole in the wall." (Ref Sherman, 46)

Figure ____ shows some other effects of mismatches between a competitor and the customer.

Figure ____

How To Tell Your Strategy
Is Working -- Business

1. Your competitor's new products are consistently late and lack your features or quality.
2. He starts blaming the customer, or starts insisting that his salesforce "educate the customer."
3. Personnel turnover is high.
4. He becomes even more "Theory X," instituting rigid, explicit controls, frequently in the name of containing costs.
5. He launches witchhunts and other ever-intensifying internal searches for The Cause of the Problem.

The cost-cutting fiat is a clear sign. As Peters points out, it is almost impossible to simply "cut costs"

without also cutting out some service to the customer or damaging what little morale remains. (Ref: Peters; Fortune 4/9/90)

Some Strategic Traps

In the previous section, the idea was to bring about the collapse of your competitor by operating at a higher decision cycle speed -- that is, with higher agility -- thus generating mismatches between your competitor and the customer. In other words, we helped him become a victim of his own poor strategy.

Mental Processes

Now, let's turn the problem around. What are some things that can get you into strategic trouble?

First is Richards' Law: You are not smarter than either the customer or the competition. Mathematically,

$$IQ_{\text{theirs}} \geq IQ_{\text{ours}}.$$

This is why "roadmaps of the future" that masquerade as strategy will get you lots of trouble. You've seen them: first we're going to do this, then that, then the other thing. As if neither the customer or competition much mattered. As we have discussed, these are really just complex plans, and not strategy at all. The "strategy" that opened this chapter is a prime example.

Also, be wary of "strategies" that aim to "educate the customer." This is another manifestation of the idea that we know what he really needs, and why should we waste time asking him? This is not how agility works. True, over time, an agile company will develop a fine sense, *fingerspitzengefühl*, for customer needs and wants. But it is a symbiotic process. We shape the customer, but he also alters our perceptions (which is what orientation is all about). In a very real sense, we are in a partnership to create the future.

Another trap, also related to Richards' Law, is rigidity. Formal planning processes seem especially susceptible. There is nothing wrong with planning, and your strategy, as described in this chapter, will generate and discard many of them as you cycle through your O-O-D-A loops. But problems can arise if you have a formal planning process with an attendant, enforcing bureaucracy. With all this investment, there is a tendency to take the output of the process (the plans) too seriously, locking you into the plan as the real world goes on its way. *meaning*

In one company I worked with, managers were evaluated against the objectives in their year-old plan, not on how well they responded to the chaotic marketplace. To think that you can predict what needs to be done a year from now is sheer arrogance. Musashi puts it simply: "I dislike rigidity."

A Web Of Detail

Oddly, some of the common techniques of modern management can hamper your strategy. We touched on this point at the end of Chapter II, but here is a more concrete example. Figure ____ comes from a recent article on inventory management. What's wrong with this? Nothing, as research; everything, as strategy. While we were deriving complex equations for managing inventory, and installing expensive control systems to implement them, the Japanese were figuring out ways to do away with it all together (or pretty much).

The result is the famous just-in-time production system. In the conventional system, which is used in most US factories, we build the parts of a product in batches, called "lots." Generally, if we need, say, ten parts, we'll build 12 or 13 (for example), so that when we need a part, we can usually find a good one. As you can see, this entirely sensible system also institutionalizes waste: It's OK to build poor quality -- we even plan on it. When you look at such a system this way, you can see why we have such a difficult time producing world-class products. What is obviously needed is a way of production where it is not acceptable to produce even one bad or unneeded item. That is exactly the philosophy behind just-in-time (JIT), where something is produced only when it is needed for the next stage of production. And when you look at the data on

manufacturing performance, that is just what you find. According to studies at MIT, just-in-time is indeed the only system that actually produces significant increases in productivity, and the quality it produces is legendary.

(Ref: Schmenner)

At the end of Chapter II, we explored why models and other mechanical techniques failed to pick winners in war or business. Now that we have a framework of strategy, we can use it to compare models and other formal techniques to what we have seen makes for winning teams. The most obvious problem, but perhaps the least of the dangers, is that as far as winning goes, they focus attention on the wrong things.

So in the inventory case, a competitive advantage comes not from better ways to handle inventory, but from fundamental changes that aim to abolish it altogether. This is an exact analogy to the military case, which glossed over the factors that actually produce victory, like agility, initiative, and the ability to produce surprise and confusion, and instead modeled numbers and weapon effectiveness. Musashi again: In the heat of combat, "it doesn't occur to me to worry about such insignificant details."

The other, and more insidious strategic effect of complex models, is that they can turn the attention of the company inwards. Most of them, for example, require

extensive input. A model that I saw in one company was designed to rate potential investment opportunities. To evaluate 25 prospects, the model needed 225 inputs. Senior managers would spend hours locked up in meetings arguing over these numbers, on whether the probability of winning a particular new program was .42 or .53, and this for something that wouldn't happen for several years. Mostly, of course, they were trying to ensure that programs in their area received high enough priority to get funded. As a result, the attention of management turned inward for weeks at a time during these exercises. It didn't build much mutual trust, either.

If this sort of thing continues, the company culture begins to accept that this is a normal way of doing business. People spend weeks getting ready to defend the input numbers that will support their favorite programs. Rather than quick response to the customer, the focus of the company's efforts turn to internal politics and creative justification.

Meanwhile, what about the competition? A few weeks may not sound like much, but the world standard of competition is less and less forgiving of time spent working the wrong problem. Consider that in many industries, such as consumer electronics, the Japanese can design and introduce new products in six months or so.

These problems aren't limited to models, and certainly not all models are bad. At the tactical level, they may be useful in examining things that can be modeled, things like new engineering processes. For the purpose of strategy, however, the test of any technique's worth should be whether it increases our ability to compete. If your methodology is actually capturing things that increase the your ability to compete, such as agility or a suitable organizational environment, then it can help you form useful strategy. As we have seen, however, they more often capture Deming's "visible figures," in our case, things like size, financial statistics, or technology.

Lessons Learned

Our last strategic trap is a little different, since it doesn't flow from intellectual arrogance. It is known as the "lessons learned" syndrome, or, as the military puts it, "fighting the last war." This is the tendency to make major changes to your strategy based primarily (or only) on the last experience you had. One of the reasons we had so much trouble in Vietnam was that the vast majority of our forces were designed to refight WW II, this time against the Soviets, on the plains of Europe.

This sort of thing is very common in business. For example, suppose, for whatever reason, you decide to diversify into handheld microwave cookers. You whip up everybody's enthusiasm, develop and build the product, but

the first one bombs. What do you do? In many companies, the temptation would be to conduct a witchhunt, punish the guilty (and, I suppose, a lot of the innocent), while those who can plausibly adopt an "I told you so" stance rise to the top. So out of that business you go.

Why did your product fail? Maybe there is no great demand for handheld microwave cookers. On the other hand, maybe your model was too heavy, or too expensive, or just plain too ugly. Both computers and copy machines had to survive early "it will never sell" verdicts by market researchers, but they seem to have done all right.

If you really believe that the world needs a lightweight, portable, rapid cooking device (this is a vision of the future), then trust your fingerspitzengefühl, learn what you can from the first experiment, and press on. If you are right, then maybe it will be you, and not the Japanese, who bring out the first commercially successful version. Remember that when Apple was trying to move upscale from the Apple II, it brought out not one, but two commercial flops (the Apple III and the Lisa) before hitting paydirt with the Mac.

There is nothing wrong with conducting post-mortem investigations into your success and failures. The problems arise when you change strategies after every one. Management theorists call this tendency to chase the last data point the "Nelson Funnel." If you are curious, Deming has a very readable, and very scary, description in Out of the Crisis.

A CLIMATE FOR WINNING IN BUSINESS

Man is the child of custom, not the child of his ancestors. Arab historian Ibn Khaldun (1377 a.d.)

In the previous chapters, I tried to convince you that size and spending levels do not guarantee victory in any highly competitive situation. In war, we have seen smaller sides win time after time, perhaps most spectacularly in Vietnam and Afghanistan. In business, we have seen the Japanese come from total devastation to defeat Detroit at its own game on its own turf.

Although there are many reasons, certain patterns stand out. In particular, the most successful competitors in war or business also have much quicker O-O-D-A loops -- decision cycles -- than their opponents. In fact, this property, called agility, forms the primary factor in competitiveness. But you cannot become agile by executive fiat, any more than you can innovate on command; you have to install the right conditions.

This is not a new revelation. Successful military leaders go to great lengths to build mutual trust, develop intuitive skills, and create the other components of a competitive culture. As we saw in Chapter II, some experts, notably W. Edwards Deming, have long stressed the cultural basis of quality and productivity. Over the last

several years, as data from US and Japanese factories (notably in the automobile industry) have been analyzed, many business writers concluded that it is culture, not size or technology per se, that provide a competitive advantage.

So Tom Peters observes that successful companies install a "climate that encourages spontaneous initiative-taking." (Ref: Peters, 291) Michael Schrage, in an article in the Harvard Business Review, notes that "the most successful innovation systems aren't 'systems' at all. They're environments." (Ref Schrage, 44) The same is true of competition in general, of which the ability to innovate rapidly is a critical component.

Chairman John F. McDonnell put this philosophy to work at the defense giant, McDonnell Douglas. He explained it as, "Management's job should be creating the environment that allows people to do a good job." In early 1989, MacAir (as it is known) undertook the most sweeping series of changes ever seen in the aerospace industry. Layers of management were swept away, and functions were reorganized to give more responsibility to the people running the programs.

Whether this will work is, as of this writing (1991), still a question. Recently, MacAir has employed traditional cures, such as mass layoffs, to "control costs" at its Douglas plant in Long Beach. But there is also some

reason for encouragement. According to its chairman, all of Douglas Aircraft's programs are climbing out of the cost and schedule problems they had before the restructuring, and production of the MD-80 airliner is accelerating.

What about Silicon Valley, widely regarded as the most innovative sector of the US economy? Many people regard its success as a blend of brains and venture capital. But listen to Paul Cook, founder and CEO of fast-growing Raychem: "So the most important thing we do is build an organization -- a culture -- if you'll pardon the word -- that encourages teamwork, that encourages excitement, that encourages everyone to do things differently and better -- and that acknowledges and rewards people who excel." (Ref: Wm. Taylor, 100)

Your organization needs an environment, a culture, like the Attributes of the Blitzkrieg, that will enable your people to execute rapid O-O-D-A loops.

Create Mutual Trust

Chapter III described four qualities, with roots down through recorded history, that help an organization run at fast O-O-D-A cycle speed. The first of these is mutual trust between the members of the organization. Unless you are constantly on guard, "trust," as with any other unalloyed good, will degenerate into a platitude suited only to pronouncements of the company's high mission. But mutual trust really is the foundation for everything that

follows, and winning businesses have found ways to make the concept live.

