California State University, San Bernardino

CSUSB ScholarWorks

2001

Total quality management in the auto industry: Feminine values in a man's world?

Chloé Marie Jung

Follow this and additional works at: https://scholarworks.lib.csusb.edu/etd-project

Part of the Gender and Sexuality Commons, and the Industrial and Organizational Psychology Commons

TOTAL QUALITY MANAGEMENT IN THE AUTO INDUSTRY:

FEMININE VALUES IN A MAN'S WORLD?

_____

A Project

Presented to the

Faculty of

California State University,

San Bernardino

_____

In Partial Fulfillment

of the Requirements for the Degree

Master of Business Administration

_____

by

Chloé Marie Jung
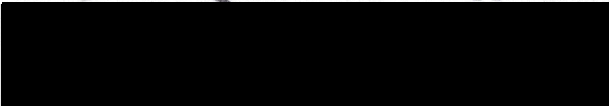
September 2001

TOTAL QUALITY MANAGEMENT IN THE AUTO INDUSTRY:

FEMININE VALUES IN A MAN'S WORLD?

_____

A Project

Presented to the

Faculty of

California State University,

San Bernardino

_____

by

Chloé Marie Jung

September 2001

Approved by:

_____   **8/23/01**
Dr. Jay Varzandeh, Chair, Decision Science   Date

_____
Dr. Kamvar Farahbod, Co-Chair

_____
Dr. Walter Stewart, Co-Chair

ABSTRACT

The "race" for Quality started about twenty
years ago when American companies had to face fierce
and successful Japanese competitors grabbing more and
more market share.

The reason behind the fact that even American
customers were turning their preference to Japanese
products was explained by one single word: Quality.
As opposed to American companies, the Japanese not
only promised but also delivered products that
performed better, were more reliable, and were
cheaper (Cole, 2000).

Such a phenomenon was noticeable in many
industries, but, in this paper, we will only focus on
the automobile industry.

The reason is fourfold. The automobile industry
was among the first one to be severely hit by the
Japanese competition. Hence the U.S. carmakers were
among the first to take counter measures within the
following few years, when "things [got] noticeably
worse, [and] there [was] clear evidence that

significant sales [were] being lost due to quality

competition." (Juran, 1978). Further the automobile

industry used to belong to and still belongs to the

ten fastest growing manufacturing industries

according to the U.S. Department of Commerce (U.S.

Industry & Trade Outlook 2000). In addition, "[the]

motor vehicle industry represents one of the largest

segments within the U.S. economy and forms the core

of the nation's industrial strength." (Scott Heil and

Terrance W. Peck Editors 1998, by Gales Research)

Moreover, with the birth of the Quality

movement, a new management model emerged.

The new model, also called Total Quality

Management, was aimed at helping American companies

to face the globalization of the competition with a

totally new way of managing, thinking, and acting. In

short, to "fight against the demons of inertia,

complacency, and myopia" (Hamel, Prahalad, 1994:296).

However, it has not been easy to implement the

new managing style because it has not been easy to

have it accepted by American managers (Cole, 2000).

One of the many reasons could be that values promoted in the Total Quality Management principles are *feminine* values that are bound to clash in an industry considered as a "man's world".

Therefore, the objective of this paper was to determine how much of the Total Quality Management (TQM) principles have been adopted by the U.S. carmakers up to now, which is about fifteen to twenty years after the "race to Quality" started, how the position of women in that industry has evolved over the same period of time, and if more female presence at top executive positions would better promote TQM principles.

Results can be discussed but they are very encouraging.

The U.S. car makers have achieved high quality in most areas where quality can be measured *mathematically*. They have been and keep working with quality experts and consultants in order to meet quality goals.

Those goals are: meeting the industry or higher standard specifications in order to reduce scrap,

rework, downtime; selecting and certifying suppliers according to the carmaker's quality level requirements in order to assure high quality input; offering high satisfaction sales and services experiences to their customers resulting in being ranked among the top with JD Power surveys. As Robert E. Cole summarizes in Managing Quality Fads, U.S. carmakers made their homework.

However, as Drucker observes in Managing for the Future, U.S. carmakers finished their homework only partially. They did and are doing great on the above *nominal* quality challenges, those that can be measured, therefore inspected until the level of rejection in very low. But they have not been able to integrate TQM practices in their "normal" and everyday managing style.

The Deming 14 Points that constitute the basis of TQM have been partially and temporarily adopted over the past twenty years as quick fixes instead of a permanent way of doing. The reason behind such type of use lies in the fact that most of the 14 Points promote feminine values in the organization.

Feminine values are already difficult to implement in business because "business organizations have goals of achievement which occur with the achieving role of the male (…) [and] the very expression of [feminine] values is widely viewed as a […] weakness" (Hofstede, 1983), and is all the more difficult to integrate in the auto industry that it is a sector still considered as a "boy's club" (Bobby Gaunt, Chief Executive and President of Ford of Canada).

Would those values be much more present if more women were to occupy top executive seats where strategic decisions are made? In 2000, only 4 out of 54 corporate officers at the Ford Motor Company were women, and 5 out of 55 at General Motors. But most of these women do not occupy those positions that are called "line positions". Rather, women keep being named for "staff" positions such as Human Resource Management or Public Relations.

At this point, the question is whether more women in the managerial and especially in key

executive positions would bring in any changes in inflating TQM principles.

Based on the current trends, we can actually be very positive.

Women managers are managers that happen to be women. Those at executive levels are as capable and as assertive as their men counterparts because their motivations there are the same as men's: their major life satisfaction lies in a successful career, and such a goal can be achieved with bringing success to their organization only, which in turn can be achieved with taking the right decision.

Nevertheless, women managers will keep having that nurturing managing style that embraces the TQM principles.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

TWO DIFFERENT MANAGEMENT STYLES

Characteristics of Management By Objectives

Management By Objectives has numerous synonyms:

Management by Results, Management by Numbers,

Management by Figures, and so on. But they all mean

the same: managing with a specific goal to reach

within a specific period of time, generally a year.

Further, MBO is the most common management style

in use in "nearly every major American corporations"

(Joiner & Scholtes, 1995) and in the American car

industry, an heritage from Alfred P. Sloan, a former

Genaral Motors CEO (Peter Drucker, Managing for the

future)

A Management Style

Focus: The Bottom-Line. American businesses have

been and are used to define themselves by financial

measures. As Weimerskirch and George mention, the

example of the *Fortune* Magazine is a good case in

point. In the latest list of 500 best companies, the

successes and the failures are classified into three

categories: (1) biggest money makers and losers, (2)

biggest sales increases and decreases, and (3) best

and worst investments. But *Fortune* is not the only

one.

According to Weimerskirch and George, it is very

common to use "a financial yardstick" in order to

evaluate company performance in business newspapers

and magazines, whether the article is about product

innovation, quality improvement, customer service, or

any other issue.

The problem with such a measuring method is that

it estimates only one part of performance, and it is

not even the most important (George et Weimerskirch,

1998). Plus, such a method diverts managers'

attention from what they really have to work on in

order to become more competitive.

Numeric Goals. It is actually a succession of

assignments that are set by the superior for the

subordinate according to the objectives to be reached

by the end of the year. Those objectives can be a

certain level of profits, the sales increase by 10

percent, productivity increase by 5 percent, cost decrease by 10 percent. And when the different tasks have been assigned, at the lowest level, the tasks turn out to be meeting quotas or work standards.

Hierarchy and Fear: Control and Poor Communication. The traditional American management style is a "top-down" and "one-way" system where managers give orders to workers, and where workers do not make any decision but wait for the manager's ruling instead, for the manager is supposed to know and bear the responsibilities associated to the task (Business Week, Quality, 11/30/1992).

According to Aguayo, most managers see management as rules, regulations, organizational methods, and motivation techniques, and "fear" as the best motivating element.

The management-labor relationship resulting from such a system is a relationship of conflict: management tends to develop a system in order to increase their control, and labor unions eventually create an environment with rigid rules that

energetically resist any reorganization of the workplace. In the automobile industry, the United Auto Workers (UAW) is very strong, and it gave some hard time to U.S. carmakers with long-lasting strikes and tough negotiation requests when workers' rights were threatened (plant shut down, layoff plans, more automation).

Such working conditions do not help in developing 360-degree feedback mechanisms as would suggest Michael Hammer, a system where "all employees are evaluated by their subordinates and peers as well as their superiors" and which would be "a fantastic way to provide [everybody] with the reality of [their] behavior" (Business Week, The Paradox Principles, 01/31/96)

The Costs-Cutting Obsession. One of the Management by Objective (MBO) favorite theme is reducing costs as much as possible. Another MBO favorite method in reducing those costs is reducing the direct labor costs. And the MBO favorite way to

reduce the direct labor costs lies in automation

(William Roth, 1993).

Because the American carmakers were convinced

their Japanese counterparts' success was mainly due

to the low production cost of the cars, the former

took measures in order to reduce their own production

costs even further.

As an example, General Motors (GM) definitely

believed that making major steps in automating

manufacturing operations would enable it to achieve

two objectives: first, leapfrog the Japanese, and

second, solve their labor problems by eliminating

labor as a significant factor. However, they ended up

with a technology that was too advanced, beyond the

state-of-the-art and never tried before.

Consequently, they spent billions in creating the

technology, running it experimentally, and wasting

time in getting it work.

However, today, the "Big-Three" have achieved

their lowest costs objective; this enable them to

offer the cheapest cars on the American market.

(Drucker, 1990)

Outcomes with Management by Objectives

America Worldwide Economic Domination. The above
characteristics make MBO be "simple, logical and
consistent" according to Joiner and Scholtes, but
also be a very popular management method, as it is
widely used in major American companies and widely
taught in business schools, and "is attributed by
many for getting [the U.S. economy] to where [it is]
today" (Joiner & Scholtes, 1995).

