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BOOK OF PAPERS

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THE CHANGING ENVIRONMENT FOR INVESTMENT
DECISIONS IN NONWOVENS

Dr. Richard Frank Heitmiller

In his recent keynote address at INDEX 87, Norbert Dahlstrom, the current chairman of EDANA and a managing partner of the Carl Freudenberg Group, had the courage to tell his colleagues that the nonwovens industry -- worldwide -- was entering the mature phase of its business life cycle. He cited four criteria in support of his point:

- Reduced Growth Rates
- Growing Customer Demands
- Increasing International Competition, and
- Rapidly Changing Technology.

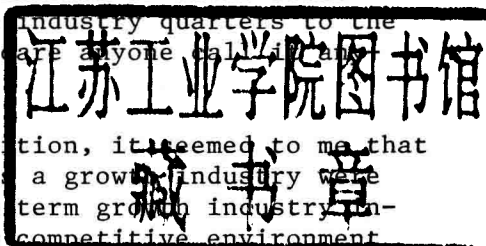
And he said, "It remains to ask ourselves whether it is inevitable that we blindly and weakly resign ourselves to the inevitable effects of growing maturity or whether we are strong and farsighted enough to learn from the depressing lessons that so many other healthy and vigorous industries of the western industrial world have experienced -- steel, leather and man-made fibers being only a few of the more prominent examples. One would hope that we are well placed to heed these lessons and avoid the pitfalls. As a young industry we have the benefit of beholding the experience of our elder brothers. What is more, many of us have diversified into nonwovens from traditional industries precisely because we no longer were satisfied with our original businesses."

The reaction to these remarks from the chairman of their trade association provoked angry response from some industry quarters to the effect -- "This is a growth industry and how dare anyone talk about anything else!"

As an observer at the Congress and exposition, it seemed to me that the proponents of the notion that nonwovens is a growth industry were more worried about losing the status that the term growth industry conferred as opposed to what the facts about the competitive environment really were.

Why the aversion to maturity?

Recently, Eric Attle, one of our most distinguished colleagues, was discussing with me the changes which have occurred in the coverstock business over the last ten years. In this context, he wondered "how many times can you go back to your top management and ask for a complete recapitalization of your business unit's manufacturing investment?"



In reflecting on this question and the response to Mr. Dahlstrom's remarks at INDEX, it is obvious that some people would answer -- "I can go back as many times as I can say that we are in a growth industry."

This is an unfortunate attitude.

In the first place virtually every end use application for nonwovens is, and has been, mature. Hygienic items, fabrics for transportation, construction and civil engineering end uses, just to name a few, are areas where high growth has been achieved mainly by substituting a new product for a traditional material. As soon as substitution is complete, the growth rate of the ultimate market segment becomes controlling, regardless of the former rate of growth of the substitute.

Mature and even aging industries can be restored to growth status through the introduction of new materials in new forms. That after all is the history of the nonwovens industry. Process and raw material flexibility has blessed our industry with unique market dynamics. I, for one, refuse to believe that we are at the end of this road. For those of you, however, that are skeptical of this let me make a second point.

What is wrong with maturity?

Mature businesses are more stable and more predictable than growth businesses; in general they generate a higher rate of return on invested capital and they are usually net cash flow generators for the corporate treasury. These are not intrinsically bad conditions. What is bad is if you try to run that mature business as if it were a growth business.

At issue for each major segment of the nonwovens industry is to perceive correctly which phase of the business life cycle you are in and to develop the appropriate strategic plan commensurate with your segment's position on the business life cycle curve and your competitive position.

I would emphasize this latter point as the adaptation of a business strategy that ignores the strengths and weaknesses of one's competitors is an exercise in futility. Unless you are dominant in your business segment, your competitors will limit the choices you have in strategic direction.

Over the years I have evolved a simple method for getting a rapid approximation of your competitive position. It consists of ranking your business against your competitor's business from the standpoint of:

- Commitment
- Financial Resources
- Product Technology
- Manufacturing Technology
- Quality
- Marketing Capabilities

We call the above "Nonwovens Business Success Parameters" and what each means is:

1. Commitment to the Nonwovens Business

This is the real commitment at the very highest business level (major stockholders, board, officers) that the nonwovens industry is an attractive business to be in and that the company intends to be a major factor.