What Mutual Trust Can Do For You

Mutual trust is the internal harmony that converts a mob into a team. For this reason, it underlies all the other components of a competitive organizational climate. We have seen its power to win wars (Chapter III), and it exerts a similarly profound effect in other human endeavours. Fortune magazine even devoted a cover story to it, and bemoaned its erosion in American businesses. (Ref Farnham)

Those modern samurai, the Japanese industrialists, tell us exactly the same thing. Shigeo Shingo, architect of much of Toyota's magnificent system, writes, "I believe the most important factor is maintaining a relationship of trust between labor and management." (Ref: Shingo, 419) He goes on to say that the entire foundation of the Japanese system rests on a belief that it is possible to achieve this atmosphere of mutual trust, albeit like the German experience, through working very hard together.

In a similar vein, Konosuke Matsushita, founder of Matsushita Heavy Industries (National, Panasonic, Quasar), claims that, "If I have any 'secret,' it is a natural inclination to trust my staff and seek their cooperation." (Ref Matsushita, 31)

The Japanese are known for their emphasis, some would say to a fault, on harmony (wa). But even the usually

reserved Scandinavians draw the same lessons. Jan Carlzon, who engineered the stunning turnaround at SAS, credits the fact that "if you manage people by love -- that is, if you show them respect and trust -- they start to perform up to their real capabilities." (Ref Carlzon, 11)

Why It Works

Although "mutual trust" gives us all a soft, warm feeling, how does it actually help win? Simply, it speeds execution of O-O-D-A loops. The reason? For starters, it permits implicit communication among team members, where very little needs to be written down. Obviously, people can communicate this way much faster than through any form of writing. But implicit communication, with enough mutual experience, can provide more information more accurately as well. A raised eyebrow, a subtle change in inflection, a barely-noticed hesitation -- these mean something if you have worked together long enough to read them. You learn when the boss is speaking rhetorically and when he is really serious. And this wealth of information transmits in an instant, but only implicitly. On the other hand, explicit forms are often used not to communicate but to document, not to inform but to protect (oneself). You have been in organizations where everybody documented everything. You did not notice much trust.

Deal and Kennedy give the label "strong" to company cultures based on implicit communication. In addition to the faster O-O-D-A loops that such a culture permits, their

companies just work better. Deal and Kennedy estimate that strong cultures can provide an extra hour or two of productive work per day. (Ref Deal & Kennedy) If this does not sound like much, consider that for the average company, four or five hours of actual "productive" work in an eight hour day is the norm.

Einheit is possibly unique among harmonizing agents in that it encourages individual initiative. This point is worth stressing because as we know, there are ways to achieve, perhaps better would be "enforce," harmony that work by eliminating initiative. This is unfortunate because by relying on trust as a harmonizing device, you can have initiative, too. People are much more likely to seek initiative in a climate of trust than in a climate of fear. And of course, initiative, which means seeking out and doing it now, not waiting for permission, is another factor in rapid O-O-D-A loops.

Ethics

Ethics is in fashion now. Defense contractors require their employees to take four or so hours of annual "ethics training." Everybody troops in, watches the films, signs the roll, and leaves. Then throughout the year, management can certify that if there is evidence of misconduct, their hands are clean. (Ref: Gellerman, 73)

In the hardnosed world of modern business, is there a purpose to ethics? Or is it just "good?" Although high

ethical standards should be their own reward, ethics provide a powerful competitive force. "Ethics and competitiveness are inseparable," that from John Akers, Chairman of IBM (Ref: Akers, 69) Why? Ethics fosters trust, which is why business ethics does more than simply provide a cozy feeling for management. Consider this: We've all worked with people who took delight in what they could do to suppliers or customers, even under circumstances when it was strictly legal. Did you trust them?

How to Get It

Mutual trust comes from mutual experience. It must be earned by working together, as a team, to solve increasingly difficult problems. You have seen how people who put in a month of 20 hour days to meet a deadline develop a special relationship that lasts long after the project is over. During this process, the members of the team gradually form the common orientation that permits implicit -- and so extraordinarily rapid -- communication. It is what the military tries to create during basic training.

Outward Bound, and similar challenge training, also forms bonds from common experience and orientation. The effect is limited, however, if the members of the training group disperse throughout the company afterwards. Although useful for individuals, such programs are better at promoting networking than einheit.

The strategic effect of mutual trust is faster O-O-D-A loops. There are even strong benefits at the tactical level. Individuals in any department in your company, for example, can benefit from the bonding that comes from working together. People climb out of warm, safe foxholes, after all, to face bullets because they won't abandon their comrades. It would be hard to imagine a more powerful social force, and equally hard to understand how companies which do not cultivate it can hope to compete.

What Kills It

One easy way to eliminate trust from your organization is to succumb to the temptation to control everything. Col Boyd calls this an "obsession for control," and assigns it much of the blame for the bloodbaths that occurred from the mid-1800s to the end of WW I. Most people realize that overcontrol, per se, is the opposite of trust. Yet, many managers still practice it in ways that even they may not realize.

Work Standards

For example, there's a very common form of overcontrol in industry, called "work measurement." Basically, it involves engineers estimating how long a job should take, then timing workers to see how close they come. At first, this might seem like good solid management. But why, then, does Deming condemn work measurement as one of the prime reasons the U.S. cannot compete with Japan?

To see why, look at the process of changing dies on a complex tool. Under work measurement, we try to browbeat workers into doing it in the time (usually several hours) recommended by the manufacturer. Once they meet the "work standard," there is absolutely no reason to improve. In Japan, by comparison, a long period of careful study and worker initiative has reduced this same time to under ten minutes (which they call "single minute exchange of dies").

Micromanagers

The obsessive need for explicit control does not just inhabit the factory floor. Have you ever worked for a micromanager? You know the type: changes word order in sentences, moves columns around in tables, etc. It is bad enough that this delays the final product, but did it make you feel that he trusted you? After a while, you lost any thought of initiative. Why bother, he's going to change it anyway.

It is practically impossible to overestimate the damage you can do to yourself through overcontrol. Many companies, when sales or profitability begin to shrink, "pull the controls upstairs." That is, they require that more and more decisions be made at corporate headquarters. Although this may please the bean counters, it slows down O-O-D-A loops and hobbles initiative exactly when it is needed most.

Management Style

You may recognize overcontrol as a typical symptom of a Theory X management style. This shouldn't be surprising, since Theory X is the assumption that workers cannot be trusted. In a highly competitive environment, Theory X management will focus inward, trying to solve problems with ever tighter control. And this focusing inward when there are competitors around can prove fatal.

In fact, the whole notion that we can "control" other human beings is a fallacy. Psychologist Michael Popkin, founder of the highly successful "Active Parenting" program, calls it the "Paradox of Control: The more you try to control a teen, the less you can influence that teen." The reason? "Control eventually leads to resistance, and resistance to rebellion." (Ref: Popkin, 46) This is true of all human beings, not just teenagers. One of Col Boyd's favorite expressions is "The more you try to control people, the less control you get."

Think about it. If explicit control worked, then Eastern Europe would not have thrown off communism, and the Soviet Union, which had controls the likes of which Theory X managers could only dream, would not be grasping at perestroika today.

Perqs

Although overcontrol may be the primary killer of mutual trust, there are others. Look at your perq

structure. Perqs attack mutual trust because their very purpose is to discriminate "us" from "them." They create an industrial caste system where, according to MIT Professor Edgar H. Schein, they undermine "the notion of laborers and managers being adults on a par with each other." (Ref: Schein, 66)

So if you have perqs, odds are that some fall into the category Tom Peters calls "demeanors." (Ref: Peters, P-10) Do reserved parking places contribute to trust? Does a corporate dining room? If anybody punches a timeclock, does everybody? Do you? Does a defacto "no layoff policy" that protects management, while shoving workers out the door, contribute to building mutual trust?

Exploit Intuitive Knowledge

Just as mutual trust speeds decision cycles -- O-O-D-A loops -- by groups, especially in times of crisis, intuitive knowledge or "feel," what the Germans called "fingerspitzengefuhl," allows faster cycles by individuals. This is its primary strategic effect, and there are benefits at the tactical (individual and team) level also.

With only explicit, "provable" techniques, it is difficult to discern the patterns in the events that crowd our calendars. This is "right side of the brain" work, and apparently involves mental processing performed by parts of

the brain, including the cerebellum, not normally involved in conscious analytical thought. (Ref: Penrose) This is yet one more argument against basing strategy on models and other "hard" analytical techniques.

There is some evidence to indicate that intuitive knowledge is simply the process of "programming" these parts of the brain to give you rapid insights into what would otherwise appear as fragmented, chaotic events. The end result is to become so good at your profession that it really does seem magical. As George Fisher, President and CEO of Motorola, put it:

When we go to customers with a new product, we don't expect many surprises. In part, that's because of the close interaction we've had with them over the years. But even more importantly, it's because of the instincts we've developed. This is a business we know very well. (Ref: Avishai, 110)

This level of skill can be very deceiving when seen by others, because people who have it often don't look like they're working harder or doing things faster. As Musashi observes, "The movements of a master of a path do not appear to be unduly fast." (Ref Musashi, 94) A superb, intuitive competence also produces extremely high morale, which in turn, reinforces mutual trust and (you guessed it) allows faster O-O-D-A loops. It also encourages initiative. Such people do not hesitate to make decisions.

Where it Comes From

Of course it comes from incessant practice, but practice of a certain type. Because we cannot predict the future in a competitive situation, just becoming unusually good at a fixed set of rote activities will not produce victory. As a precondition to fingerspitzengefuhl, the aspiring warrior or businessman must practice basic skills so well that that they become second nature. In Japanese samurai fencing, Kendo, the student practices day and night until "sword becomes no-sword; intention becomes no-intention." (Ref Musashi/Harris)

Now you are ready to begin acquiring fingerspitzengefuhl. How? By using these skills in ever more complex circumstances so that you build an intuitive "feel" for situations where there is a lot of stress and the answers are not clear. Listen to computer billionaire H. Ross Perot, who calls it "knowing your business," and says you have to "be able to bring to bear everything you've seen, felt, tasted and experienced in an industry." (Ref Rowan)

Fortunately, many corporate development programs seem to be on the right track when they rotate rising young executives through positions of ever increasing responsibility throughout the enterprise. But what about the rest of the company? They should also be learning a variety of different skills, and that is just what the Japanese do through their emphasis on cross-training

programs. There is a limited role in this sort of thing for classroom instruction; a feel for the job has to be acquired on the job(s).

How to Kill It

Believe it or not, there actually are companies that discourage this type of competence. Deming rails against organizations that don't understand the importance of requiring first-line supervisors to have expertise in the jobs they manage. How can a supervisor have a "feel" for how his operation is going if he's never done it?

Many U. S. companies give little importance to training their blue collar workers. Business writer David Whitman recently summed it up as "America's perverse rule of thumb: The more a worker needs training, the less likely he is to receive it." (Ref Whitman, 47) Training as a perk: You can imagine what this does for mutual trust.