After World War II, while the rest of the world
was slowly recovering from the aftermath, the United
States became the worldwide supplier for almost
everything. Such a position made the American
companies take the lead in most industries, but also
become complacent, as they thought this situation
would last forever (Cole, 2000)

Recently, it turned out to not be true at all.
For a while, American companies increasingly lost
market share to foreign companies, especially from

Japan and Europe, because of the poor quality of the products (Cole, 2000), and U.S. car makers are still losing market share today.(See Section Three of this Chapter)

This situation has been more than obvious with the car industry: Japanese cars rapidly became very popular in the American market because they were much more reliable, durable, cheaper, with lower gas consumption. As a result, U.S. carmakers lost considerable market share, the U.S. government enforced tough trade barriers against the Japanese in order to help and protect domestic carmakers, and left Japanese manufacturers with no choice but producing more and more of their vehicles in the United States in order to avoid those regulations.

Undersides of Management by Objectives. Here are some situations/problems encountered when managing by objectives because "the larger purpose and greater good of the work being done gets displaced ", and "[t]he workers, supervisors, and the managers get caught up in organizational pretense where looking

good overshadows doing well" (Joiner & Scholtes, 1995).

- ♦ An electronics firm typically ships 30% of its production the last day of the month. Why? In order to meet the monthly shipment quota. How? By expediting parts from around the country, by moving partially completed instruments ahead of their place in line, and, occasionally, by letting quality standards slip.
- ♦ Another firm sometimes ships incomplete instruments. A service representative then flies around the country installing the missing parts. The shipment quota for the month is met again. Profits, at least on paper, hold firm.
- ♦ Many managers annually negotiate safe goals and manage to exceed them, just barely. Some managers include on their list of negotiable goals, which were already secretly accomplished prior to the negotiation.
- ♦ Production which exceeds the standards is stored so it can be pulled out and used another day.
- ♦ A meter reader stops at a tavern at 2:00 rather than exceed his work standard.
- ♦ Problems are hidden from management, in hopes they will blow over or not be noticed."

<div align="right">(Joiner and Scholtes)</div>

The above examples are only a few to mention but they are common business. In fact, the Management by Objectives (MBO) style generates substantial negative

aspects that create vicious circles because people in

the organization, are more concerned in doing their

best to "look good" rather than really "do well".

The Drawbacks of Management by Objectives

Negative aspects resulting from the MBO style

are mainly based on its "system of control"

characteristic. From that particular aspect derive

elements that turn the system into a vicious circle.

The figure below has been drawn after Joiner and

Scholtes' article.

Figure 1. Management by Objective Negative
Aspect

1. System of Controls
(with measurable and short-term objectives)

G e n e r a t e s

2. Conflict and   3. Game of   4. Dishonesty
   Competition   Appearance

Creates an atmosphere of

5. Fear

6. Complaisance
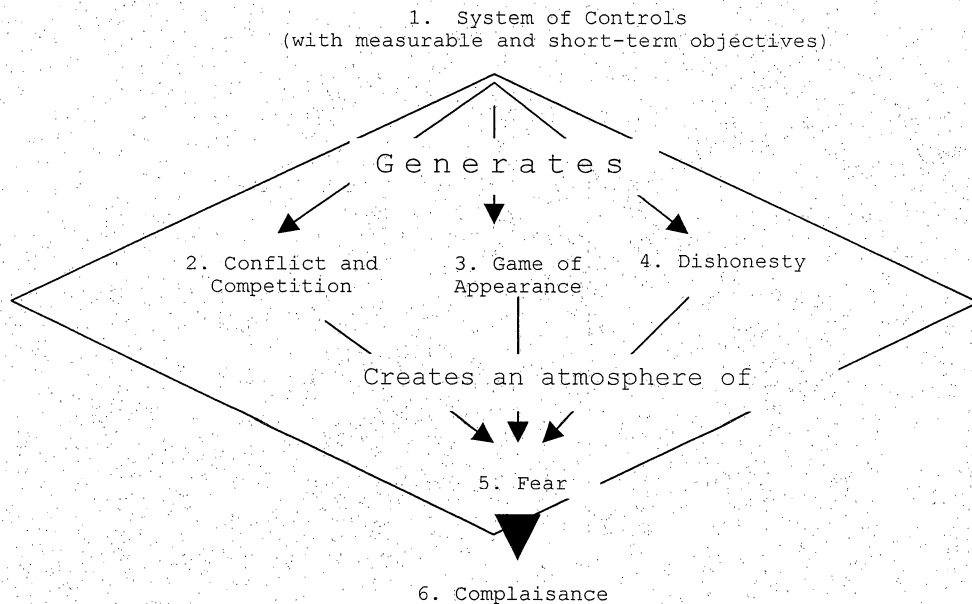
The vicious circle starts with the nature of the system itself: (1) a system of controls, where the term "controls" should be understood "rules". In this environment, priority is always given to short-term projects with the highest potential profits.

Further, this system is bound to generate (2) conflict and competition, (3) game of appearance, and (4) dishonesty. The conflict and competition situation appears when one department's goals are in contradiction with that of another department, such as engineering designing a product that manufacturing is not able to produce because none of them communicated during the development phase. Hence those departments that are left behind and not able to reach the targets tend to fabricate "conformance". They "play the game" because not to do so would risk looking bad, although behind that appearance there is nothing except the feeling that controls are in effect.

In addition, this "charade" of conformance fosters guarded communication, information retention, and minor -and even major- dishonesty as figures are highly likely to be juggled when the pressure to reach the goals set get high, and especially when somebody's career is in the line.

Further, such a system also favors the emergence of a "blame-it-on-them" mentality where people are more busy with covering their back.

From the above behavior derives one of the worst atmosphere that can drive an organization: (5) fear. People are more concerned with "playing safe" than taking initiatives that could prove much more profitable for the organization and for themselves consequently.

Finally, another major drawback is that Management by Objectives (MBO) encourages a company to look inward at its own structures. Hence, rather than delight in providing a product or service that works and satisfies the customer, the sense of accomplishment comes from meeting the controls. The

short-term measurable goal is an indicator of the success of the individual and the success of the system. Therefore, it fosters a "Titanic-like" (6) complaisance about the invulnerability of the operation. The whole system moves with success after success. Yet when there finally is some awareness that the indicators of controls may be focused on the wrong measurements, it is already too late as the ship is helplessly going down.

Yet, this management style lasted several decades and is still in practice today, although another management approach was developed about twenty years ago. The latter appeared in order to help American companies to cope with the quality crisis that hit them in the late 1970s-early 1980s.

Called Total Quality Management (TQM), and mainly developed by W. Edwards Deming, an American statistician and Quality Guru, this movement promoted management practices in use in Japan since the end of World War II. For several reasons, it encountered strong resistance at the very beginning, skeptic

acceptance for a rather short period of time, and

rapid abandonment when results were not measurable at

once.

In the following sections, we will cover what

TQM is about, the key components, the drawbacks, and

the reasons TQM projects keep failing today.

Characteristics of Total Quality Management

Definition of Total Quality Management.

Joiner and Sholtes give a short but

comprehensive definition of what Total Quality

Management is: "[it] *is an approach to management*

which focuses on giving top value to customers by

building excellence into every aspect of the

organization. This is done by creating an environment

which allows and encourages everyone to contribute to

the organization and by developing the skills which

enable them to scientifically study and constantly

improve every process by which work is accomplished."

Another Management Style

Total Quality Management is a new management

model that is "*customer driven*", and companies have

to find a way to "make it their business to get and stay close to their customers." (George et Weimerskirch, 1998)

Focus: the Customer and His Satisfaction. The focus of Total Quality Management is on how well the customers' requirements are met. In fact, how to make "understanding and satisfying customer requirements" the top priority as customer satisfaction determines financial success.

The Customer: Who Is a Customer? There are external customers and internal customers. The former are the end users of a product or service, the latter are other employees or departments who depend on one's work to be able to perform their job properly. In the Saturn plant of Spring Hill, Tennessee, workers in the assembly line work in teams of twelve people with responsibility for multiple tasks, and consider the following worker in the line as a customer.

Customer Satisfaction. Peter Drucker gives a relevant set of questions that companies have to

ask in order to satisfy their customers: "Who are the

customers and who are the non-customers? What is

value to them? What do they pay for?" (George et

Wermerskirch, 1998)

As far as the car industry, Marketing Research

firms such as J.D. Power and Associates and

organizations like the University of Michigan publish

reports on that aspect.

J.D. Power and Associates has become a reference

for the carmakers in the measurement of customer

satisfaction by publishing reports such as the Sales

Satisfaction Index (SSI), which ranks each

manufacturer's relative satisfaction during the sales

process, analyses the specific strengths and

weaknesses of each manufacturer and identifies the

specific dealership practices that drive customers to

be satisfied (or dissatisfied) with the sales

process.

Another report is the Customer Service Index

Study, which is a comprehensive measurement and

analysis tool used by manufacturers to monitor

customer satisfaction with dealer service and manager future service retention. The study identifies consumer behavior trends and key elements of how customers are treated when they bring their vehicle to the dealership fore service. (Articles are available at http://www.jdpa.com)

The University of Michigan also publishes annually the American Customer Satisfaction Index or ACSI, the national index of satisfaction with quality, compiled by measuring customer satisfaction with a representative 34 industries in seven sectors of the economy. The study was initiated back in 1994, and is reviewed each year.

When we analyze the evolution of the scores for the automobile industry, we can observe that Chrysler has generally been rated equal to or under the industry average between 1994 and 2000, as well as Ford except for its luxury brand Lincoln and Mercury. Regarding General Motors, except for the Chevrolet and Pontiac divisions, rated way below the industry average, all the other brands have been rated way

beyond the industry average. Appendix A shows a

graphic evolution of the American Customer

Satisfaction Index for each carmaker from 1994 to

2000.

The Shift in Thinking. The Total Quality

Management principles require managers to adopt a

totally new way of thinking the organization and its

working process in order to make it more efficient.

People in the organization become problem solvers

that work to constantly improve whatever they are

doing and the way they are doing it for stepping on

the TQM path is implicitly stepping on a "Continuous

Improvement" path too. (George and Weimerskirch,

1998)

However is not that easy to implement. The

reason is that the Shift in Thinking assumes many

changes that face strong resistance from the workers,

but especially from managers. (Cole, 2000) Those

changes concern the core of the company which are its

mission, objectives, and structure, and the people

themselves.