2. Financial Resources

This parameter has two levels. First, the company itself must have the financial resources necessary for participation in this enormously capital intensive business. Secondly, because the company is really committed to the business (Criterion 1), these resources are available to the management of their nonwovens business.

3. Product Technology

The nonwovens business is a technology business that requires both product versatility and innovation. Companies with "me too" product lines are at a distinct disadvantage from the standpoint of both sales volume and profitability when competing against someone with both a diverse product line as well as a high new product introduction rate.

4. Manufacturing Technology

Highest marks here go to the producers with the lowest unit manufacturing cost and the highest technical quality.

5. Product Quality

This item is meant to reflect how a producer's quality is perceived in the trade as opposed to its real competitive technical quality level. Quality images as perceived by the trade do not always reflect accurately the real technical quality level.

6. Marketing Capabilities

If the price is right, anyone can sell nonwovens products. The challenge in this business is to find the places and/or circumstances where you can sell your product for a little bit more than the competition. Successful nonwovens marketing companies have marketing strategies that coordinate thoughtful market segmentation with overall corporate and divisional business strategies. We perceive that most nonwovens producers do not have strong marketing capabilities.

Using the above criteria and definitions, I invite each of you to carry out your own competitive position analysis. A few of you will find the exercise uplifting. Many of you will find it depressing.

Investment strategies must be based on an objective view of both industry segment maturity and relative competitive position. Your position on the life cycle curve provides some clues as to how you should shape your future resource allocation strategies. Your relative competitive position will suggest which of those ideal strategic directions are high risk and which are more attainable.

In my view, not enough of our membership have given quality thought to where they are let alone to where they are going. For most industry participants there is still time. Hopefully we will use it wisely.

TOTAL QUALITY: BREAKING THROUGH TO CHANGE

John E. Anderson, Quality Director
C.H. Dexter Division, The Dexter Corporation

It is hard to be out of touch with quality these days -- what with the mass of books, symposia, and companies' annual reports devoted to the subject. There is no shortage of experts, either, to show the way, although, when you come right down to it, there are really only two basic approaches to quality; the scientific and the motivational.

I would bet that almost everyone is familiar with these leading voices of quality and their philosophies and writings:

SCIENTIFIC APPROACH

H. Edwards Deming: Quality, Productivity and Competitive Position

J.M. Juran: Quality Control Handbook

MOTIVATIONAL APPROACH

Philip Crosby: Quality is Free
Quality without Tears

Tom Peters: In Search of Excellence
A Passion for Excellence

Which approach (and which authority) your company decides to follow depends on its style and its problems.

But any comprehensive quality program would include these basic components:

Quality philosophy . . . awareness programs . . . participative management . . . steering committee . . . statistical quality control and statistical process control . . . training (statistical and nonstatistical) . . . team building . . . cost of quality . . . supplier rating system . . . customer audits . . . employee audits . . . recognition programs.

CHANGE WITH A CAPITAL "C"

Each of those components requires a major change in a company. To put each one into place and to get a quality program moving forward, a company must change the way it thinks, works, and perceives its total business.

As a matter of fact, when you talk about a total quality program,

you are really talking about a TOTAL BUSINESS PROGRAM. You are, essentially, changing your business from top to bottom.

Quality is no longer a sideline or "a nice idea." It has to be total. If it is not, a program becomes just another short-lived cost cutting or quality improvement campaign, and you can hear the employees saying, "Here we go again."

The biggest challenge in mounting an effective quality program is getting all the people in the organization to accept change and, indeed, to play an active part in it.

That must happen if you are to run a meaningful quality program. You may create slogans, put up posters, talk about commitments to quality, publish newsletters on the subject, and so forth, but you aren't really changing anything at all. The business stays the same, the problems remain the same.

As I suggested before, business people are, by now, up to their eyeballs in quality lore. However, a lot of us still have to ask ourselves, "How in the hell do you get one of these total quality programs off the ground?"

Two years ago C.H. Dexter launched a total quality program combining the scientific and motivational approaches. It is called PDQ ("Partners in Dexter Quality"). We are still working very hard to gain and sustain the commitment to change from all the Dexter people. It has been an uphill battle all the way -- and still is.