Specialist or Strategist?

I have already touched on overspecialization. This puzzles many people, because isn't it true that the more you practice, the better you get? Yes, but, and this bears repeating, fingerspitzengefühl is not brilliant mastery of predictable tasks. As the late science fiction master, Robert Heinlein, pointed out, specialization is for insects. Humans need the mystifying ability to cope with the unpredictable and ambiguous challenges in the real world.

Since Kendo masters practice hard, don't we need to put in long hours to develop super competence? The answer is absolutely yes. However, sixteen hours at the office doing the same things day after day simply make you a workaholic (and very likely a micromanager); they do not per se confer an intuitive skill useful in competitive situations. Recall Ross Perot's advice a few pages earlier: everything you've seen, felt, tasted and experienced. Tom Peters suggests that you can spot who is going to do great things by what they do on airplanes. They don't pull out the laptop and grind spreadsheets. Instead, they "read Zen and the Art of Motorcycle Maintenance for the umpteenth time," or pick up insights on human behaviour from the great novelists. (Ref: Peters)

We'll take up this theme again in the final chapter.

Implement The Contract of Leadership

It doesn't take much leadership ability to understand why mutual trust and competence are important. The next two aspects of this organizational climate for operational success may be a little less familiar. Both auftrag and schwerpunkt, to use the German names from Chapter III, allow a superior to make sure that the intent of his subordinates harmonizes with his own, without stifling the subordinates' initiative and without slowing down the organization's O-O-D-A loops.

Between individuals, the device the Germans came up with is the auftrag, which we can consider as a contract between superior and subordinate. Back in the chapter on agility, I described how this works in war. In today's chaotic, ruthlessly competitive commercial environment, business needs such a device, and a little experimenting should convince you that auftrag works here just as well.

Responsibility

You will rapidly discover that a contract is a wonderful device for fostering a sense of responsibility among the people at your company. Because they have to consider, think, and negotiate, rather than just blindly accept, you will certainly sense increased morale and improved dedication. All of this, of course, reinforces mutual trust and implicit communication, which, as we have seen, are critical elements in increasing your O-O-D-A loop speed.

But perhaps the greatest value of viewing responsibility as a contract is that it provides an alternative to overcontrol. Micromanaging is simply not allowed: Once he or she accepts the contract, the subordinate has total freedom, essentially, as to how to proceed. There is no place for the stack of reports that allow headquarters staffers to second guess every decision.

Japanese carmakers believe in this concept. At Nissan, project managers for new models enjoy total control

over the car's design and engineering. Senior managers, even the president of the corporation, are forbidden from interfering, once they have approved the project. As a result, Nissan developed the 1989 Maxima in 30 months, roughly half the U.S. industry's average, with such quality that the year it was introduced, it topped the J. D. Power initial quality survey. (Ref: Risen, "Japan's", D6)

Communication

As a complement to the "do or die" nature of the auftrag, people communicate in a steady stream back to the boss. This allows upper management to get a feel for the overall progress of the organization. Good communication also protects the subordinate. If, despite your best efforts, your project isn't going too well, perhaps isn't going at all, and may not even be possible, you should take care that this fact come as no surprise to your boss.

He has a number of options, other than simply throwing you out or forcing you to keep beating your head against the wall. Remember, he wants the whole organization to succeed and, given some advance warning, can use his judgement (fingerspitzengefuhl) to reinforce you, or shift the focus of effort to a more promising direction. Obviously a little mutual trust (einheit) goes a long way in a situation like this.

The contractual device provides such high levels of motivation that the more drastic options are rarely

needed. You will have a tremendous pride in negotiating and accepting the contract, in owning it. There is practically nothing worse than failing it.

Where it Comes From

The introduction to these concepts, in the chapter on agility, explained that before you can use auftrag, you have to be well on your way to increasing mutual trust and creating intuitive understanding in coping with uncertainty. Once these are underway, then simply begin. The most important thing you can do is to use it yourself, in every action with your people. Then insist that they use it in all actions with the people who work for them.

There is no formula, for the very idea is antithetical to strategy, for making an auftrag-type arrangement. Concentrate instead on the idea, which is to devolve maximum responsibility onto the subordinate, in return for his pledge to accomplish the task (consistent with your groundrules). A few observations follow to help you get started. You can, at first, be a little more formal than you may find necessary later on. Remind yourself to include a clear statement of the schwerpunkt, which we'll explore in more detail in the next section. You should also indicate any other requirements, such as the resources available, the schedule, and any need to coordinate with other activities in your organization. You can write any of this down if you need to, but remember that verbal

communication is much quicker, and shows a higher level of mutual trust, than does a written tasking. Of course, as your group works together and builds mutual trust, more and more of this communication will naturally become ~~explicit~~ ^{implicit}, with all of the benefits mentioned before (p.).

Whatever you do, do not include anything about how to accomplish the job.

Discuss it for a few minutes (or whatever it takes) to convince yourself that you and your subordinate both have the same mental concept of what needs to be done. Then give the person a little time to think about the matter. A top caliber subordinate can get quite blunt: He may question whether your idea makes sense, given the situation, and whether he has been given enough time or resources to do the job. This questioning is key to transferring ownership of the job, and you might also discover that your expectations were too low. Maybe he or she is capable of accomplishing a lot more than you first thought. You may have to do some negotiating to arrive at a contract that both meets your intent and gains the commitment of your subordinate. Finally, however, there are only two options: He takes the contract or he doesn't. In the military, a legal order must be obeyed, but business is not war and you should probably allow a subordinate to opt out, if he or she remains unconvinced that your idea makes sense. Incidentally, if this happens more than once a decade or

so, it could be a symptom of a serious erosion of mutual trust. However, if in the end he declines, then you change the terms or find somebody else.

This procedure may seem cumbersome, but it actually reflects the way orders are issued in combat. It does work. The thing that makes it a contract is the negotiation process, which gains commitment by the subordinate. Once the process becomes embedded in your culture, and if you really have a fair amount of trust, much of the negotiation can also be implicit--you've worked together long enough to detect when somebody has lingering doubts loyally suppressed.

How to Kill It

Micromanage, or by any other action fail to live up to your end of the contract.

Add Focus and Direction

By using the contract, auftrag, you can harmonize the intent of a superior and subordinate, and still encourage your people to take the initiative. This is fine for a specific task, but you will also need a device for harmonizing the actions of large groups, and ultimately, everybody in your organization, while also encouraging initiative. In the chapter on agility, we saw how the Germans used the concept of schwerpunkt for this purpose. Once the schwerpunkt was designated, subordinates could use their own initiatives and make rapid decisions. Of course,

top leaders could shift the schwerpunkt to exploit opportunities created during the operation. In a sense, schwerpunkt guides the "What is to be done" and auftrag empowers people to do it.

Business has just as much need of a focusing device. What might one look like? You could, as one example, go for leverage, an area such as cost or quality or some performance parameter, where an improvement can make a big difference in market share. McKinsey principal Elizabeth Haas calls these factors "strategic breakpoints," and she claims that they always exist. What makes these breakpoints into schwerpunkts is Haas's insistence that all management decisions should be guided by the strategic breakpoint that the company is trying to achieve. (Ref: Haas, 76)

What we are trying to do is align, through positive and encouraging means, everybody's efforts in a company. When change is needed, the schwerpunkt must also change to provide new direction. David A. Nadler, President of the Delta Consulting Group, made this point during his talk to over 100,000 participants in National Quality Forum V. The key to success, he insisted, lies in getting a sizable body of your organization to act in a different way.

Harvard economist and management professor Robert Reich sets such a schwerpunkt for U. S. high tech industry: transition to commercial application. He

concludes that success in new technology depends "on how broadly and deeply their work forces understand the commercial possibilities of this new stream of technology and can adapt it to other purposes in the future." (Ref Reich 46) This idea, or any other that you find appropriate, can be fashioned into a clear statement and preached throughout the organization, and better yet, demonstrated through actions, job assignments, promotions, and other implicit means.

One caution: Focus and direction mean more than "major effort." If you have five programs in totally unrelated areas, then you have no schwerpunkt, even if you fund one project at twice the level of the others. "Diversification" cannot be a schwerpunkt since it is a tactic, not something that provides focus and direction.

If, however, you say your purpose in life is to be the best provider of data management solutions in banking, and your five projects all support this goal, and your people are continually thinking of new ways to help banks with their computing problems, then you have the schwerpunkt concept working.

Vision

At the highest strategic level, a schwerpunkt becomes an overarching goal (Ref. Bradford & Cohen) or unifying vision (Ref Boyd). We discussed the importance of goals

and visions back in the chapter on strategy (p.).
Unlike many "vision statements," a true unifying vision says more than just "We want to do good." It says that we are going to be the absolute best at selling cars, developing plastics, running a railroad, designing airplanes, or whatever. It has enough meat to it to provide real focus and direction. The best visions help to instill a sense of urgency; people spend 70-hour weeks trying to accomplish them.

A cleverly crafted vision, in addition to meeting these worthy goals, can serve the purposes of grand strategy, which are to attract the uncommitted, particularly the customer, to our side. "At Ford, quality is Job 1," sets a schwerpunkt for the people of Ford, and a lure for customers. George Fisher of Motorola put his this way: "We are driving Motorola in a very clear direction: answer every question in the context of the customer."

(Ref: Avishai, 109) In 1932, Konosuke Matsushita, whom we have met before in these pages, summarized the idea of his new company as: To manufacture items of good quality for daily use in abundant supply, thereby enriching and improving life for everyone. It must have worked. By 1989, Matsushita had become the world's sixteenth largest corporation, with revenues over \$41 billion. (Ref: "Matsushita," AN) Good visions rank with haiku as works of art.

A clear and well understood schwerpunkt helps establish a strong culture (p.), where people don't need recourse to written instructions most of the time. (Ref Deal & Kennedy) The schwerpunkt permits initiative and implicit communication, which as for other aspects of the climate, permit faster execution of O-O-D-A loops.

Goals.

A schwerpunkt provides focus and direction. Perhaps the most common device for giving people direction is goal setting, but as often as they are used, goals have their pros and cons. Sure, if you can convince everybody that profits must increase 20% next quarter or we're going out of business, people will hurry around looking for ways to cut costs or boost next quarter's revenue.

Goals, as we all know, can be powerful motivators, especially if we set them ourselves. One company, the highly successful Cypress Semiconductor, uses a computer to track the thousands of self-imposed goals that its people feed into the system. Cypress founder T. J. Rodgers identifies this automated goal tending system as the heart of his management style and a big factor in his success.