Changing the Culture of the Company. The

primary concern for the company should no longer be

the bottom-line but how it will best serve its

customers. Doing so will enable the company to build

loyalty from its most valuable asset and fund the

business on stable grounds and strong relationships

which will turn into profits given time. (Kotler,

2000)

Figure 2. The New Company Structure.
            (inspired from Collins and Porras, Built to

        Last, pp.117)

Customers

Sales and Support Sales People

Division Managers

Senior
Managers

Board of
Directors

Assembly Workers
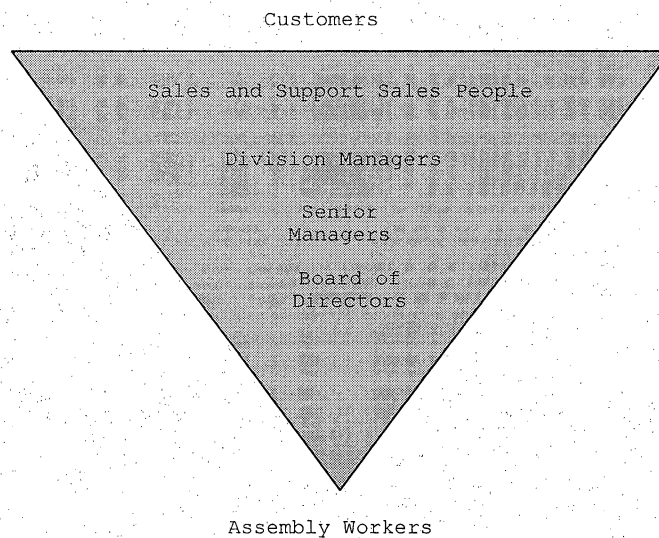
Therefore the mission of the company should

read something like that of Nordstrom: "Our number

one goal is to provide *outstanding customer service."*
(Collins and Porras, 1997) and the company's
structure changes into an upside down pyramid where
the customer is on the top, those closest to the
customers next, and those least close on the bottom.

   Changing the Management System. Beside the
upside down aspect, the new structure should also be
flatter with little importance to hierarchy in order
to create an atmosphere where people collaborate
instead of competing or being condescending.

   Given that the American society is based on a
system where hierarchy is very important, it is not
easy to enforce it. Nevertheless, the Japanese
society also gives high importance to hierarchy;
however, as opposed to American managers who showed
strong resistance, Japanese managers did cope with
it. (Cole, Deming, Juran).

   In the old management system, if something went
wrong, workers only were held responsible. In the
early 1980s when American managers went to Japan to
observe how Japanese manufacturing companies were

proceeding but above all find out the "magic tool that will fix [their] quality problems", because they strongly believed that everything was attributable to workers, they came back with the strong "idea that the problem is the worker and that what is needed is some way to get American workers to act like Japanese workers (Crosby, 1984:56).

Such behavior fosters situations like that at General Electric managed in the old way when Jack Welch took over: a traditional corporate hierarchy premised on mutual mistrust of workers and bosses being too plodding and cumbersome.

Allan Mendelowitz, Director of International Trade, Energy, and Finance Issues, National Security and International Affairs Division, gave a good case in point in 1992 when he shared his point of view about the competitive challenge to U.S. companies especially in the automobile industry.

He took the example of the NUMMI, New United Motor Manufacturing, Incorporated, "a 50/50 joint venture of General Motors and Toyota." and perfectly

demonstrated that a different management style was beneficial, and proved what Juran kept on arguing since the early 1950s: "85 percent of the failures in any organization are the fault of the systems controlled by management. Fewer than 15 percent of the problems are actually worker related." (Joiner and Scholtes, 1995)

Therefore, work is not haphazard but can and must be studied, analyzed, and scientifically disserted so that people in the organization are able to focus on the process improvement rather than individual accountability. To do so, the communication system has also to be adapted to the needs of the work and not to the needs of the hierarchy.

More details on the NUMMI are available in Appendix B.

Promoting Leadership and Empowerment. By Leadership, we mean people that "[display] high level of persistence, [overcome] significant obstacles, [attract] dedicated people, [influence] groups of

people toward the achievement of goals, and [play] key roles in guiding their companies through crucial episodes in their history" (Collins and Porras, 1997).

According to Jack Welch, Leadership is needed because it is the way to win, whereas management is fine only as far it goes.

The role of leaders is to maintain a consistency of purpose throughout the organization, namely persistence in accord with a clear and widely understood vision, and create an environment which nurtures total commitment from all employees where rewards go beyond simple benefits and salary.

Henceforth, leaders play a crucial role in quality. As Deming kept arguing, leaders have to be the primary agents for improvement. They have to understand common causes and special causes (see Appendix D for more details) and be able to tell the difference. They have to understand the overall system and where their group fits in. They have to

cooperate with those in the steps ahead of and following them (Aguayo, 1990).

The role of leaders is to build trust, help and not judge, encourage everyone to improve, and create an environment where the workers can experience joy in his or her work, and perform in a manner consistent with the aims of the organization.

Only management can change the reward system, the structure of the organization, and the philosophy of doing business, otherwise the results will be limited and disappointing because as Deming used to say, "Quality is made in the boardroom. (Aguayo, 1990)" Only management can make a standard company become a quality company in having a different perception of what quality is and communicating it. (See Appendix E for a comparison between a standard company and what Aguayo calls a "Deming company)

By *Empowerment*, we mean people given the power to "use [their] good judgement in all situations" (Nordstrom Employee Handbook, see Appendix C).

Giving employees the power to make decisions is developing their creativity and skills at the utmost potential, make them become problem.

Leaders have to drive out fear so that everyone can work effectively for the company rather than build barriers that rob workers of pride and joy in their work. (See Appendix F for more details.) for when fear is artificially used to improve performance, performance is not improved. Rather, much of the effort goes into dealing with and removing the threat, at the expense of performance.

Long-Term Relationships with Suppliers. Suppliers have to be treated with respect, and the best situation would be when close and long-term relationships are developed on trust and loyalty from both parties. Suppliers have to see the operation and get as much help, assistance, and information they would need in order to do the job right. So acts Toyota: it helps and sustains its suppliers' business, and integrates them into its operations.

How to Implement Total Quality Management?

Here is a model developed by Joiner and Scholtes when working with Deming and various organizations seeking to make the transformation.

The Key Elements. Managers have to be educated and re-educated in order to become leaders instead of bosses. They have to learn to solve problems and constantly improve instead of blame and control. In order to obtain that result, there has to be continuous feedback from the customer, and constant communications and feedback within and between units of the company.

- ◆ A clear vision of the organization's future has to be developed and communicated. This vision has to say: "here is what we are, here is what we do, here is where we're heading and here is what is important and unique about us."

- ◆ Total Quality Management has to become a "normal way of doing business". This can be done through building teams because "teams are

essential for maintaining "consistency of purpose", for "breaking down barriers" between departments, and for "driving our fear" among the managers themselves."

♦ Have an overall strategy and target implementation efforts in order not to fall into the trap: try to involve too many people too soon. It is better to move little by little and according to the capacities available instead of having a mouth bigger than the belly.

♦ Improve processes through teams consisting of a mixture of professional staff, managers, supervisors, and hourly employees that are trained in both statistics and organization development. They also have to be guided by a senior statistician and a senior organization development specialist that help them with the scientific investigation of processes and with facilitating the dramatic changes in the organization, its management, and its culture.

- ◆ Leadership, participation and oversight by

  managers, beginning at the top is essential

  for the most frequent cause of failure of any

  Quality improvement effort is the non-

  involvement or indifference of top and middle

  management.

- ◆ Develop champions who will help the

  transformation succeed even during tough

  periods.

The New Working System. Figure 3 illustrates
what the new working way should look like once
quality has been implemented throughout the
organization.

Figure 3. The New Working System
         (*Source: Rafael Aguayo, 1990:161*)
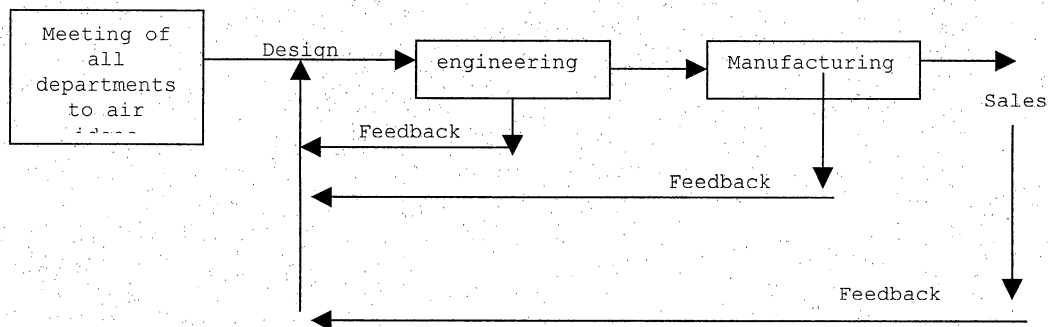
Weaknesses and Reasons for Failure

In this section, we will cover why Quality management in the United States turned out to be just a theory among others that degenerated into little more than fads because they appeared to be quick fixes for a topical problem.

Mis-Purpose. Here is the way it often worked: on the one hand, the boss heard a fast-talking guru or read about the latest fashion, and then ordered his executives to look into it. On the other hand, employees adopt a "this will pass too" attitude. (Joiner and Scholtes, Crosby).

As a result, nobody really gets involved because people know that sooner or later another "fad" will be implemented to replace the current one. Such a behavior has two major inter-related consequences: the "fad" never really gets to be even tried and the results expected cannot be obtained for the previous reason.

In addition, TQM is not a "quick fix" but a "continuous improvement method", neither is it a

"cost-cutting tool" but a "cost saving method".

Further, managers' impatience is another big factor

contributing to the failure. They needed to have

"figures" showing up in a very short period of time

(generally a quarter) and proving the benefits.

In Managing Quality Fads, Robert E. Cole gives

six major causes of quality initiatives failure: 1)

faddishness of management commitment, 2) conflicts

with downsizing efforts, 3) bureaucratization of

quality activities, 4) management's "program"

mentality, 5) conflict with traditional top-down

management style, and 6) lack of compatibility with

American values.