THE PROGRAM

Here are the phases of a change-oriented quality program:

1. AWARENESS that the cost of not changing is greater than the cost of change.
2. STRATEGY (the plan to bring about change).
3. IMPLEMENTATION (activating the plan at all levels).
4. MEASUREMENT (Are we making a difference?).

This paper deals with the first step, AWARENESS, which involves orienting people to change. The awareness issue varies with the major functional groups in a company. The ones in this discussion are senior and middle management, manufacturing, R&D, sales and marketing, and the quality (or quality assurance) department itself. Each one will likely respond differently to the idea of change. Each group must be approached in a different way.

In any case, everyone at every level, in every job, must recognize the need to change. Otherwise, there can be no meaningful total quality program.

MANAGEMENT: NOT EASY TO CHANGE

Senior and middle management: This group is probably most resistant to change for a number of reasons.

One, not enough time. A manager's usual priorities are making budget, protecting his turf, keeping his group on a smooth and steady course, and trying to advance. After all that, where do you get the time for quality programs?

Another problem is business school training which a number of managers have. Total quality is strictly a long term proposition that does not allow "quick fixes". That goes against the grain of someone who has been schooled to deliver short term results (and who has always been under the gun to do so in business).

A manager may also be unable or unwilling to recognize alternative ways to run the business. He may also not understand that his part of the business is not an entity unto itself, contending or competing with other departments; instead, it is a part of a group of systems. All the parts must mesh gears.

Change can also be seen as a threat to the manager's influence, position, job security, and advancement prospects. The uncertainty of impending change can be hard to deal with.

Most important, though, managers may assume that their roles here are simply to endorse a company mandate to "change for the better" and then to oversee the project from a distance.

That is not the way the game is played. And the name of the game here is PARTICIPATIVE MANAGEMENT. To get managers into this frame of mind, you must address both internal and external needs.

EXTERNAL arguments for change:

1. Market changes.
2. Competitive conditions.
3. Changing product demands.
4. Energy costs.

INTERNAL concerns would be:

1. Cost of poor quality of both product and services.
2. Cost of high waste.
3. Customer returns.
4. Cost of testing.
5. Supplier relations.

All told, these arguments add up to the basic awareness that it costs more not to change than it does to change.

At the same time, the managers must be convinced that the company



is indeed committed to quality over the long haul -- even at the sacrifice of short term results. Managers must believe it to ensure an effective quality program.

MANAGEMENT TRAINING AND PROJECT TEAMS

At Dexter the initial quality training for managers covered 26 hours and dealt with all aspects of a total quality program -- statistical techniques, statistical design and analysis, and quality as it relates to productivity and competitive position.

The 26 hours of training were covered within a period of about two months. It was important to bring the managers into play as soon as possible, because they, as managers, would be providing the leadership to the quality program.

To give them an official -- and visible -- place in the quality program, we identified them as the Quality Council. The council includes all vice presidents and senior managers. As a group, they have worked to define quality principles and to support the team approach to problem solving and problem analysis.

While the Quality Council was defined and organized two years ago, it was not until this year that the council was further organized into project teams (which says something about the long-term nature of total quality). At that point we reached our objective of real participative management.

Each quality council team has a leader and a facilitator. Each team has a specific project of some magnitude. At Dexter there are currently three quality council teams; two dealing with the technical and user features of a new companywide computer software system and a third redesigning company training programs (quality training, systems and skills, management training).

It is fair to say that the Quality Council has evolved well beyond a group that has meetings periodically to a participating, integral part of the total quality effort.

MANUFACTURING: IN CONTROL OF CHANGE

In manufacturing a new, total quality program can pose somewhat different problems for hourly workers and their supervisors. The mandate to change comes from the top down, not from the supervisor and the crew themselves. Right away these people get the impression that "we haven't been doing our job." They also feel they have no control over the situation. And the move to a new quality program could mean that there will be more work to do.

In some companies these employees will be quite resistant to change, because they may have heard it all before as improvement programs came and went. They may also have experienced impossible situations when quality procedures clashed with urgent business needs of the moment (the "short term syndrome").

However, it is still easier to instill quality awareness here, because the ballpark is only so large as the department or the crew; it is not necessary to argue quality in the companywide dimension.

Most important, in manufacturing you have an invaluable tool to prove the benefits of change: the control chart. Unlike columns of numbers, a control chart, tracking production, shows where you are and where you are going. It is useful and usable. It also brings the manufacturing people actively into the quality picture, because they -- and not quality control inspectors -- maintain the control charts. That also greatly improves the ability to keep production in control.