On the other hand, Rod Canon, founder of the even more successful Compaq Computer Corporation, says, "We set directions rather than goals." (Webber, 120) He points out that a reasonable goal for Compaq's first year revenues (1983) might have been as high as \$50 million. However, if

they had hit that goal in the third quarter, everybody would have been tempted to coast the rest of the year. Instead, they kept concentrating on things like quality, technology, and rapid development cycles, and finished the year with revenues of \$111 million -- a record for any start-up's first year. What would have been a reasonable goal for 1989? Five hundred million? Actually Compaq did a totally unpredictable \$3 billion that year.

The point is that although goals are one way to focus people's efforts, they should be used sparingly. As Canion complains, they can answer the question, "What does 'good enough' mean?" If you are going to use goals anyway, be especially careful of imposing them from above. "Cut costs by 15%!" you say. Why 15%? Why not 20%? If we can cut costs by 15% now, why didn't we do it last year? Is management accusing us of being shiftless, wasteful and lazy to the tune of 15?? Maybe they don't know what to do to control costs, so they are simply going to order them down.

An alternative in this situation might be to sell the idea of continually studying and improving company systems -- simplifying, reducing waste, improving quality, and reducing cycle times. Reward effort. Get excited. Get everybody excited. Now you have a much more viable schwerpunkt than, as we have all seen so many times, merely issuing a decree and returning to business as usual.

Schwerpunkt: Summary

However you define the schwerpunkt for your organization, here are some ideas for you to consider:

First, it has to provide focus and direction. For this reason, an organization can really have only one schwerpunkt at any given time. It is difficult to create a sense of urgency if you spread people's attention and commitment over multiple "schwerpunkts." You may engage in different lines of business, but you must have something at a higher level that gives focus and direction to your efforts. Tom Peters simply notes that "There is no such thing as a parttime passion." (Ref: Peters, 215)

Second, your schwerpunkt must contribute to an outward focus, towards the customer and the marketplace. The last thing you need is yet one more device that drives your attention inward.

Finally, your schwerpunkt should reinforce mutual trust. You must make sure that it is bought into and understood by every member of your organization. This makes schwerpunkt a powerful tool of "control," in the best sense of helping people make the right decisions, in turbulent times, without destroying their initiatives.

Finally, you can, and must, have a schwerpunkt for every organization at every level within the company. I'll try to illustrate how this could work. Suppose you become convinced that what the world really needs is telepathic data entry (TDE) for laptop computers (those keyboards are awfully small). Then something involving TDE would become the schwerpunkt for your organization. To make the idea a commercial reality, you may decide to organize the effort so that one group works on mind-sensing technologies, one on packaging, one on how to manufacture the thing, and so

on, all concurrently engineered, of course. As organizations in their own right, each of these groups will need schwerpunkts.

What will you designate for the sensor people, who are developing the mind-sensing technology itself? You could tell them: Within the next three months, create something that is 99% accurate (knowing that this is much better than most executives will ever get with conventional laptop keyboards). But wait. You have now told everybody what "good enough" is. The "so what" is that your scientists know of a fairly simple technology that can achieve the 99%, but has practically no growth potential. How are you going to take it when the Japanese bring out a TDE system in six months that gets 9,999 out of 10,000 mental words right?

As an alternative approach, you might set a direction, as Canion suggests, something like, "Make sure that our sensors outperform those of any of our competitors, while ensuring that their designs harmonize with our needs for cost, weight, power consumption, and manufacturability."

? | Tight relationships with your customers -- "Observe phase of O-O-D-A loops -- define what "better" means. When, using your intuitive judgement, you feel that the technology is getting ripe for the marketplace, harvest it. Perhaps 99% accuracy is fine for the first product, but the schwerpunkt concept should serve a higher purpose, | 7

to keep you driving ahead, exercising market leadership, being the best, producing a stream of new possibilities for products that will get and keep your customers excited.

Now let's look at harmonizing ^{different} schwerpunkts ^{at} levels within the organization. In general, the same principles apply. If I am a manager at some level, I have a schwerpunkt from my boss as part of my strategy (as we discussed on p.). Taking this, I create ^a schwerpunkte ~~X~~ for my subordinates, and then use some device like auftrag (p.) to gain their commitment. Obviously, I can shift these directions if need be. But at any given time, if I have done my job right, my whole organization will function according to its schwerpunkt (the one from my superior) by the fact that my people are operating according to theirs.

Schwerpunkt
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Schwerpunkt
werden
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As with our discussion of auftrag, I cannot give you a formula for schwerpunkt nor, as Musashi insists many times, will you master the concept just by reading the book (this or any other). Armed, however, with the general idea and a willingness to experiment (and make mistakes), you can develop the skills with this concept that have served so many successful leaders so well in the past.

How to Get It

It's not a question of "getting it," it's a matter of doing it. Setting the focus and direction and shifting them in response to the circumstances are primary functions

of management. Every strategy you create, and every plan in your organization, should contain an explicit statement of the schwerpunkt. Look over some of your planning documents -- do you see anything that will focus people's efforts and encourage them to take the initiative? When you are talking to people about what needs to be done, will they perceive a concept so simple and strong that it will guide what they do?

How to Kill It

Although the concept is simple, actually setting a schwerpunkt is tough. Making the decision to shift it in the heat of a business operation can be excruciating. Consider Boeing's decision to build the 747 with private money after losing the C-5A military contract to Lockheed or to kill the profitable 727 line to start the 757. In both cases, the company faced the problem of reorienting thousands of people towards the development of new (in the case of the 747, radically new) products in a very short time. In both cases, Boeing's management worked very hard to sell the new directions to its people. Contrast these successful efforts with how long it is taking General Motors to bring out a small car that works. GM appears to have remained focused, with the exception of its nearly autonomous Saturn division, on full and mid-sized freeway cruisers, while introducing a string of "Japan fighters" -- Vega, Chevette, Citation, and Cavalier -- that ranked near

the bottom of the automotive quality charts. It was business as usual, and GM's market share fell by one third during the 1980s.

Because the future is the future -- uncertain, ambiguous, and potentially threatening -- there cannot be a formula for shifting schwerpunkts. We wouldn't need executives otherwise. To make the idea work, you will need fingerspitzengefuhl for making these types of decisions. So a good way to kill it is simply not to use it. Whether this happens through incompetence, or fear, or, as in the case of Hitler against Russia, through arrogance really does not make much difference.

VI

THE AGILE MANAGER

I have been obliged to practice that by finesse which I dared not attempt by force. Nathaneal Greene, American Revolutionary War General. (Weigley, 36)

Does Agility Work?

Does agility -- rapid O-O-D-A loops -- really work in business? This book contains many references to the research of retired Air Force Colonel John R. Boyd, which makes a compelling case that agility is what allows smaller armies to win on the battlefield. Superior agility creates mistrust and confusion in the minds of their opponents, generating increasingly false pictures of reality, and offering the more agile side opportunities to strike.

This is all fine and well, but business is not war. What evidence shows agility works for business?

Throughout this book, I have cited the Japanese auto industry as the most striking example of agility. They execute their basic processes roughly twice as fast as Detroit, and so can design and produce a car in half the time. This means they get to interact with the customer twice as often.

But you don't have to look to Japan for success stories. Here in the United States, there are companies that have made the improvements required to compete, even with the Japanese, and not all of these were Silicon Valley

start-ups. Within giant General Electric, for example, one division has reduced the time required to deliver custom electric circuit breakers from three weeks to three days. At the same time, they improved productivity by 20% and reduced costs by 30%. (Ref: Doumaine).

An even more spectacular example comes from competitor Motorola, which built a special factory in Florida to experiment with ways to reduce cycle times. Called the "Bandit" plant, it has succeeded in lowering cycle times from two weeks to two hours, and made it possible to produce in an economical lot size of one. This allows Motorola to be remarkably responsive to their customers' needs, without having to predict the future and prebuild a lot of potentially useless (and definitely expensive) inventory.

Fast development cycles produce a steady stream of new products, experiments really, to catch the eyes of customers. It's the alternative to the cash-cow strategy, which advises you to erect barriers to entry and milk the business, while waiting for the competition to come over the wall. (Footnote: The business version of the Maginot Line Mentality) Of course, they always do, and when they do, it's often too late. Fast cycles offer a more offensive-minded alternative. Hewlett-Packard built its system to outrun the competition, and the results are impressive: More than 50% of H-P's sales come from products developed within the previous three years.

(Bylinsky, 65) You would compete with H-P only by knowing its customers better than they do and by being able to develop products ^{To} (fill needs) even faster. }

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Even the U.S. auto industry, which has not come off well in these pages, has achieved some remarkable results. In its Buick City plant, General Motors has reduced assembly hours by 41% and in the process, cut defects by a whopping 90%. Perhaps even more important, since cycle times and assembly defects don't count for much if the product doesn't sell, one Buick model ranked only behind the Nissan Maxima in the 1990 J. D. Power survey of initial (first 90 days of service) product quality.

These are just a few of the many examples of agility in marketplace. Rather than go through a long list, which would still be just a collection of anecdotes, let's look at what people who study business for a living have found.

First, there's Tom Peters' Thriving On Chaos. It is practically a handbook for agility, with an entire section devoted to "pursuing fast-paced innovation." He calls for U.S. companies to achieve a "75% reduction in time to first tangible test" and to do this over the next 24 months.

(Ref: Peters, 226) In subsequent columns, Peters makes explicit claims for fast O-O-D-A loops, concluding that they form the "nub of competitive advantage," and that "shrinking cycle times is the crux of future competitive advantage." (Ref: Peters)

One of Peters' sources is Richard Schonberger's World Class Manufacturing, which contains conclusions like, "One by one, top companies are coming to the conclusion that reducing lead time is a simple and powerful measure of how well your business is doing." (Ref: Schonberger) He also has an honor roll. To get on it, you have to make at least a 500% improvement in lead times.

The academic community has begun studying cycle times and has come to the same conclusion. Professor Roger W. Schmenner of Indiana University concluded, in an article in MIT's Sloan Management Review, that reducing throughput time is "the single most important determinant of improved factory performance." He called his article, simply, "The Merit of Making Things Fast."

The Boston Consulting Group's George Stalk reported a similar conclusion, that factories with fast decision cycles are twice as productive as their competitors' and respond to customers five to ten times as fast. He cited the case of Mitsubishi, whose technology in air conditioners roughly equalled the U.S. in the late 1970s. By 1985, Mitsubishi, using its superior development cycle speed, had pulled seven to ten years ahead.

You might also want to review Stalk's analysis of the H-Y War (p.), where Honda used fast O-O-D-A speed to defeat archrival Yamaha.

Mitsubishi's experience with air conditioners suggests that fast O-O-D-A speed might energize technical excellence as well as marketing. Kim Clark, in a 1989 article in the Harvard Business Review, came to this very conclusion:

...the effort to reduce cycle time can be critical to improving the technological self-consciousness of a company's whole organization
.. Their personnel become better at knowing what 'better' is.