Misuse. According to Robert E. Cole, there have

been four major steps in the Quality movement in the

United States. It started with Quality Circles

(making workers -only- work in teams), Statistical

Process Control or SPC (a scientific method developed

in the U.S. in the early 20th century by Bell's

statistician Walter A. Shewart, successfully adopted

in Japan in the postwar period, and not that

successfully re-imported in the United States in the early 1980s -See Appendix D), Employee Involvement (empowering the employees and the workers), and Process Management (reorganize the company according to the real focus, namely the customer).

The basic problem is they all have been implemented separately, at different times, and with the only purpose of fixing a problem temporarily. They all are crucial but need to be implemented step by step but not one after the other, rather in a continuous improvement effort, and with real commitment. Otherwise, they will not produce the results that many organizations desire, and especially not within three months.

The Definition Problem. Another major problem that managers encountered when they wanted to implement quality in their organization was defining what quality meant for their organization and for their customers.

According to the company, Total Quality Management could mean:

"
- Doing quality control in an environment of good communication and teamwork,
- Requiring participative management with strong leadership from the top,
- Doing things right the first time / defect-free products,
- Customer satisfaction,
- Toolkit of Quality methodologies,
- Management model."

(Cole, Managing Quality Fads:11)

Hence, the definition problem encountered left most managers dubious.

Total Quality Management: "Feminine" Values?

This section will cover socially accepted concepts, their impact in the working place, the place of women today, and an evaluation of the Deming 14 Points depending on the managing style.

A Heritage from the Human Evolution

Feminine and masculine values derive from the female and male roles established all along the human evolution.

At a certain point of the human evolution, hominids were organized in hunter/gatherer groups in

order to survive. Yet primitive rules still observed

among many animal species prevailed, i.e. the

domination of an alpha male over the group and

especially the females (Shlain, 1998). Role

distribution was hunting for males and gathering and

nurturing for females. Characteristics associated

with each role are still in place today.

Hunting demands "cold-bloodedness" tinged with

cruelty. A hunter must maintain a singularity of

purpose when focused on a prey, therefore the mind is

concentrated on a *"one-at-a-time"* basis. (Shlain,

1998)

In contrast, nurturance requires emotional

generosity combined with warmth. A mother must keep a

field awareness of all that is going on around her.

Her behavior is highly linked with the right

hemisphere of the brain that integrates feelings, and

contributes a field awareness to consciousness,

synthesizing multiple converging determinants so that

the mind can grasp the senses input *"all-at-once"*.

(Shlain, 1998)

Depending on the society and the different elements that influence the environment, that society tends to promote male dominance and female subordination as a traditional concept. For example, the U.S. ranked (61) -above average (51)- on the Masculinity Index in Hofstede's study. An equality concept also exists in some societies, but none show female dominance and male subordination. (Hofstede, 1983)

Consequences on People

A General Behavior Pattern. Today, when studies on female and male behavior are conducted, results are highly likely to be as follows.

Male behavior will be associated with *autonomy, aggression, exhibition,* and *dominance* because masculine attributes are being *aggressive, ambitious,* and *competitive.* (Hofstede, 1983)

Female behavior will be associated with *nurturance, affiliation, helpfulness,* and *humility* because feminine attributes are being *affectionate, compassionate,* and *understanding.* (Hofstede, 1983)

Consequences in the Business World. The above association helped in the development of situations of "discrimination" in the workplace, the creation of what Stead call "female managerial ghettos", and beliefs regarding women capabilities.

There are different types of discriminations. Hofstede as well as Stead or Forbes and Piercy mention differences in compensation, treatment, promotion and position.

Women tend to be lower paid than men because they are not considered as "bread earners", rather as "cake earners" (Hofstede, 1983) for it is assumed that a women's place is at home, not at work.

Women also face different treatments from their managers than their male colleagues. They do not receive proper feedback, or no feedback at all. The major reason is that male managers want to be "careful in what they say to women because they think they would break down in the office and cry" (Stead).

Also, it is believed that "women [cannot] operate management teams because they weren't

involved in organized sport activities as children and they weren't as ambitious or aggressive as men. (Stead)".

However, women are not appreciated when they are aggressive because it is not socially accepted that a woman could be aggressive: "A man who's aggressive is considered assertive, when a woman is, she's considered a bitch (Rogan, 1984)".

Women also tend to be kept aside when the promotion period approaches. According to Stead, this phenomenon is due to a "primitive level" where men would be scared and would feel threatened by their women colleagues.

Male workers, employees, and managers tend to have a great difficulty in accepting the idea of working for a female manager. Stead reports that the level of resistance tends to drop fast as more and more women join the company. However, when the percentage of women reaches the 15 percent mark, the men seem to say: "They're all over the place, and they may get the next job that I want." (Stead)

As a result, the resistance turns overt again.

The major obstacle to overcome is having male managers seeing women as people, not as women, and are willing to promote them just as they would promote male subordinates.

Finally, there are positions that are "reserved" to women and end up becoming "female managerial ghettos".

Studies conducted by Catalyst, a non-profit research and advisory organization that works with business to advance women, show that there are more and more women at executive levels of management from one year to the next, but most of those positions are related with corporate staffing roles rather than operations jobs, while the latter is a prerequisite to nominations at the top executive level.

According to the 1999 Catalyst Census of Women Corporate Officers and Top Earners, 11.2 percent of *Fortune 500* corporate officers are women. 44 percent of them occupy *line* (profit-and-loss) positions and 56 percent hold staff positions. Plus, 94 percent of

line jobs are held by 46 percent of male corporate

officers, while the remainder is held by only 24

percent of female corporate officers.

Are considered staff positions those that are

related to departments such as Human Resources,

Benefits, Public Relations, and Communication.

Two major factors contributed to that situation.

First, women chose to work in that type of

departments because they better reflected their

nurturing attributes among all the other functions in

the corporation. Second, women used to be less

educated than men and were not able to take charge.

However, nowadays, more and more women are much more

educated than men of the same age and are end up by

"[beating] men at their own game." (Hofstede, 1983)

Women in the Auto Industry. The Auto industry is

one of the few sectors where women are not much

represented. According to the Bureau of Labor

Statistics, the Auto Industry hardly counts 25

percent of women. At corporate executive level, the

proportion is even lower: 4 out of 54 corporate

executives at Ford are women, and 5 out of 55 at GM

in 2000, according to Catalyst. Although more women

are getting those titles, they mainly run staff

positions. Out of 100 leading women in the auto

industry selected by Automotive News, 8 work at

Daimler Chrysler, 18 at Ford, and 17 at GM. Except

Cynthia Trudell, Chairman and President of the Saturn

Division, no other woman holds a comparable position.

All the others are either Vice Presidents in areas

such as Human Resources, Environment, Communication,

Public Relations or General Managers at one brand

division.

If we include Canada, then we would have 3 women

CEO in the auto industry including Cynthia Trudell in

North America: Bobby Gaunt, President and CEO of Ford

of Canada, and Maureen Kempston Darkes, President and

General Manager` of General Motors of Canada.

The Basis of Total Quality Management Principles Are

Feminine Values

Male and Female Managing Styles. The masculine

managing style pretty much reflects the Management by

Objective characteristics analyzed earlier in this
paper. There is high emphasis on male behavior which
are being assertive, seeking to take charge and
dominate, relying on hierarchy and status as a power
base, using standard codes for judging the
performance of others. (Book, 2000)

As a result, managers develop qualities such as
being tough, aggressive, winning at all costs,
autocratic, hoarding power and dominating, whether
they be a man or a woman (Book, 2000). Such a way of
doing fits hierarchical structures where the rank is
the primary means of power and everybody knows
his/her place within the hierarchy; chiefs issue
orders that subordinated carry out; change is
difficult due to a highly bureaucratized system,
reward is based on outstanding solo work. The major
focus lies in the immediate results of whatever is
undertaken.

Today's women managers are transforming the
business world. They used to "compete in a world they
never made" (Harragan, 1977), now they are

reinventing the world. They focus on people they work

with not dominate, engage colleagues in decision

making not compete, release people to be creative not

put under pressure, focus on customer service in

order to give people what they want (Book, 2000)

From "Good Girls", they have become "Gutsy

Girls" (White,1995) that have confidence, take risk,

but use traditional feminine qualities like empathy

(understanding others' feeling, motives, and

situations), collaborations and cooperation, stay

focused on the goals set until they are achieved,

turn challenge into opportunities, overcome

resistance with strong willingness and commitment

that call for respect, put great effort in selling a

vision.

The Deming 14 Points and Management Styles. The

table below displays the main characteristic of each

Deming Point and shows that each of them better

matches the feminine managing style. The "Male

Management Style" and "Feminine Management Style"

determination was made based on Book, Stead, Hofstede, and Shlain.

Automobile Industry Snapshot

Quick Overview

"The motor vehicle industry represent one of the largest segments within the U.S. economy and forms the core of the nation's industrial strength." (Standard & Poor's) There were approximately 130.5 million vehicles in use in the United States in 1999.

The U.S. motor vehicle manufacturing industry consisted of 3 American, 3 German affiliated, 7 Japanese affiliated, and 2 Korean affiliated manufacturers of light vehicles (LV), and together, they were expected to produce approximately 16.5 million vehicles in 2000 according to PriceWaterHouse Coopers Autofacts experts, out of about 54 million vehicles expected to be produced worldwide in 2000.

As far as sales, they reached a record of 17.4 million units in 2000, up 26 percent from 16.9 percent in 1999, the previous record (Wall Street Journal, 01/04/2001:A3). Appendix G displays three

graphs that show the car production in the world for 1998, along with a repartition by region.

Major Issues in the Car Industry

Vehicle Safety. In 1992, the Congress passed the Intermodal Surface Transportation Efficiency Act in order to push and speed the efforts developed to increase vehicle safety.

Among the requirements are the installation of driver and front seat air bags in every passenger cars by 1998, and in trucks, minivans, and sport/utility vehicles by 1999. Among other requirements are rules about rollovers, brakes, child booster seats, head injury protection, and side impact protection (such as side air bags).