Once the manufacturing people understand what quality represents, they should become more receptive to change -- and maybe even eager to play an active role in change. The vehicles to promote active participation (to all employees, by the way) are:

- Project Teams (Mandatory)
- Quality Circles (Voluntary)
- Quality Task Forces (Voluntary)

Everyone must serve on a project team. As for quality circles and quality task force groups, there has never been a shortage of volunteers, and the number of projects, circles and task forces is always increasing. (That might be the best measure of how well a total quality program is progressing.) Cost savings, increased productivity, and improved service occur only with the active support and enthusiasm of the employees.

The total quality effort calls for these major changes in manufacturing:

1. Run the process by a constant set of rules, not by "gut feelings."
2. Work to improve and improve; don't stop at meeting customer specs.
3. Investigate the smooth, trouble-free areas as well as the problem areas.
4. Get a better understanding of the manufacturing process.

STATISTICAL QUALITY CONTROL

Underlying these changes is Statistical Quality Control (SQC), the system that allows us to stay within the control limits of

each product property. In that sense, SQC is a method of detection, pointing out what caused the process to go out of control.

Now we are graduating to Statistical Process Control (SPC). This directs the emphasis to the process itself. It looks beyond the product to changes in the process to prevent problems before they happen. Thus, Statistical Process Control is a preventive system (whereas Statistical Quality control is a detection system).

In pursuit of SPC, it may well be necessary to shut down the process to locate and analyse a problem in production. In other times, it would have been heresy to even imagine halting a run if there were some kind of temporary "band-aid" fix to keep production running. Not any more. The longer term, preventive benefits of SPC take precedence over the (short term) needs of the moment.

SPC has a direct impact on these other major groups within the company: R&D, sales and marketing, and quality control.

R&D: DOING HOMEWORK FIRST

Under an effective total quality program R&D has to work with better definition of customers' product needs and with better interaction with other departments and customers. Increased competition and increased pressure to improve productivity do not allow scientific investigation that does not zero in on a specific, current business need. That means R&D people must fully understand the cost implications of scientific trials, and they must really do their homework before attempting a trial.

R&D is an integral part of a system. It must work only within the system.

SALES & MARKETING: WHO THE CUSTOMER IS

Like R&D, sales and marketing people must do their homework, too -- before making commitments to customers. The total quality program in this area demands a complete awareness of what the company's capabilities -- and limitations -- are in process and service.

For maximum productivity, sales people must have this awareness before dealing with customers. While it may be all right sometimes to inquire whether the company can produce something to meet a particular customer's timetable, there can be no excuse for making a promise to a customer which cannot be kept. It is better to say no than to say yes and then not deliver. Since sales and marketing does not reside outside the total quality

system, their real customers are the other functional departments in the company. The basic job is to help the total system work as efficiently as possible. That, in the long run, is how the company's customers are best served.

QUALITY ASSURANCE: STILL THERE

In Japan, where the standard of quality is apparently set, there are no quality control inspectors, because all the employees have their own built-in quality awareness. As we pursue our own total quality programs, however, we are not looking forward to the disappearance of quality control people. We do, however, change the name from "quality control" to "quality".

The name change signals a significant change in this area. The job is no longer a matter of testing and developing data. The mission of the new "quality" department is to push the total quality program ahead. Its role in the overall system is expediting change. It is also the center of the "measurement" aspect of the program.

The quality department must now have advanced know-how in control charts and their uses. It must work toward the standardization of testing procedures for maximum consistency from shift to shift and raise the reliability of lab test instruments. The quality department is also the authoritative source of information about the manufacturing process.

CUSTOMER AUDITS: PULLING IT ALL TOGETHER

To fulfill the awareness step and, consequently, drive toward a successful total quality effort, it is necessary to always bear in mind what "quality" means. At Dexter, we our working definition of quality comes from the Strategic Planning Institute. It includes these points:

- Quality covers both the product and associated services.
- Quality is not absolute but relative to competitors.
- Quality is the customer's judgment, not ours.

That last point advises us "to see ourselves as others see us." We have done this by way of a "customer audit". Here we surveyed our customers and our own employees for their respective evaluations of Dexter quality of products and services.