Finally, the bottom line for business. Ralph Gomory put it succinctly: "It only takes a few turns for the company with the shortest cycle time to build-up a commanding lead." (Ref: Gomory, 102)

So in addition to the military and theoretical work of Boyd and other strategists, there is plenty of evidence that agility also drives competition in business. For the rest of this chapter, let's look at how to work the O-O-D-A loop in business.

Strategic Concepts of Agility

First, a warning: An agile manager is not spring loaded to shoot from the hip. In other words,

See - Act does not equal O-O-D-A.

When executing O-O-D-A loops, you have to go through all the steps. This is more than motherhood, because there are actual, physical things you can do, for example, to help your orientation, during successive loops, more closely correspond to reality, and thus make your decisions and actions more effective. These measures on your part are

not inherently difficult, but, as we shall explore in this chapter, they are no accident, either.

Another thing to keep in mind is that business is not war. In war, you defeat the enemy. In business, you can do whatever you want to the competition, but unless the customer buys your product, you lose. Paradoxically, business is more competitive than war in some ways. Most people would applaud attempts to end the competition of war through negotiation, but try it in business and you'll have consumers and their advocates screaming "Antitrust!"

Before moving to the individual phases of the cycle, one final word of caution. Do not, under any circumstances, regard the steps of the O-O-D-A loop, or anything else in this book, as a checklist. Better you should, as Col Boyd has often counseled, take it out and burn it. Checklists have their place -- for those few, critical processes that must be complied with exactly (like preparing an airplane for landing). But they do not belong in strategy, where they contribute to rigidity and internal focus. Look at the O-O-D-A loop and the other concepts in this book as starting points. Examine the problem of strategy from many different angles, and eventually create your own theory. Otherwise, this book has done you no real good.

With these points in mind, let's look at the components of the O-O-D-A loop in business.

Observe

Some people have tried to recast the O-O-D-A loop as S-O-D-A, that is, see, orient, decide, and act. I don't worry too much about doctrinal purity, but you can be misled from this "simplification". Certainly, seeing is one way to acquire information about the universe, but it is far too passive and far too limited to power competitive O-O-D-A loops.

You want to capture information, concepts, rumors, innuendos, lies, data, conjectures, gossip, thoughts, threats, energy, reinforcement (positive and negative), motivation, insights, ... , anything, as freely as you can. Don't worry about filtering; you'll sort it all out during the orientation phase, as we'll see in a few pages.

As Tom Peters says about your relation to the customer, you want to become "transparent," you want a symbiotic relationship, you want every production worker to make three customer visits every year (Ref Peters 144). In short, you want a lot more than just "see."

Liberal Arts

It's too bad that the liberal education has become so rare. It taught students to assimilate concepts from everywhere -- literature, music, history, philosophy, mathematics, science -- an unbeatable fount of ideas.

Today, many business students are mortgaging their competence as future leaders for earning power in their first job. They have never acquired the ability to steal good ideas from any source, a talent critical to gaining an advantage in today's competitive world.

Break out of your habits. If your politics tend towards the liberal, make a special point of reading The Wall Street Journal and National Review. If you are more conservative, don't let a day go by without the New York Times or Washington Post. The idea is to become as open a system as possible.

Entropy

I mentioned this concept back in the chapter on strategy. There the point was made that you don't want to be a closed system. Open systems are alive, exchanging energy and information with the environment, and thereby shaping and being shaped by it. Closed systems are dying. In such systems, people are focusing inward, and over time, they lose the ability to understand the real world. In business, customers and their needs define the real world, and your competitors are not going to wait for arcane physics. They are going to finish you off themselves by separating you from the customers you have left.

Things that interfere with the flow of energy and information between you and the environment are called "filters." A classic, if somewhat obvious, filter is the

"shoot the bearer of bad news" syndrome. Related to this is the staff person who, wanting to keep you happy, shoots the bearer for you. Quality guru and Deming disciple William Scherkenbach observes that subordinates exposed to the kill-the-messenger reaction quickly learn their lesson, and so they filter bad news even more carefully. This leads upper management to demand detailed reports -- to micromanage -- to get the information it thinks it needs. (Ref: Scherkenbach, 71) And as we have seen (p.), micromanagement has a fatal effect on the mutual trust and initiative that form the foundation of a competitive climate.

Anybody who controls access to you has the potential to become a filter, and the only way you will ever know is to get outside your staff system and walk around the organization and the rest of the world, too.

MBWA

Which brings up the subject of management by walking around (MBWA). A manager in a company I worked with stopped me one day to talk about his boss. "He's never in the office," he complained. "Who's going to run the organization, and do the planning and strategy, while he's out interfering in everybody's job?" In other words, part of his objection was that MBWA had become micro-managing by walking around. Let's look at this. While it's certainly true that some people will meddle in almost anything they

see, it's equally true that locking them in their office won't solve the problem. They'll demand detailed status reports, question \$5 cab rides, and call you on the phone to improve the grammar of your sales projections.

The cure for this lies in breaking the micromanaging habit in the first place, and the way I recommend is first, ask yourself, "Is this person our only micromanager?" (How do you know?) If you're convinced that he or she is, some individual counseling and education is in order. On the other hand, if i-dotting and t-crossing are endemic to your place, then you have a system problem, what Deming calls a "common cause." It's not your managers' faults, it is yours because, after all, you own the system and set the culture. It would follow that you need a system solution, which is really what we covered in the last chapter. For one thing, you might try to strengthen the concept of contractual responsibility, auftrag (p.), which allows you to wander about to your heart's content, while strictly forbidding any interference in how a person is doing his job. Beginning with your own actions, embed this idea in your culture. You can then get all the strategic benefits of MBWA as an observational open systems tool, while avoiding the problems.

What about the objection that a leader wandering around isn't fulfilling his responsibility for overall guidance and strategy? If your notion of strategy is a

large superplan, with every potential event worked out in great detail, there's no doubt you belong locked away in your office writing the thing. On the other hand, if you subscribe to a concept of strategy like I outlined in Chapter IV, then you're more concerned with creating a competitive culture and selling your vision. These activities can only be done out with the troops.

And in fact, you have no choice. All down through history, great leaders have known that their place was with the soldiers. Napoleon, Patton, Rommell, Sharon (the Israeli general who led the crossing of the Suez Canal in the 1973 War), all lent their personal presence to the battlefield. Word spread among the soldiers. On two occasions during the Seven Years War (1756 - 1763), the eventual winner, Frederick the Great, had three horses shot out from under him. One is reminded again of the assessment of the German General Gadecke, that his good commanders did not lead from the rear.

Control

One of the things you observe is how you are doing -- what happened on earlier swings through your O-O-D-A loop. This is how you exercise the traditional management functions of "control." If you observe that your current strategy isn't producing results, but your fingerspitzengefühl suggests another path, then do something. Shift your schwerpunkt, or work on your competitive climate, or rethink your overall objectives.

If you studied management during the sixties and seventies, you may have run across the "cybernetic" theories of organization. (Ref: Churchman; Wiener) Please forget them. Derived from theories in computer science, these envisioned companies as giant machines, with managers as the controlling agents. They were the ones who made the corrections if results didn't meet the plan. Everybody else was pretty much a commodity, along for the ride. As you might imagine, cybernetic management was very popular in the pre-perestroika Soviet Union.

This whole concept harkens back to the "managers think, workers do" philosophy, which wastes the potential of the other 90% of the organization. A more effective concept is to devolve the responsibility for control onto every member of the organization, as Col Mike Malone advised (p.).

This is what the best Japanese companies have learned to do. Master industrialist Konosuka Matsushita (Panasonic, National, Quasar, etc.) almost can't help gloating: Japan will win and we will lose because to them, "management is the entire work force's intellectual commitment at the service of the company," while in the U.S., managers think, workers do. (Ref: DoD Team, xvii)

This does not mean that managers no longer have a job. Rather, it is one much more sophisticated than being strawbosses in \$500 suits. Again to Japan, where

consultant Kenichi Ohmae challenges managers to concentrate on their business systems, because a "manager" is, almost by definition, someone who owns -- that is, has the power to change -- his business systems. (Those occupying management positions who cannot or do not choose to improve their systems would better be called "caretakers.") Thus, if you observe that a competitor is consistently beating you to market, don't simply dictate an increase in quality or productivity. Make structural changes to increase your agility. Take on the system. Do something. There is nothing wrong with control, only with with thinking that you can order it into existence from the top.

Observing your system means measuring it. Deming says that before you tinker with your systems at all, observe them and bring them into statistical control, primarily through changes in the company's culture. (Ref Deming) Although measurement may seem to have more in common with centralized, top-down management styles, it is a critical part of every system. To make it work within the climate I am recommending, you need to make sure that your measurements do not become tools of the bureaucracy.

Here are some suggestions:

First, data on individual performance should be collected by, and kept by, the individuals doing the work. First-level supervisors use these not to harass individual workers, but to help improve the system.

(FN: Deming's Out of the Crisis describes how managers should use this data. The basic idea is that the majority of workers in any group form a statistical system because they fall within statistical control limits. Only the very few workers whose performance falls outside these boundaries would be examined individually.)

Second, post performance data, aggregated by department, division, and for the whole company, in central locations for all to see.

Finally, measure everything. (Ref: Peters) Rather than depending on one or two favorite ways of measuring, say, productivity, look at output per: worker or net worth or revenue or advertising dollar or dollar subcontracted or ... Then let your intuitive knowledge operate to find the patterns.

Orient

Remember all that data and stuff you observed in the last phase? Orientation is where you put it together and decide what it means. Col Boyd calls it an "interactive process of many-sided, implicit cross-references," and notes that it "is shaped by and shapes the interplay of genetic heritage, cultural traditions, previous experiences, and unfolding circumstances." (Ref Boyd, OD 15)

It is "many-sided" because it synthesizes observations from many different sources, like the liberal/conservative newspapers I mentioned above. The more more varying and encompassing the information you took in during the observe phase, the more many-sided your cross-references can be.

in p biology, physics, ... and philosophy as well as
from fighter combat
This is why you didn't filter the good ideas from the
garbage back during observation.

Sometimes your cross-references can jump across fields
that apparently have no relation, like Col Boyd's synthesis
of strategy from ideas in fighter combat, physics, and
abstract mathematics. In modern business, one of the most
famous crossreferencings involved a supermarket. Taichii
Ohno's inspiration for Toyota's just-in-time production
system came from his noticing that items on store shelves
were replaced as needed, "just-in-time," rather than being
dumped on the shelves according to some pre-determined
schedule. Items were "pulled" onto the shelves by actual,
rather than predicted, customer demand, and this eliminated
much of the potential for waste. From this simple
connection came one of the most productive and highest
quality production systems in the world.

The other major adjective in Col Boyd's description of
orientation, "implicit," refers to *fingerspitzengefühl*,
which is the ability to rely on intuitive judgement for
rapid response to complex and chaotic situations (p.).
New concepts and ideas coalesce almost spontaneously from
the primordial sea of ideas provided by your observations.
"Implicit" also refers to implicit communication (p.),
which, as we have seen, is usually more reliable and always
much faster than the formal, explicit kind.