The Environmental Concern. This aspect strongly influenced and still influences the industry. For example, California adopted a clean air standard in 1990. That obliged automakers to offer Zero Emission Vehicles (ZEV) starting 1998, with an incremental increase in the percentage of ZEV cars sold.

Table 1. Evaluation of the Deming 14 Points

Point	Main Characteristic	Masculine Management Style	Feminine Management Style
1	Consistency of purpose	Switch when results do not show up	Keep faith
2	Implement Change	Resistance to change	Open to change
3	Overall Quality Achievement	One-at-a-time vision	All-at-once vision
4	Build Long-term Relationship of Loyalty and Trust	Depends on the Interests at Stake	Understanding and Empathy
5	Constant Improvement	Step-by-Step	On the Lookout
6	Training on the Job	Solo work	Learn by doing
7	Institute Leadership	Chief is an example to follow	Foster creativity and initiatives
8	Drive out Fear	Fear is a stimuli	Trust
9	No Barrier between Departments	Competition between Departments	Cooperation
10	No Slogans or Exhortation	Work with slogans and exhortations	Project confidence
11	Pride of the Workers' Workmanship	Manager gets credit first	Participation in decisions
12	Pride of Managers' Workmanship	Ibid	Collaboration and Participation
13	Self-Improvement	Not necessary	Initiatives to improve appreciated
14	Collaboration	Competition	Cooperation

This would begin with 2 percent in 1998, moving up to 5 percent in 2001, and reaching 10 percent by 2003.

Other states considered adopting similar regulations. As far as the federal government, it continued to insist on compliance with the CAFE (Corporate Average Fuel Economy) standards previously established by the Energy Policy and Conservation Act that could amount penalties up to $7,000 per non-conform car. The table below displays the requirements according to the vehicles, but also the performance of U.S. and foreign vehicles.

Impact of Foreign Competition. Foreign competitors fiercely hit the U.S. automakers since late 1970s and early 1980s. Since then, things have evolved in favor of the Japanese car makers who kept and keep grabbing market share to the U.S. car manufacturers.

By the end of 2000, when analyzing the sales figures, the Big Three lost considerable sales to their foreign competitors, and their Japanese

competitors first. According to the Wall Street

Journal, on the one hand, we have General Motors

whose sales dropped by 18 percent to 337,972

vehicles, just like Ford whose sales decreased by 14

percent to 275,095vehicles and Chrysler who faced a

15 percent decrease to 167,672 units. On the other

hand, we have Toyota that increased its sales by 14

percent to 133,993 units, which is almost as many

cars sold as Chrysler, Honda that also slightly

increased by 2.7 percent to 88,035 vehicles, and

Volkswagen that boosted its sales up by 12 percent to

26,865 units.

Figure G.2. in Appendix G shows the evolution of

the U.S. car market share from 1999 to 2000, and

Figure G.3. the repartition of the U.S. car market

among its major players.

The Industry Leaders. Without any contest, the

leader in the U.S. as well as in the world is General

Motors, followed by Ford and Toyota, respectively

second and third. The American Number Three, namely

Chrysler, has become now the American unit of the

German car manufacturer Daimler since the 1998 merger, and the two rank fifth in the top ten vehicle manufacturers by volume, and third before Toyota in terms of turnover. (See Appendix G, Figure G.4.)

Industry Trends. According to industry experts, sales in 2001 are expected to drop by about 15 percent from the record pace in the first quarter of 2000 (Wall Street Journal).

But most important trends are centered around two related developments: intensifying competition and globalization. Increased domestic competition pressures manufacturers to leverage their brands and engineering, development and production costs by entering and competing in foreign markets. As more producers enter new markets around the globe, competition escalates worldwide.

Other significant trends include the growing importance of truck sales in North American vehicle market. The industry is also dealing with an increasing trading deficit, the rise of superdealers, and the growing role of the Internet in the

automobile industry. According to J.D. Power in the 2000 Autoshopper.com Study, 34 percent of used-vehicle buyers log on the internet to help them during the shopping process. This represents and increase of 8 points over 1999 study results (26 percent). Regarding new vehicles buyers, they are as many as 54 percent to use it.

The Internet, faster communication, lower trade barriers, and rising income in many parts of the world has changed the face of the international automotive market. Competition, which once came from local sources, can now come from and go to virtually anywhere on the planet. The resulting globalization of the auto industry had led to improve product Quality and lower costs and has spurred companies on reposition themselves through mergers.

Currency fluctuations have encouraged the production of foreign models in North America transplant manufacturing capacity in order to maintain competitive prices on their core products.

Eventually, almost everything that Japanese manufacturers sell in the United States may be built in North America. European automakers are also increasing their U.S. production capacity. BMW plans to expand its U.S. facility.

About 8.9% of the light-duty trucks sold in the U.S. in 1998 were imported from countries other than Canada. Although up from 1997's 8.5% and 1996's 7.7%, this figure is down from a peak of 16% in 1990. Currently, the largest truck exporters to the U.S.- Toyota, Nissan, Mazda, Isuzu- are pursuing strategies to manufacture light trucks in the U.S. Nissan and Mazda have arrangements with Ford, and Toyota already shifted production to its midsize truck to the U.S. Faced with the potential for greater competition, in this segment, GM, Ford and Chrysler are renewing their truck lines. (Standard and Poor's)

CHAPTER TWO

RESEARCH: TOTAL QUALITY MANAGEMENT IN THE AMERICAN

CAR MANUFACTURING COMPANIES

Objectives

The objective is to determine how much of the Total Quality Management (TQM) principles have been adopted by the U.S. carmakers up to now, how the position of women in that industry has evolved over the past twenty years, and if more female presence at top executive positions would better promote TQM principles.

Although TQM embraces both technical and managerial aspects, the technical side is not included in this paper. This orientation is based on the assumption that U.S. carmakers have achieved the technical ability to do at least as good as their foreign competitors.

This assumption is based on declarations ad writings of three main knowledgeable people: Peter F. Drucker, who is an expert in management and used to work and counsel U.S. carmakers; Robert E. Cole,

Professor of Management at Berkeley, California, and author of several books on the automobile industry and Quality Management; Ronald E. Harbour, President of the Harbor Organization that published each year the famous Harbour Report on the performance of many assembly plants throughout the U.S. and Canada whether they be American or foreign.

According to Peter Drucker, U.S. carmakers have achieved a huge step in quality as they are able to offer cars at a much lower price than their competitors because they have been able to improve their way of doing in reducing waste and therefore producing at lower costs.

Robert E. Cole in his latest book, Managing Quality Fads, shows the efforts made by U.S. carmakers in order to improve their level of quality, and their results in the considerable reduction of defective rates for example.

As far as Ronald E. Harbour, he declares that U.S. carmakers have assembly plants that perform as good as if not better than Japanese assembly plants.

This opinion comes from his personal observation of different plants, observations that were made during the time spent to visit as many assembly plants as possible for the annual Harbour Report.

Based on the above, we assumed in this paper that the U.S. "Big Three" have the technological ability to perform as good or better than competitors.

Methodology

Two types of questionnaires were sent to two categories of experts.

One was sent to Quality consultants and experts in the U.S. that have worked or still work with either of the Big Three. The purpose of that questionnaire was to get their opinion on the first objective of this paper: how much of TQM principles have been adopted

One was sent to organizations and writers on women advancement in the American corporation to get their evaluation on the evolution of women in key

positions in the Auto industry which is the second objective of this paper.

As far as the third objective of this paper, writings and interviews conducted by several auto magazines, newspapers, and organizations such as Catalyst will give us a trend.

Results

A total of sixty three consultants and experts were sent the questionnaire. Most of them were members of the Deming Cooperative and the Juran Institute, others were consultants or academics who wrote about the Quality subject, others publish reports on the auto industry regularly. A total of 44 responded. However, as some did not answer to all the questions, and some also misunderstood other questions, this total drops down to 37.

Also, the first three questions were there to come to an agreement on definition matters, therefore, those who responded with a high deviation compared to the average were also rejected. This brought the numbers down to 19 usable questionnaires.

Total Quality Management: Not an Everyday Normal

Management Style?

Four sets of questions were asked.

The first one was aimed at reaching an agreement

in the definitions. The second set was directed to

evaluate the importance of Quality for the Big Three.

The third set focused on how the U.S. carmakers are

doing on the U.S. market. The last set would go over

the integration of TQM practices.

Definition Agreement. Depending on the nature of

expertise of the respondent, the definitions turned

out to be more or less technical, but all of them

agreed on common characteristics in defining the

three terms below.

Quality: "the ability to provide a product or

service that meets or exceeds the needs of a customer

on the basis of three main attributes: reliability,

accuracy, and durability."

TQM: "promotion of continuous improvement

through the use of quality measurement tools and

their results, and with the involvement of every

individual in doing better at the individual, departmental, and corporate level."

Customer Satisfaction: "a scale which included a range from disappointment to delight."

<u>The Importance of Quality for the Big Three.</u>

<u>Implementation Motives.</u> According to Richard Bongiorno, Senior Consultant with J.D. Power and Associate, a certain degree of quality has always existed within the U.S. carmakers. The level of quality requirements increased with the level of competition as other manufacturers improved their future vehicles quality, which set new standards for the vehicle category and the industry.

Today, although all of the experts agree that quality has improved in overall over the past 20 years, none of the Big Three is over with it yet.

The reason is that the main focus in the quality improvement was the cost improvement, say nearly 47 percent of the respondents. Another 26 percent of them think the major focus was the reduction of defects. Almost 16 percent think of Obsolescence as

the major drive for quality improvement. The only

person that checked "other" mentioned design as a

quality implementation driving force.

Figure 4. Quality Implementation Motives
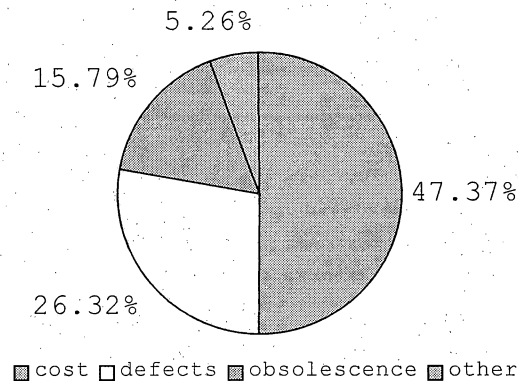
As the people who answered are mostly

consultants that were directly involved in the

quality catch up operations when counseling either of

the Big Three, we can conclude that the efforts were

directed in reducing the production cost, as the U.S.

carmakers first strongly believed that cost was

behind the success of the Japanese companies.