We found, not surprisingly, that our employees and customers did not always concur in their evaluations. This awareness, in turn, led to a lot of soul searching inside the company and a lot of review of our processes and services to discover the answers to this question:

What do we have to do to do the job better?

Actively seeking those answers has generated quality awareness throughout Dexter and has given the direction to the total quality program.

* * *

THE SOFT ISSUES OF QUALITY

Patricia I. Pitassy
Director, Quality Management
Celanese Industrial Fibers

IF THE 60'S WERE THE HIPPIE DECADE, THE 70'S THE FITNESS DECADE, THEN SURELY THE 80'S WILL GO DOWN IN BUSINESS HISTORY AS THE QUALITY DECADE. AND SO IT WAS IN THE EARLY DAYS OF 1980 THAT CELANESE EMBARKED UPON A QUALITY PROGRAM THAT HAS DRAMATICALLY CHANGED OUR CORPORATE CULTURE AND THE WAY WE DO BUSINESS.

THERE IS A NATURAL TENDENCY TO EQUATE QUALITY WITH PRODUCTS AND THE MANUFACTURING FUNCTIONS. FOR THOSE MISTAKES ARE TANGIBLE AND A COST CAN BE DIRECTLY RELATED TO THEM. BUT IT IS ESSENTIAL TO DEFINE QUALITY REQUIREMENTS IN ALL OTHER AREAS OF THE BUSINESS IF QUALITY OBJECTIVES ARE TO BE ACHIEVED. WE AT CELANESE HAVE CERTAINLY COME TO RECOGNIZE THAT QUALITY PROBLEMS WHICH SHOW UP IN MANUFACTURING MAY BE CAUSED BY THE WORK ENVIRONMENT AND BY SYSTEMS THAT INVOLVE ALL OTHER PARTS OF THE ORGANIZATION.

I HOPE TO SHARE WITH YOU TODAY SOME OF THE PROGRESS WE HAVE MADE AND THE LESSONS WE LEARNED.

THE CELANESE QUALITY PROGRAM WAS IN THE BEGINNING BASICALLY A CROSBY RECIPE. WE'VE SINCE ADDED A SLICE OF DEMING FOR TARTNESS, AND A SPOONFUL OF JURAN TO MAKE IT GO DOWN BETTER. ALTHOUGH CROSBY, DEMING AND JURAN DISAGREE WITH EACH OTHER ON SPECIFICS, THEIR BASIC MESSAGE IS THE SAME - THAT QUALITY MUST BE AT THE CORE OF EVERYTHING A SUCCESSFUL CORPORATION DOES.

THE REAL TOPIC OF THIS TALK IS THE CHANGE THAT TOOK PLACE AND FOR THE MOST OF US, CHANGE IS NO FUN. WE RESIST IT NATURALLY. AT CELANESE, ONE OF OUR FAVORITE DEFENSES AGAINST CHANGE HAS ALWAYS BEEN THE SAYING,

"IF IT AIN'T BUSTED, DON'T FIX IT." NOW THE QUALITY PROGRAM HAS OPENED OUR EYES TO SOME IMPORTANT THINGS ABOUT OUR BUSINESS, WHICH IF NOT ACTUALLY BUSTED, CERTAINLY NEEDED FIXING BADLY.

IN ALL CASES, THESE ARE THINGS THAT MANAGEMENT IS RESPONSIBLE FOR. THEY ARE BASIC ATTITUDES, PRACTICES, POLICIES, WAYS OF MOTIVATING AND REWARDING PEOPLE.

ALL KEY ELEMENTS OF THE CORPORATE CULTURE HAD TO CHANGE FOR US TO SURVIVE AS A SUCCESSFUL BUSINESS.

IT TOOK SOME SEVERE SHOCK WAVES FROM CUSTOMERS AND FOREIGN COMPETITION TO WAKE US UP. BUT ONCE WE DID WE ACCEPTED THE ENORMOUS CHALLENGE OF CHANGE.

INVOLVEMENT AND A TOTAL COMMITMENT BY TOP MANAGEMENT IS A PREREQUISITE FOR THE SUCCESSFUL IMPLEMENTATION OF EVERY QUALITY PROGRAM AND WE WERE NO DIFFERENT THAN ANYONE ELSE WHO HAD GONE DOWN THAT ROAD BEFORE US.