In the game of strategy, orientation is the schwerpunkt. Everything you do must support your attack on your competitor's orientation, so that, as we saw in Chapter IV, his products and services take on the ho-hum quality of last year's fad. With your faster cycle speeds, you make life rush by too fast, leaving him, as Faulkner described it, in a position where accepting takes the place of knowing.

Because of its importance as the strategic focus, orientation is that part of the O-O-D-A loop that takes the most mental energy and that part where most of the problems occur.

Is Your Mindset Set?

What kind of problems? When Konosuke Matsushita was asked what he prized most, he responded "a mind that does not stick." (Ref Ohmae, Companyism, 132) A sticking mindset is the main enemy of orientation, and this was recognized by strategists at least as far back as Musashi (1645). Suki, they called it, a moment of hesitation by your adversary that, if you are quick, you can exploit (Ref: Musashi, 31).

This theme is echoed by John McDonnell, chairman of the aerospace and defense firm McDonnell-Douglas. He opened his tenure as CEO by shaking up the entire corporation, with the goal of creating "a change in (the) mind-set of management." He maintains that the key to

cultural change is first to attack basic premises, and the one he wants to change the most says that a manager's job is primarily things like deciding, directing, and controlling. He proposes an orientation geared more to establishing a climate, in which managers take over the job of getting their people "charged up and enthusiastic."

The idea of an orientation extends across company boundaries. The entire country, according to MIT's Edgar Schein, is stuck on the notion that to manage, companies must be organized into hierarchies. His research concludes that this fixation causes the "We managers - you workers" or as he says, "We parents - you children" orientation ^{that is} so destructive of mutual trust in U.S. companies. (Ref: Schein, 63, 66)

So what keeps orientation locked up? Look at where it comes from: cultural and genetic heritage, previous experiences, and the current environment. Not much you can do about the first two, but, over time, you can add to your experience base by broadening your observation of the current environment. In fact, the most common single problem is failure to carry out the observation phase aggressively.

Another way to lock up your orientation is to direct your attention inwards, in other words, to place the focus of your attention on events inside the company rather than on the customer and the environment. This is another way

non-MBWA cultures get into trouble. Misconceptions begin to recirculate. The boss's whims and prejudices and even offhand observations become policy, then dogma. By now, you should be recognizing the symptoms of something we've seen several times before.

Entropy Again

Failure to interact with the environment, that is, to sustain a vigorous exchange of energy and information with the world outside, makes you a closed system. And closed systems, as I have mentioned time and again, fall prey to a disease called "entropy," a decline in the quality of their decision-making. In a strategic sense, entropy infects orientation, which means that what you think is reality, and reality itself, become more and more detached.

To control the "boss's dogma" syndrome and other effects of entropy, clean out everything that tends to focus your organization's attention inward. What are these? One great source of inward focus is too much structure. Structure can be bureaucracy, or layers of management, or simply performing functions for which there is no clear and present need. One common source of unneeded structure is excessive vertical integration, which is the tendency to keep everything in-house instead of subcontracting selected pieces out to the most qualified, fast-paced, and imaginative bidder. Companies with excessive vertical integration make do with less than the

best provider of services, and people must focus their attention internally just to manage the monster. (Ref: Peters; Quinn)

While this is not the place to debate the theoretical merits of different organizational schemes, allow me to make an observation about how organization can affect strategy. When we think of vertical integration, we often visualize Henry Ford making his own steel in his River Rouge plant near Detroit. You may buy your steel from somebody else, but do you have captive organizations for finance, engineering, and the like? It is bad enough that these functional units are protected from competition and so rarely develop a world-class competence. What worries strategists more is that these functional groups take on a life of their own, which means that as subsystems with some degree of autonomy, they begin to develop their own definitions of "survival on your own terms."

If all these definitions are well-harmonized, no problem. But human nature being what it is, people in Accounting become concerned about the future of the Accounting Department, and if the whole company survives in the process, well, that may be unavoidable. So as you well know, what usually happens is that the objectives ("own terms") of such groups as finance, human resources (as contrasted, perhaps, to mineral resources), and even engineering will come into conflict. What you get are many non-cooperative centers of influence operating within the overall company system. This is exactly what strategy is

supposed to achieve. Unfortunately it is supposed to achieve it in the other side.

There are several paths to a solution. You could, of course, attempt some type of harmonizing device, like the schwerpunkt concept I have described, to bring the functional organizations into line. It may work, but there is probably a limit to how long you can override human nature. Which brings up the second option: Devise a system without such potential for strong and conflicting internal agendas in the first place. And the simplest way to do this is not to have internal functional organizations to begin with.

But even if you subcontract everything but the board of directors, a little looking around will uncover plenty of things that drive your attention inward. Chapter IV explored how overly complex management tools and models have the unwanted side effect of forcing people to spend time worrying about things other than how to meet the needs of the customer. But there are many less sophisticated opportunities to accomplish the same unfortunate result.

Do you need a shelf four feet long to hold your policies and directives? Do these focus your attention towards the customer, or have they become ammo dumps for bureaucratic infighting? Have you taken a rough sample of your paperwork to see what fraction deal largely with internal matters?

Do you have an executive dining room? In addition to being another einheit-destroying perq, these things are incubators for entropy. Your managers should spend that time outside--out on the floor, out with customers, out improving their physical and mental fitness. In other words, is failure to drink your own bath water really one of your major problems?

To make any progress, you need to cultivate and reward people with wild ideas. Otherwise you are reinforcing dogma and conformity, not expanding your orientation in new directions. Do you press your people for ways to clean out unneeded structure and procedures? Do you reward those who succeed? You might try replacing a staff meeting or two each month with high-powered brainstorming sessions geared to this problem. Do you have any formal programs for recognizing mavericks and cage rattlers? Are you surrounded by syncopants, who survive simply by making life comfortable for you? Regardless of what the real situation is? How do you know? Do you keep any measurements on bureaucracy bashing? (Ref Peters)

Orientation and Culture

Finally, orientation has strong roots in your organization's culture, "the way we do things around here." (Ref Bowers) Weak cultures (p.), ones that depend on explicit rules and four foot long shelves of directives, will be much slower to reorient. Strong cultures can

encourage people to take the initiative and solve the problem, instead of writing memos and quoting procedures to each other. My guess, and that is all it is right now, is that any strong culture that measures its cycle speeds, and posts the results for all to see, will achieve the ability to rapidly realign its orientations.

Decide

We make far too much of decision. "Decision-maker" is a euphemism for "top manager," which suggests another manifestation of the obsession for control. It also harkens back to the notion that "managers think, workers work," siezed on earlier (p.) by Matsushita.

For an individual, the decision phase blends into orientation. If you have enough experience (of the right types, see Chapter V) to have fingerspitzengefühl, you will intuitively know what to do the vast majority of the time. And in groups, a strong culture will guide activities during most of the work day. In these cases, "decision" is simply the boundry between orientation and action.

You need more formal decisions when time comes to set or shift the schwerpunkt. This avoids misunderstandings between large groups of people and can provide a shot of adrenline for the organization in times of crisis. Once the higher level schwerpunkts are set, auftrag flows this intent to all parts of the organization. In this sense, decisions become a harmonizing and motivating device that

lets everybody else get on with their parts of the enterprise.

People sometimes glorify decisions because they are afraid of indecision. Decision can, as we all know, become a barrier between orientation and action. If your O-O-D-A loop locks up in the decision phase, you won't be very competitive. But this is a pathological condition, and actually rare, assuming that you took the observation and orientation phases seriously. What is much more common are decisions that don't decide, that is, they lay down all sorts of directions but fail to designate a clear schwerpunkt. Look back at some recent directives in your company. Does anything that establishes clear focus and direction jump out at you? Or are they just pronouncements that violate mutual trust by telling you how to do your job? As we saw in Chapter III, lack of a schwerpunkt was Hitler's biggest military mistake in Russia. (FN: Could Hitler have conquered Russia even with a strong schwerpunkt? Manstein wanted to take Leningrad first, spend the winter there, then take Moscow and the Caucasus in later campaigns. Considering how close they came to taking Leningrad anyway, it might have worked. Of course conquering Russia and holding Russia are two different things. One hundred twenty-nine years earlier, Napoleon had averaged more miles per day than Hitler and actually took Moscow. Two months later, Napoleon crossed back out

of Russia with fewer than one out of nine from his original army.)

Act

Years ago, my college ROTC book made a matter-of-fact observation that has lived with me ever since. It went something like: "Even a poor plan, executed with enthusiasm and spirit, is more likely to succeed than a 'perfect' plan carried out half-heartedly or late." Or, as an old chess buddy put it, "Come on--do something, even if it's wrong."

One thing all business strategists agree on is the need to act. Now. Don't wait for the big picture to become crystal clear; it never will, and you'll get left behind. This is another manifestation of the "prove everything syndrome, familiar to everyone as "paralysis by analysis." Sure, research is required, and careful thought, but what you're looking for is the intuitive impulse, primed by practice and experience. Then do it. As the Japanese know, "In the shortest of long terms, fast development cycles beat market research every time." (Ref: Gomory) This is especially true of new product development, where by definition, market response is a guess. At Sony, the inventor of the Walkman says, "When you introduce products that have never been invented before, what good is market research?" (Ref: Sanger, 25, 61)

Of course, when you introduce something unique, you might fail. But not getting the product out there is a guarantee of failure. This does not mean you bet the company on the success of one new product, but that you figure out clever ways to reach the marketplace with strategies that limit your financial exposure. So Peters put a chapter in Thriving on Chaos, "Support Fast Failures," and challenges us to "Revel in thoughtful failures that result from fast action taking." (my emphasis) (Ref: Peters)

The secret, when you can pull it off, is to be radical in small steps, but steps taken very quickly. Consultant David Nadler says that the assumption that progress comes largely from strategic leaps, rather than from continuous small improvements, is undermining America's ability to achieve high quality. The implication is, don't sit around waiting for genius to strike. (Ref: Nadler)

Former pro quarterback Fran Tarkenton, now president of his own management consulting company, is more graphic. "You don't know whether a play works until you run it." and "The main thing is, to get to that right solution, you gotta get moving right now! You win by trying, not by standing around!" (Ref: Tarkenton)

All this seems so obvious. Why wouldn't you act with elan and dispatch? For the individual, the best answer I can give comes from Robert M. Pirsig's classic Zen and the

Art of Motorcycle Maintenance. He calls it "lack of gumption," and in his book offers some specific advice you may find useful in your own life. I'll refer you to the book and Pirsig's inspiring prose. (Ref: Pirsig)

For organizations, the answer is that you will act, you absolutely will, if you have created a culture based on things like mutual trust, intuitive knowledge, a contractual sense of responsibility, and some mechanism for focus and direction, and if you have done any kind of reasonable job observing, orienting, and deciding. Under such a climate, barriers to action, like requiring 24 signatures on a form, wither and die. These conditions, as I've seen time after time, generate unbelievable harmony and initiative. By the time you're ready to act, everybody will be straining at the bit.