Quality Importance Today. Except three

respondents, all the other experts agree that all the

U.S. carmakers still have a big concern for Quality

and TQM. Their answer is based on their common

observation that it is a question of survival for the

carmaker.

Among those who disagreed, one puts forward that

the major concern for the U.S. carmakers remains

offering a vehicle with the fewest defects possible,

not an overall improvement in the organization's

"savoir-faire"; another one thinks that the only U.S.

car manufacturer that shows real quality concerns is

Ford based on the fact that Ford continually offers

better products and everybody can see it in the new

vehicles that are released; the third expert has a

rather negative observation as he feels the efforts

are not noticeable, and U.S. carmakers tend to offer

vehicles that are not comparable with their Japanese

counterparts in the same category.

Results of Efforts

The experts have been asked to grade the degree

of improvements that have been made in nine specific

categories that J.D. Power considers as accounting

for high quality.

Table 2 below shows the average grade given for each of the nine characteristics to each U.S. carmaker out of a minimum grade point of one, and a maximum of five.

Although the grades do not seem to vary a lot from one manufacturer to the other, there are still some differences.

Table 2. Results of the Efforts

Category	Chrysler	Ford	GM
Ride handling and breaking	3.6316	3.7368	3.5789
Features and control	3.7368	3.5789	3.1052
Seats	2.7895	2.9474	3.1052
Vehicle interior	3.8947	3.6842	3.4211
Vehicle exterior	3.5263	3.6842	3.4211
Heating ventilation and cooling	2.7368	2.9474	3.000
Sound system	3.4211	3.3684	3.4737
Transmission	3.2632	3.4737	3.5138
Engine	3.2632	2.9474	3.4737
AVERAGE	3.3626	3.3743	3.3216

The overall average grade shows Ford as having done best, slightly ahead of Chrysler and GM. Also, all the manufacturers have been rated rather high except for the "heating ventilation and cooling" and the "seats" aspects, sometimes way above 3 out of 5

for most of the categories. Surprisingly, although GM

finishes third, the company still did better in four

categories against three for Chrysler and two for

Ford when going over each grade and category.

The Popularity of The American Car

Manufacturers. From the above section, we note that

all the Big Three did put great efforts in improving

the quality of their vehicles. However, they are not

there yet. For instance, most of the cars getting bad

grades in almost all the categories in the 2000

Consumer Report are U.S. brands, and even cars

released less than 24 months ago are listed on the

second-hand cars to be avoided.

Yet, the U.S. market is still in much favor of

the U.S. carmakers. As reported by the Wall Street

Journal in December 2000, over 60 percent of the U.S.

car market went to the Big Three, with 27.2 percent

for GM, 22.2 percent for Ford, and 15.2 percent for

Chrysler.

According to the experts that have been asked why the U.S. cars are still so popular, the reasons are threefold.

Table 3. The American Car Market[1]

Make	December 2000	December 1999
General Motors	27.2	30.4
Ford	22.2	23.8
Chrysler	15.2	16.0
Toyota	10.8	8.7
Honda	7.1	6.4
Nissan	4.5	4.4
Mazda	1.6	1.2
Mitsubishi	2.0	1.9
Subaru	1.2	0.9
Hyundai	1.4	1.0
Suzuki	0.3	0.3
Big Three	61.4	67.1
Total Japanese	28.3	24.6
Total Korean	2.5	1.8
Total European	7.8	6.3

Source: The Wall Street Journal, 01-04-2001 P. A3 & A6
1- Domestic vehicles are those built in the U.S., Canada and Mexico for sale in the U.S.

Better Pricing. 100 percent of the experts agree that the "price tag" favors the U.S. brands. As each expert allocated the same grade to all of the three carmakers, they actually consider that the

price tag is relatively the same from one car maker to the other.

Buy American. This ideology and loyalty is very strong. 80 percent of the experts think it is the second factor to the U.S. makers' popularity. And the U.S. car manufacturer that experts think benefits most from that awareness is Ford, then GM, and finally Chrysler. Chrysler may have lost much popularity in respect to that characteristic since its merger with Daimler-Benz.

Unique Styling/Design. This aspect gathers 63 percent of the experts. Chrysler tends to collect unanimity among the experts as being leader in "cosmetic change" (R.E. Harbour), the recent PT Cruiser is one great instance. Ford comes second, and GM comes last. As far as GM, all the experts question the ability of the company to develop stylish vehicles as they consider that particular skill to be rather weak.

Also, U.S. carmakers try to offer outstanding Sales Satisfaction ad Customer Service Satisfaction

according to J.D. Power reports. However, in a majority of 93 percent, experts disagree that the reason lies in the following relation: the lack of quality of the vehicles is offset by higher and strong After Sales Service in order to minimize the effect of quality failure on the customer.

Total Quality: Not an Everyday Practice. "Bureaucratization" and "isolation" would sum up the situation.

All experts agree on the fact that Quality activities have too be reported to an ever higher ranked manager that will approve or not the continuity of it based on the "figures" (results) a particular activity generates.

Also, most experts declare that Quality care is the assignment of a Quality department filled with Quality experts whose job is to *detect quality failure*.

The above situation reflects the procedure aspect of Quality implementation. According to 63 percent of the respondents, the Big Three do have

either a copy of the Malcolm Baldrige National Quality Award guidelines, or the ISO 9000, or else.

However, the same experts either did not know or did not want to say whether those guidelines were used, except for two of them whose opinions are totally opposite: one thinks all the three carmakers use them, the other thinks none of the three use any guideline.

Also, a majority of them (68 percent) thinks that Quality Management principles have not yet become an "everyday managing style".

Therefore we can conclude that the U.S. carmakers have more or less improved on two of the three ends: Quality in more defect free vehicles, and Customer Satisfaction with a remarkable after sales service. Therefore, the remaining question is: when will they integrate Total Quality in their everyday practices?

<u>Women Managers in the Auto Industry.</u>

Two sets of questions were asked: one about female corporate officers management style, and one about female managers in the auto industry.

<u>Women Managers Do As Good If Not Better Than Men Managers.</u>

<u>Elements of Feminine Managing Style.</u> Experts were asked to consider several adjectives and determine which one of them were feminine or masculine.

Out of a set of twelve adjectives, 6 were feminine attributes and as many were masculine attributes. The 6 feminine were: altruist, caring, cooperating, holistic, simultaneous, and synthetic; the 6 masculine were: abstract, cold-blooded, linear, logical, reducing, sequential.

We can note from the table below that masculine attributes collect a higher rate of unanimity than feminine attributes. This means that masculine attributes are sort of "established" and recognized as being masculine. For feminine attributes, it is

less obvious, as they tend to be considered as being neither feminine or masculine.

Women Compared to Men. This section was aimed at evaluating how a woman would perform if she was given the same assignment and assuming that only the gender would make the difference.

Over 65 percent of the respondents think that a woman would perform as good as a man, 27 percent think that a woman would do slightly better, and almost 8 said she would do even better.

The above results reflect the fact that at a certain level of management, the gender does no longer determine people's capabilities because decisions are made based on facts. However, those who responded that a woman would do slightly better or better than a man show that a woman could even be more realistic and assertive than her male counterpart.

Barriers to Women. This question was to determine which of four factors would most prevent women from rising higher and faster up the corporate

ladder from the moment they start working until they reach the level where the gender does no longer make any difference.

Table 4. Feminine and Masculine Attributes[1]

	Feminine	Masculine	Either
Abstract	13	65	22
Altruist	35	26	39
Caring	39	30	31
Cold-Blooded	26	61	13
Cooperating	35	30	35
Holistic	52	26	12
Linear	35	61	4
Logical	31	57	12
Reducing	26	70	4
Sequential	17	57	26
Simultaneous	48	31	21
Synthetic	40	40	20

1- the above figures are all in percentage, rounded to the next unit.

At the lowest level, the gender would be the greatest barrier because of prejudiced assumptions about women performing poorer than their male counterpart.

Then the lack of a mentor would be next. Anybody who wants to get more responsibilities and more interesting assignments needs a mentor, somebody who

will guide him/her and recommend him/her to those who assign. According to almost 70 percent of the respondents, women do not have the support of a mentor to guide her through. Also, male mentors tend to take one or two people under their wings, which reduces chances even more. Nevertheless, as more women reach higher ranks, they tend to look for people to mentor, whether they be men or women, and try to guide as many as four or more people.

Women Position in the Auto Industry.

A "Man's World". The auto industry is one particular industry where it seems to be more difficult for women to succeed. The reason seems to lie in the fact that it is a "Man's world" in many numbers.

From annual reports from both Ford and General Motors, the numbers are much in favor of men: 70 percent against 30 percent is the proportion at all levels, 90 percent to 10 percent is the proportion at corporate officers level, 95 percent to 5 percent is the proportion at the top executive level.

75 percent of the respondents agree that the auto industry being a "Man's word" is a major factor giving harder time for women to succeed. Other factors are the industry being rather young in having women wanting to join it as engineers or managers (only over the past 20 years), and even younger in accepting them, especially on the engineering side(less than 10 years).

Women Managing Style in the Auto Industry. According to almost two thirds of the respondents (62 percent), women who succeeded so far used be behave like their male counterparts in order to get where they wanted. They had to show that they were as bold, assertive, and fearless as their male colleagues. In short "beat them at their own game" (Hofstede,1983)

Deming Points and Women. A slight majority (52 percent) thinks that women have a higher capacity in maintaining consistency of purpose, because they tend to collect as much collaboration as possible in order to reach an objective.

56 percent of the respondents think that women are more open to changes than men because changes mean novelty and opportunities for them, not a burden.

According to the experts, women are far better in building long-term relationship, loyalty and trust than men. Above 90 percent responded they were much better in that skill because of their being female and thinking with their nurturing attribute.

Also, women are thought to perform better in implementing constant improvement by 74 percent of the respondents for they are never satisfied with what they have and always look for higher rewards that automatically call for improvement in what has already been done.

Regarding the training on the job, 70 percent of the respondents say that women encourage training more than men, especially the "learning by doing". As a matter of fact, this Point is highly linked with the previous one about improvement. Therefore, if

answers were different, there would have been inconsistency between what was said before.

As far as "instituting leadership", women are doing as good as men according to 57 percent of the experts. Also, the respondents are very positive in the matter as another 13 percent think they are doing better, and 5 percent that they are doing much better. This constitutes a total of 75 percent of the respondents thinking that women are performing as good as or better than their male colleagues in fostering leadership among their partners.

As mentioned earlier, women tend to build relationships on trust, not fear, however, the proportion of respondents agreeing on that point is only 65 percent, compared to the 90 percent obtained on the third point.

As far as competition between departments, respondents think that men are better performing there. 39 percent of the respondents say women set up barriers, against 55 percent regarding men, but they

also mention that women tend to have to fight against "natural barriers" existing between departments.

When it comes to respect for the work of their colleagues or subordinates, respondents rate men as doing better than women for they are better in promoting fairness. Less than 34 percent think women would do at least as good as their male counterparts.

Finally, when asked about the presence of women at different levels in the U.S. carmakers people in the next few years, here are the answers:

- It will take another five to ten years to have less than 50 percent of women corporate officers holding staff positions;
- It will take ten to fifteen years before 50 percent of women corporate officers would hold 50 percent of the line jobs, those that are directly linked with profit and loss, against 26 percent today;
- It will take another ten to fifteen years until 25 percent of top executives are

women, and more than 20 years to reach the

fifty percent threshold;

- It will not happen within the next twenty

  years that a woman CEO will head either of

  the U.S. carmaker.

Table 5. Future Women Representation (in percentage)\

	< 5y	5-10y	10-15y	15-20y	>20y
Less than 50% of women corporate officers holding staff position	4.3	52.2	21.7	13.0	8.7
50% of women corporate officers holding line positions	/	/	60.9	26.0	13.0
25% of Top Managers are women	4.3	30.4	56.5	8.7	/
50% of Top Managers are women	/	/	4.3	21.7	73.9
A women CEO of either U.S. carmaker	/	/	/	17.3	82.6

CHAPTER THREE

CONCLUSION

The U.S carmakers have not fully implemented Total Quality Management principles promoted by the Deming 14 points. As some experts refer to, each of the points have been temporarily used in order to fix a problem, but they have not been used as a whole, as a tool that would not fix but cure in the long term.

As far as the evolution of women in that industry, it has been rather fast. They have started joining that industry about twenty years ago only, and a few of them already reached the position of President of a particular brand, or even the whole company in some cases, like in Canada. Although it will still take a few decades before more women represent a substantial percentage of Top managers, that situation may occur earlier than expected.

Regarding the capacity of women to handle the implementation of the Deming Points more easily and effectively than their male counterparts, this characteristic is obvious as their inherent behavior

from being a woman already promotes most of the principles. They are "naturally" determined to apply those principles.

However, it will be interesting to conduct a comparative study in Japanese companies as the Japanese society is much more misogynic than the American one according to Hofstede's study about the Masculinity Index: Japan scored the highest grade (95/100); and discrimination against women there is well-known. Also, there are not that many Japanese women at top positions in the Japanese car manufacturing companies either, whether it be in Japan or in the United States.

APPENDIX A

AMERICAN CUSTOMER SATISFACTION INDEX (1994-2000)

American Customer Satisfaction Index
(1994-2000)

Legend:
- Automobile Industry
- Mercedes-Benz
- Buick
- Cadillac
- Lincoln-Mercury
- BMW
- Volkswagen
- Saturn
- Honda
- Toyota
- Volvo
- Dodge
- GMC
- Plymouth
- Chevrolet
- Oldsmobile
- Pontiac
- Mazda
- Nissan
- Ford
- Hyundai
- Other
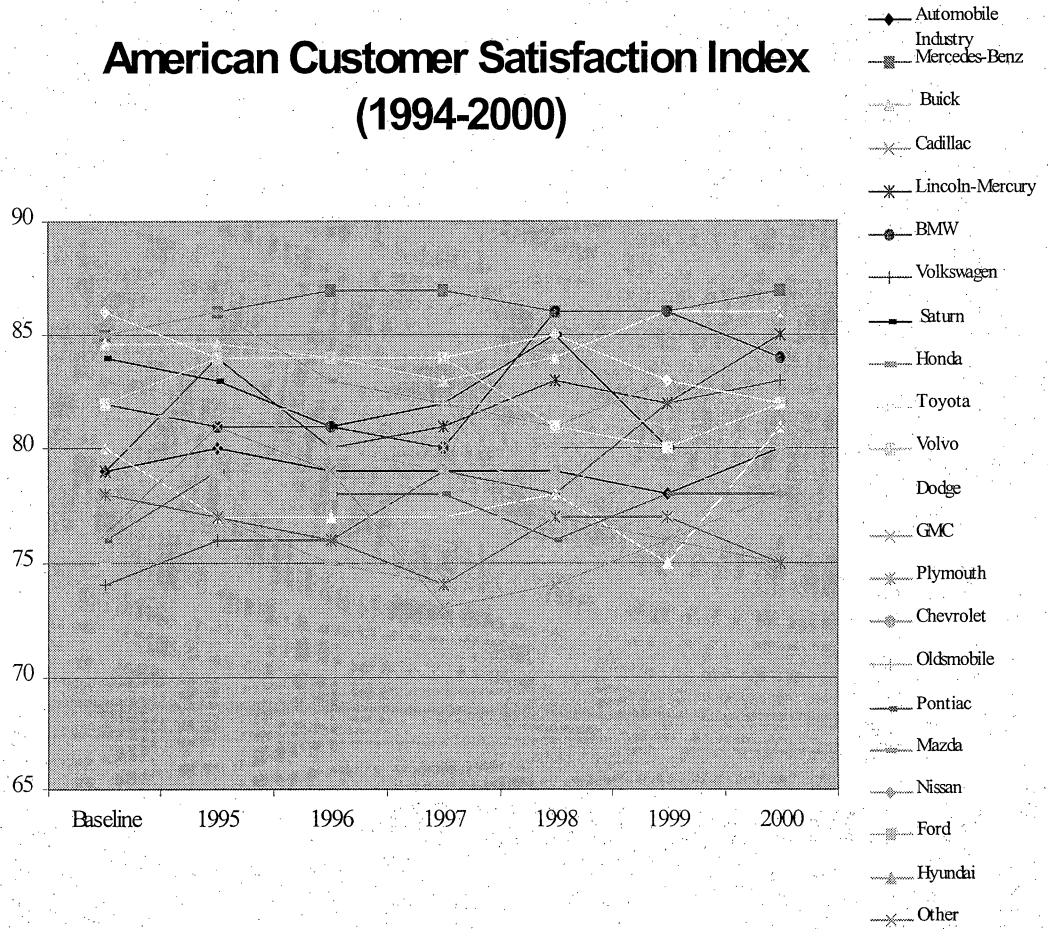
APPENDIX B

THE NUMMI ORGANIZATION

"The plant is located in Freemont, California, at the site of a GM assembly facility that was shut down in 1982. An examination of that joint venture is instructive. Absenteeism at that plant prior to its shutdown is reported to have routinely been 30 percent, productivity and quality were very poor, and labor grievance were running at the rate of 7,000 a year.

After a couple of years of standing idle, however, the plant was reopened as the joint venture, which put in lace Toyota management and operating systems. The new NUMMI labor force consisted almost entirely of employees who had worked at the Freemont plant when GM was solely in charge. With this workforce and with Toyota's operating and management systems, the new joint venture stated producing cars which, according to GM's own assessment, were the most efficiently produced and highest quality cars in the GM inventory.

Those cars are produced with United Auto Workers laborers who receive industry scale wages. In addition, many parts and components are purchased from U.S. suppliers. And yet the cars' quality is indistinguishable from that of cars built by Toyota in Japan. Thus it appears that the competitiveness of the Japanese companies does not rest on any special skills or superior discipline within the Japanese labor force, nor does it depend on the absence of a strong, industrywide union. Moreover, it is not due to any special national characteristics of Japanese suppliers. Neither does it rest on some advanced technology, since U.S. automobile manufacturers view NUMMI as a fairly low-technology operation. The primary source of the production efficiency and product quality of NUMMI— and of the other successful Japanese auto companies operating in the United

States—appears to be the management systems introduced by the Japanese companies.

Fundamental to the success of these companies is the commitment to total quality control, under which products are designed to meet customer expectations and are produced with The Zero-Defect goal [which] was adopted because it was considered and proved to be the production solution with the lowest cost. The zero-defect goal underlies all aspects of company operations—design and engineering, assembly operations, human resource management, and relations with suppliers. All employees and suppliers are encouraged and expected to seek ways to improve the product as well as the economy and efficiency of the production process. [...]

Like American companies, every Japanese automobile company has a vertical hierarchical structure. However, the hierarchy often operates differently. One key to a successful corporation is the flow of information throughout the organization. The better the information flows, the more efficient the operation will be. In typical hierarchical corporations, officials at every level of the hierarchy appropriate symbols to widen the distance between themselves and the level just below. [...] However, at NUMMI [...] these barriers do not exist. Everybody wears the same work outfit, from the person sweeping the floors to the president of the company. What passes for white-collar work is conducted in a large open bull pen. All the company officials are there. Furthermore, there are no executive dining rooms and no reserved parking spaces.

Labor-management relations also differ considerably. [...] Labor is used much more efficiently in Japanese auto assembly plants. Workers function in teams of six to eight, with responsibility for multiple tasks. In contrast, at the traditional U.S. auto assembly plant, workers stand alone on the line and perform individual tasks.

Furthermore, quality is the responsibility and obligation of each worker at NUMMI. [...]