Agility Deep Within

It may be that the effects of agility come from patterns that are actually "wired" into the brain. We have discussed how the quest for control can, if ordered from the top, kill initiative, destroy morale, and generally make it difficult for the organization to survive (see Table , p.). It may still seem strange that the ability to compete and grow depends on some degree of dis-order within the group, that the side with the iron discipline, where orders are carried out immediately and unthinkingly, may fall victim to what appears to be a more relaxed competitor.

Actually, this shouldn't seem strange at all, and it is even a part of our folklore. Remember the TV series "Hogan's Heros"? There, a group of allied POWs ran rings around their Nazi guards in a WW II prison camp. There was hardly any discipline among the prisoners, except when it came time to do the job. You may also recall the studied informality of the Israeli army, which achieved some of the great military feats of all times against rigid, Soviet-trained armies many times their size. Yet, an outsider could not tell a private from a general because they all seemed to wear rumpled uniforms and call each other Uri or Moshe or Shlomo.

Then there's Robin Hood, and Han Solo in the Star Wars pictures, and you can probably think of dozens of other examples. And what about Silicon Valley today? The cultural ideal seems to be 20 year old kids in long hair and jeans, who routinely out-create their button-down competitors at IBM.

Recent research suggests that there may be deep biological roots for all this. If, for example, you look at electroencephalograms (EEGs), pictures of electrical activity in the brain, you will usually see chaotic squiggles that look like a seismograph during an earthquake. These are normal. Sometimes, however, you may see EEGs that show long regular waves. "Aha!" you say. "A deep thinker at work." Actually, it's a sign of something

badly wrong--in the case of the regular waves, possibly an epileptic having a seizure.

Although this line of research is just getting started, evidence points to some strange conclusions. It appears that when the brain is working on difficult mental problems, the pattern of EEG waves, far from settling down into some type of "thinking mode," becomes even more chaotic. It is as if the brain is scanning a wider range of possibilities looking for promising match-ups, or, in the language of O-O-D-A loops, trying harder to form the cross-references of orientations. Sure, some pattern is there and can be mathematically detected. But the rule seems to be that within certain bounds, the more chaos the better. (Ref: McAuliffe)

All this seems to indicate a natural connection between the dancing chaos of electrical activity in the brain and the irregular patterns of agility that lead to success in competition. However, it is far too soon to jump to that conclusion, and at this early stage in the research, it could well be an analogy. But even if it were simply coincidence, it would be one more instance of nature's detesting the straight and rigid, whether it be in the flow of wind and water, or in human competition, or in the basis of the mind itself. (Ref: Watts)

Wrap-up: How it Really Works

Col Boyd makes a strong distinction between the discrete explanation of the O-O-D-A process and the way it actually works:

"... multi-dimensional interactions suggest a spontaneous, synthetic/creative and flowing action/counteraction operation, rather than a step-by-step analytical/logical and discrete move/countermove game." (Ref Boyd, POC 176)

In other words, in real life, it's a mess. But you can still identify specific O-O-D-A cycles within your organization, and you can set up simple measurements.

Bower and Hout concluded that managers in fast O-O-D-A companies "make continuing efforts to reduce each company's characteristic cycle time...and they are alert to the opportunity to compress time by eliminating stages." (Ref: Bower and Hout, 114) For example, how long does it take to answer a request for proposal? Do you have the data to prove it? Has this time remained steady, or (as bureaucracy accumulates) has it gotten worse? How long does it take from the time an idea strikes for a new product until something happens (the product appears, or the project is cancelled, or it evolves into something else). Here's a data point: Sony developed, produced, and put on the market its revolutionary (and best selling) TR-55 8mm camcorder in about six months. (Ref: Sanger, 25, 68)

Check green book

How long does it take for somebody to get approval to spend money? (Why do you need "approvals" in the first place? Are we a little low on mutual trust?) How long to answer inquiries from customers (you do answer all of them, of course)? How long to act on customer suggestions or problems? Again, are all these times getting better or worse? Why?

I admit that none of these cases are crystal clear. What do you expect? But you can encourage your people to come up with and plot simple measures of cycle times that mean something to them. Take another look at Chapter S-1 in Peters' Thriving on Chaos for a whole bag of ideas on measuring the unmeasurable.

The Shewhart/Deming Cycle

As a final example of the O-D-D-A loop in business, look at the cycle in Figure .

Figure

The Shewhart/Deming Cycle

(Deming calls this the Shewhart Cycle and the Japanese call it the Deming Wheel.) The purpose of this cycle is to get your act together internally so that you can compete externally. In particular, the Japanese have shown it enables organizations to eliminate waste and produce superb

quality. But at its core, it is simply the O-O-D-A loop, applied by an agile company to the transformation of its own system. (Ref: Deming) (Footnote: and in the process, making it more agile)

VII

Grist For Your Mill

You were right. Any fact becomes important when it's connected to another. (Umberto Eco, Foucault's Pendulum, 314)

One way to think of a competitive organization is that it generates ideas, then processes them (through O-O-D-A loops) fast. Until this point, we have concentrated on organizational climates and systems that enable, even impel, fast decision cycles. Now let's spend a few pages on where the ideas themselves come from. The answer, of course, is everywhere. To be effective as strategy, however, your ideas have to display some spark of originality, something new that will entice your customers and confound your competition.

So the real question is, "Where does originality come from?" Unless you are prepared to depend on divine revelation or the stray gamma ray, originality must somehow come from what is already here. Although this seems like a contradiction, what it really means is that the vast majority of original ideas spawn from bits and pieces of existing concepts that get combined in new ways to produce something unusual. We have seen (p.) how just-in-time came from supermarkets, and it turns out that computers eventually trace back to such things as looms. Then there's Sir Isaac Newton's apple, and public television has created a whole series, "Connections," out of this concept of innovation.

Part of creativity lies in your brain's ability to make these connections, and this talent comes from your innate abilities, modified by you've learned over the years. Think of this as your "Creativity System." The rest of innovation comes from what you feed the system. The more raw idea stock from more different sources you put in, and the more concepts and patterns you add, the more likely it is that you can combine them to arrive at something new. You may never become another Edison, but you will certainly never reach your potential if you starve your creativity system, or feed it a diet of ideas exclusively of one technological or ideological hue.

All of this discussion should sound familiar. If you go back and look at the descriptions of orientation in pp. and , you'll find words like "synthesizing observations" and "forming implicit cross-references,"  exactly what we're talking about here. This is no accident because the mental model of innovation that we are using views creativity as an iterative process of combining and recombining, forming new orientations, looking for mismatches with reality, and reorientating until, "Eureka!" something fits.

Strategy, like other types of innovation, involves generating and processing ideas, in this case, for getting the customer to favor us, at the expense of our competitors. Your strategy, then, can be no better than

your ability to form new orientations in response to what you see of the world. One of the major themes of this book, and what I've restated in the last several paragraphs, is that observation drives orientation. Garbage in, garbage out. In truth, things are more complex, and each affects the other. Futurist Joel Barker, who uses the term "paradigm" instead of orientation, cites research in human psychology to conclude that information that is too far outside your current paradigm may not even be perceived at all. This is why you can stare right at something but not see it, and why you will ignore events in the real world that don't seem important, sometimes until it is too late. Being able to manipulate these things is obviously of great interest to strategists.

For this reason, one of the most important exercises strategists perform is to deliberately broaden their orientations. To get you started, this chapter contains a sample of concepts and books that have helped me come up with new ideas. If I ever open a business school, these books will form the core of my required reading list, and you will accumulate your own list, if you keep at the profession of strategy. There are only a couple of rules. First, the longer the list the better. And the other rule is that over time, a smaller and smaller percentage of your sources will be books on business or strategy.

A Definition of Agility

The definition of agility that I have found most useful was presented by Col Boyd at the Department of Defense Agility Conference in 1988. He defined it as:

The ability to shift from one unfolding pattern of ideas and actions to another by being able to transition from one orientation to another.

Or put another way,

The ability to shift from one unfolding O-O-D-A loop pattern to another by being able to transition from one orientation to another.

I hesitate to put definitions into this book because certain types of people feel compelled to memorize them. If our subject happens to be an instructor in a strategy course, you can bet he will compel his charges to memorize them, too. These people are missing the main point. If you stop to think about it, there can never be a multiple choice test on strategy, where there is one right answer that the instructor has revealed during previous classes. (True or false: One of the principles of strategy is to avoid dogma and rigidity.) The correct strategy in this case is to find another strategy course.

On the other hand, as a device for illuminating concepts, and arguing over them, and disagreeing, then going off and writing your own, definitions can reveal your current mindset/orientation and provide a vehicle for changing it. Let's use Boyd's definition to show how this works. In Chapter III, agility was defined as the ability

to execute rapid O-O-D-A loops. This one says nothing about speed. So are these definitions compatible?

Think for a moment about what allows you to change orientations. Part of it is cultural. If your organization has mindsets or dogma or proclamations of the board of directors, or whatever, that lock-in particular views of the world, then you will find it difficult to be agile and survive. AT&T, for example, emerged from the breakup with an outlook and a bureaucracy from its days as a regulated monopoly. Its new chairman, Robert E. Allen, must have recognized the danger in this, because at the top of his priority list he put changing this orientation from fat cat to street fighter. (Ref Keller, 140).

Another factor in changing orientations is how well you did in executing your previous O-O-D-A loops. Your earlier observations, orientations, decisions and actions help shape the character of your current orientation. The upshot of all this is that your ability to cycle rapidly through O-O-D-A loops (old definition of agility) depends on your ability to change your orientations (new definition). So becoming more competitive can snowball: As you work towards improving your cycle speeds, you will find it easier to change your orientation, which will help improve your cycle times. (Footnote: You might want to refer back to the Shewhart/Deming Cycle, p.)

Is Boyd's definition the correct one? That question has no answer, because it implies that there is the correct definition and all the others are wrong, that somehow, Boyd has wired himself directly into ultimate truth. Well, he hasn't, and neither have you or I. The real question is whether Boyd's definition is useful, whether we can ponder over it and see some things (build some cross-references) that we might otherwise have missed--in a nutshell, whether it helps us expand our abilities to change our orientations or whether it locks us in. As the discussion above should indicate, we were able to mine some interesting insights out of Boyd's definition, so we'll put it into the "useful" category.

This should convince you that definitions do not have to be dogmatic. But to get the most out of them, you can and should modify them to suit your purposes. Argue over them; have some fun. Here is one last definition, of that elusive substance, waste:

Waste: Anything which does not contribute to how rapidly an organization can execute its O-O-D-A loops and especially anything which hinders its ability to transition from one orientation to another.

This is one that I've been playing with, based on the notion that failure to survive and prosper is the greatest waste of all. What about the more usual forms of waste -- inventory, scrap, non-essential activities, etc.? One answer is that the Shewhart/Deming Cycle, introduced in

Chapter VI, helps organizations eliminate these, and, as noted in that chapter, an organization that can execute rapid O-O-D-A loops can run fast S/D cycles as well.

Another thing you might get from this definition is the notion that traditional waste is just a symptom. Fundamental waste, on the other hand, is the system, which, while recognizing that the symptoms exist, cannot bring itself to cure them.

Now your homework assignment for this section is to get your group together and create your own definitions for some of the terms found in this book: agility, harmony, ambiguity, climate, focusing inward, and so on. Good luck!

Can Computers Ever Produce Strategy?

This question is a part of the "Can computers think?" debate that is going on now in the scientific community. As phrased here, the answer is obviously "yes." Your brain is a computer and presumably it thinks. The more practical question is whether we will ever be able to devise software complex enough with machines that execute them fast enough to "fool" observers into believing that the responses they give come from human beings. <footnote: "fool" is in quotes because there are respected scientists who believe that given enough speed and complexity, the programs will actually be conscious and think in every sense of the word.>

People who believe that someday we will have such machines and programs are said to subscribe to the "strong

AI (for "artificial intelligence") hypothesis." On the other side of the debate are those who argue that electronic computers, no matter how fast or complex they are, merely execute algorithms, which are step-by-step procedures. This matter concerns strategists because, as we saw in the beginning of Chapter III, the idea of strategy is not to be seen as a system -- an algorithm -- by your competitors. Can human intelligence be modeled by a system of rules, by, for example, a computer program that might be too large and complex to run on any machine available for the next thousand years, but a computer program none-the-less. If the answer is "Yes," even in theory, it suggests that although the models we discussed in Chapter II may have been too primitive to be useful, some n-th generation descendent will be able to describe human intelligence. With this, strategy becomes simply a matter of giving the program enough information on you so that it can tell us what you are most likely to do. Everything you can think of, it can (and will) think of, too. Now we have you.

Fortunately, there is some evidence that the strong AI hypothesis is not true, that we are not vast collection of rules (computer programs), and that computer software will never be able to "think" in a way that invalidates the type of strategy we have been discussing. The reason is that systems, which are all computer programs are, have some

pretty severe limitations. It has been known since the late 1930's that even in the seemingly well-ordered world of mathematics, algorithms are not adequate to explain everything we know to be true. And we have also brought up the notion of "entropy" several times (pp.), which plants the germ of madness in every system. You might recall that Boyd describes the effects of faster O-O-D-A loops as increasing the entropy -- the fog of war -- in the mind of the opponent.

If all this interests you, there is an excellent book on this subject by the British mathematician Roger Penrose, The Emperor's New Mind, which as a bonus also describes the concept of "entropy" in some detail.

While we're on the subject of systems and entropy, you might ponder a few of the paradoxes that come up. For example, you don't want your organization's behaviour to get too systematic -- too regular -- or you won't be able to respond to and shape the chaotic real world. But doesn't this imply that your internal systems have to be very well structured, with all the impediments to fast O-O-D-A loops eliminated? And wouldn't this quest for ever faster decision speed lead to a precisely defined, even rigid structure, since something more relaxed would tend to be inefficient and waste time? Wait a minute, how did we arrive at rigidity, when page after page of this book roundly denounced it? So where is the fallacy?

Here's another: We say, "Focus externally!" But to implement the climate recommended in this book, and to remove barriers to faster O-D-D-A loops, wouldn't you have to spend a lot of time focused internally? Wouldn't this generate the very entropy that Boyd's climate is supposed to overcome?

Some Fuel For Orientation

The rest of this chapter will introduce several books that I have found rich sources for ideas about strategy. Unfortunately, much of Colonel Boyd's original work was done for the Pentagon and so is not readily available to the public. Descriptions of his results have, however, appeared in two books that I know of, James Fallows' National Defense, and Franklin C. Spinney's Defense Facts of Life: The Plans-Reality Mismatch. Both of these are also excellent references for those curious about how we decide which piece of the national pie we set aside for defense.

As for business strategy itself, the only admitted book on that subject that I include here is Tom Peters' spectacular Thriving On Chaos. If you work in the vast majority of American business, and you can read this book without getting fighting mad, then you're part of the problem.

The other book on business that I'd like to mention here is W. Edwards Deming's Out of the Crisis. Deming, of

course, is one of the chief architects of Japan's postwar dominance, and the namesake for their ultra-prestigious Deming Prize. Although Deming is usually associated with statistical process control, and there's lots of that in his book, it is really a manual for culture change. Read it at least three times.

The other books that I am going to suggest are for, as Tom Peters implores, reading on airplanes, instead of wasting that precious time doing work you could do at the office. The philosophical basis for much of modern systems theory comes from early Chinese writings, particularly those that outline a philosophy known as Taoism. By now, every aspiring strategist has heard of, and hopefully read, Sun Tzu's The Art of War, familiar to many people through its appearance in James Clavell's novel Noble House. Far from being a how-to guide to warfare in 400 b.c., it is really a collection of ideas on how to outfox your opponent while he is trying to do the same to you. Strategy, in other words. The book is not long, and there are several translations available. Probably the classic is by Samuel P. Griffith (Retired Brigadier General, USMC), which also has an extensive introduction covering Sun Tzu and his times. Thomas Cleary, a professional translator, has a highly readable new version that explores the early philosophical roots of Sun Tzu. Finally, you might also be interested in Clavell's own compilation. I find it useful

to crosscheck interesting passages between all three versions.

Unless you have researched the matter, you might not be aware that this early strategy manual reflects its Taoist origins. You can explore these in Alan Watts' highly entertaining Tao, The Watercourse Way. Here is a short quote to give you the idea:

Wu-wei is thus the life-style of one who follows the Tao . . . of knowing the principles, structures, and trends of human and natural affairs so well that one uses the least amount of energy in dealing with them.

Sort of fingerspitzengefühl for dealing with people in any situation.

Taoism is not a religion, in the sense of a body of belief about a deity, but a philosophy of how the world works. It has been described as a systems approach to life in general. The basic book is the Tao Te Ching, a collection of 81 one-page chapters attributed to the possibly mythical Lao Tzu. Many translations are available, and I recommend the recent one by Stephen Mitchell (Harper & Row, 1988). This is another good book to stick in your briefcase for trips.

Taoism, in conjunction with Zen, reached its competitive peak in A Book of Five Rings, by the seventeenth century samurai philosopher Miyamoto Musashi. Actually, Musashi was much more than a philosopher. He

fought over 60 combats, winning them all, and took part in several battles. These weren't pro wrestling matches -- samurai engagements routinely ended in the death of the losing opponent.

Despite the fact that Musashi's book has enjoyed vogue popularity in American business schools, it is still an excellent source of ideas. It is humbling, but not inaccurate, to observe that Musashi touches on most of the major themes of this book. We noted (pp. and) his remarks on what we have called *schwerpunkt* and *fingerspitzengefuhl*, but you can also find allusions to the need for irregular patterns of strategy, the ability to create confusion in the ^{*minds*} ~~words~~ of opponents using what we would call O-O-D-A loops, the primacy of mental and moral forces (over the purely physical), and the fact that smaller forces defeat larger ones all the time. Quite a lot for a book written twenty-five years after the Pilgrims landed at Plymouth Rock.

Unless you are into Japanese sword fighting, I recommend that on your initial reading, you skip lightly through the first couple of chapters and concentrate on the strategy sections, the Wind Book and the Fire Book. You might want to compare what Musashi says about "rhythm" with what Boyd claims for O-O-D-A loops. This is a book that will repay many, many readings.

Several editions are available, but I prefer the small paperback by the Nihon Services Corporation (Bantam, 1982). Another good book to keep in the briefcase.

My last airplane book, and another in the series of Tao/Zen sources, is Robert M. Pirsig's Zen and the Art of Motorcycle Maintenance (Bantam, 1974). If I described it as a book on quality, who would read it? Let's say that Pirsig writes on relationships -- father-son, husband-wife, colleague-colleague -- and on gumption, on overcoming writer's block, on why Plato and his crowd were intellectual villains, why the American university system is a mess, and how, on occasion, rhetoric can defeat logic and why, on occasion, it should. Yes, it is a book on quality, but it's also many-sided cross referencing with a vengeance.

So get it and read it over and over. Pirsig describes in the afterword that he sent the manuscript to 122 publishers before one finally took it. In the front of the copy I have, there is a printing history that ends with "36 printings through August 1988." There are strategic lessons in that alone.

As for novels, this is your call. Actually, you can't go wrong with any of the classics. Even though thousands of new titles hit the bookshelves every year, the great novels are still there and selling, and there's obviously a reason.

There are three authors that I personally learned a lot about strategy from. The first is Neville Shute, best known as the author of the post-apocalyptic novel "On the Beach." Shute was actually an aeronautical engineer and designer who founded his own company and (according to jacket blurbs) did secret work for the British government during World War II. In his spare time, one presumes, he wrote 24 books, all in some way dealing with quality and competition. In that sense, they are cousins to Pirsig's book. My two favorites are Round the Bend and In the Wet.

Another author, who deals more explicitly with strategy, is the contemporary science fiction writer, Orson Scott Card. Read Ender's Game, a quote from which opened Chapter III. Boyd has said that if he had written a novel, rather than his military strategy briefings, it might well have looked like Ender's Game.

Finally, I recommend William Faulkner. My judgement may be partly clouded by the fact that we both grew up in Oxford, Mississippi. Many people consider Faulkner's style difficult because he doesn't start at the beginning and tell a linear tale. You often get snapshot views of events through the eyes of different characters, sort of many-sided cross-referencing (as you probably expected). In the end, you have told the story to yourself. Besides, I think you should know that there are Snopeses in your company right now.

Maybe most of what I am trying to say in this chapter was summarized by the late B. F. Skinner, founder of the school of modern psychology called "behaviorism," who insisted that to stay fresh, you had to "risk the contempt of your younger acquaintances and freely admit that you read detective stories or watch Archie Bunker on TV."

(Ref: Sobel, A12) For just as there can never be formulas for strategy, there cannot be a canonical literature on the subject, either. Boyd notes that the Chinese had Sun Tzu, but this was no talisman against the uncouth, illiterate Mongols in the 13th Century. In our own time, the Germans had Clausewitz, von Moltke, and all the architects of the Blitzkrieg, and the Japanese had Musashi, but so what?

Muslims quote the Prophet Mohammed as commanding the faithful to "seek knowledge, even if it be in China." He did not tell them to go to China and learn whatever they found there. The emphasis, in other words, is on "Seek!" The effort is worth it, because, to paraphrase one of the architects of the original blitzkrieg (p.), "the training of the businessman can never be too many-sided."