Moreover, the way in which NUMMI responds to downturns in demand for its products is also

different from the way in which the traditional "Big Three" automakers respond. The contract between NUMMI and the UAW work force at the plant provides for layoffs of workers as only a very last resort. Before workers can be laid off, work that is subcontracted out must be brought into the factory, and workers can be put on maintenance or given additional training. In addition, before any workers are actually laid off, management must incur a cut in their salaries."

The complete version of this statement is available at http://www.gwjapan.com/ftp/pub/policy/gao/1993/autocomp.txt

APPENDIX C

THE NORDSTROM EMPLOYEE HANDBOOK

(extract from Collins and Porras, Built to Last, pp. 117)

The Nordstrom Employee Handbook is a single five-by-eight-inch card that reads in its entirety:

```
          WELCOME TO NORDSTROM

   We're glad to have you with our Company.
       Our number one goal is to provide
          outstanding customer service.
    Set both your personal and professional
                  goals high.
   We have great confidence in your ability to
                achieve them.

              Nordstrom Rules:
    Rule #1: use your good judgement in all
                  situations.
       There will be no additional rules.

   Feel free to ask your department manager,
   store manager or division general manager
```

APPENDIX D

THE STATISTICAL PROCESS CONTROL

The purpose of such a method is to keep an eye on the process constantly, detect dysfunction/variation, find the causes and eliminate them, so that the remaining variation (there is always a residual level of variation) can only be the result of "common causes", i.e. "attributable to someone (usually the one nearest at hand)" (Deming, 1989, page 314)
    The use of Control Charts:
    The use of control charts gives visual information of the status of the process, whether it is or not in control. "A control chart can be used to distinguish special causes of variation from system causes of variation. Consequently, a control chart can help management decide how to act in a given situation, that is, a problem-solving action to resolve a special cause of variation, or a system-improvement action to eliminate a system cause of variation." (Gitlow, 1990, page 69-70) The following figure D.1. shows situations when the process is out of control (case 1 and case 3) and in control (case 2).
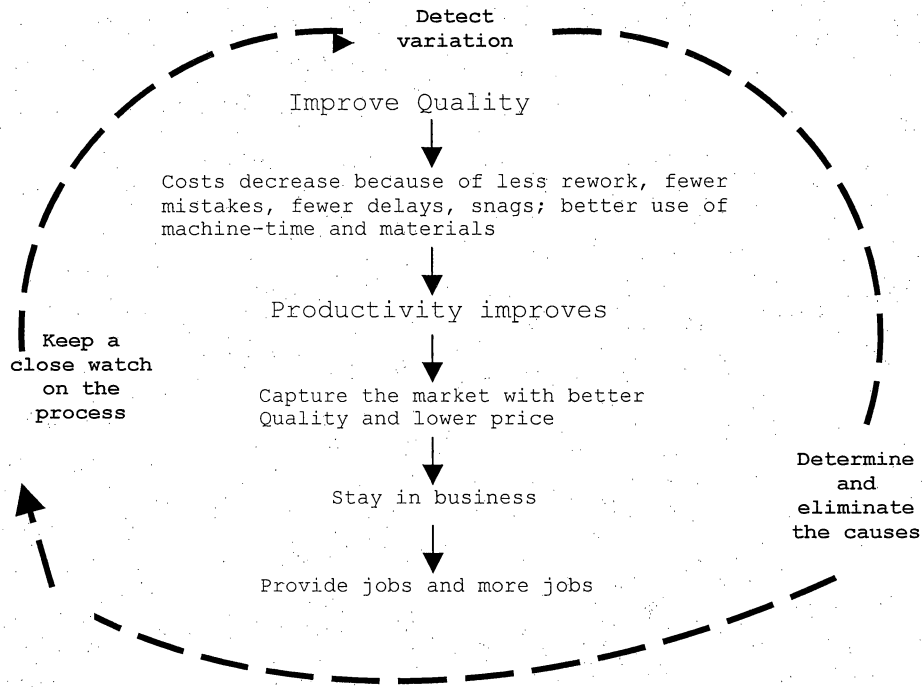
Figure D.1. Control Charts

Case 1   Case 2   Case 3
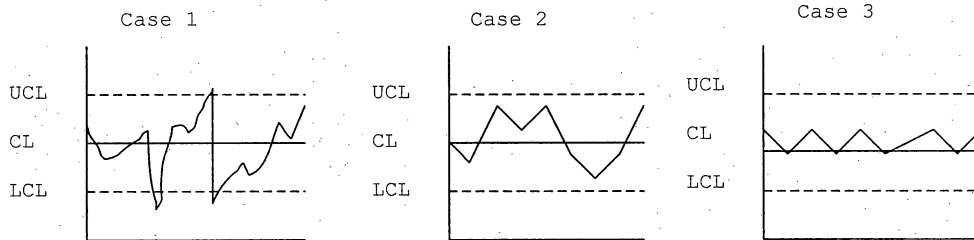
UCL = Upper Control Limit
CL = Center Line
LCL = Lower Control Limit

Source: (inspired from) Gitlow, H.S. Planning for Quality, productivity, and competitive position, 1990, page 72)

    Once the process is in control, the Quality level is already increased. Then, we move to the process improvement stage. This consists in providing the workers with the right and good material to perform their job efficiently. It also implies the selection of the right suppliers in the production process, so that the material that comes in is reliable. In this stage, the company can even change the level of the specifications by increasing the standards, which results in higher Quality level. As a matter of fact, companies that implement Quality pursue continuous improvement.
    The above steps can be summed up in the figure D.2. below (the inside part is taken from Deming's *Out of the Crisis*, Chapter 1, page 3):

Figure D.2. The Statistical Process Control steps

```
                              Detect
                             variation

                        Improve Quality
                              |
                              v
               Costs decrease because of less rework, fewer
               mistakes, fewer delays, snags; better use of
               machine-time and materials
                              |
                              v
                     Productivity improves
                              |
     Keep a                   v
  close watch
    on the          Capture the market with better
    process         Quality and lower price
                              |
                              v                        Determine
                       Stay in business                  and
                              |                        eliminate
                              v                        the causes

                 Provide jobs and more jobs
```

The Deming Cycle

The Deming cycle is in fact the Shewart cycle. It (see
figure D.3. below) provides "a procedure to follow for
improvement of any stage; also a procedure for finding a special
cause detected by statistical signal" (Deming, 1989, page 88),
the special causes being exceptional and unexpected events.

Figure D.3. The Shewart cycle

```
Step 4: Study the results.                    4        1
What did we learn? What
can we predict?

  Step 3: observe the
  effects of the change
  or test
                                              3        2
```
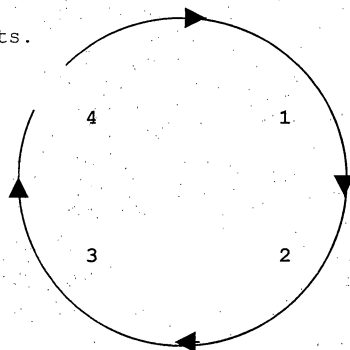
Step 1, ask: what could be
the most important
accomplishments of this
team? What changes might
be desirable? What data
are available? Are new
observations needed? If
yes, plan a change or
test. Decide how to use
the observations.

Step 2: carry out the
changes or test decided
upon, preferably on a small
scale.

Step 5: Repeat Step 1, with knowledge
accumulated.
Step 6: Repeat Step 2, and onward.

APPENDIX E

A STANDARD COMPANY AND A DEMING COMPANY

Standard Company	Deming Company
▪ Quality is expensive.	▪ Quality leads to lower costs.
▪ Inspectors is the key to quality.	▪ Inspection is too late. If workers can produce defect-free goods, eliminate inspection.
▪ Quality control experts and inspectors can assure quality.	▪ Quality is made in the boardroom.
▪ Defects are caused by workers.	▪ Most defects are caused by the system.
▪ The manufacturing process can me optimized by outside experts. No change in system afterward. No impact from workers.	▪ Process never optimized; it can always be improved.
▪ Use of work standards, quotas, and goals can help productivity.	▪ Elimination of *all* work standards and quotas is necessary.
▪ Fear and reward are proper ways to motivate.	▪ Fear leads to disaster.
▪ People can be treated like commodities, buying more when needed, laying off when needing less.	▪ People should be made to feel secure in their jobs.
▪ Rewarding the best performers and punishing the worst will lead to greater productivity and creativity.	▪ Most variation is caused by the system. Review systems that judge, punish and reward above or below average performance destroy teamwork and the company.
▪ Buy on lowest costs;	▪ Buy from vendors committed to quality.
▪ Play one supplier off against another.	▪ Work with suppliers.
▪ Switch suppliers frequently based on price only.	▪ Invest time and knowledge to help suppliers improve quality and costs. Develop long-term relationships with suppliers.
▪ Profits are made by keeping revenues high ad costs down.	▪ Profits are generated by loyal customers.
▪ Profit is the most important indicator of a company.	▪ Running a company by profit alone is like driving a car by looking in the rearview mirror. It tells you where you've been, not where you are going.

APPENDIX F

BARRIERS TO PRIDE OF WORKMANSHIP AND THE DEMING 14

POINTS

At some of his seminars Deming used to ask the participants to name the obstacles that prevent them from experiencing pride in their work. A composite list of the responses was drawn up and distributed to the participants. Here's one of those lists taken from Deming Seminar, Cincinnati, 09/16/1986.

Obstacles Preventing Pride in Work:

1. Lack of Direction.
2. Goals without the tools to achieve them: time, resources.
3. Arbitrary decisions by boo.
4. Lack of clear goals and objectives.
5. Unclear how contribution is valued.
6. Lack of expectation setting up criteria.
7. Insufficient information available.
8. Different organizational goals within the company.
9. Too much group management.
10. Deadline anxiety.
11. Lack of product definition re: purpose and product arbitrarily changed by consumer/customer within company.
12. Organization (staff) not valued by line organization.
13. Hierarchy tries to run technology it does not understand.
14. Lack of communication: a) conflicting and unclear objectives; b) lack of advance information; c) inadequate information flow; d) inadequate feedback; e) lack of authority to do what needs to be done.
15. Lack of resources: time; improper tools and equipment.
16. Short-term objectives conflict with long run.
17. Non-uniform application of policy.
18. Poor training.
19. Specifications constrain creativity and procurement and manufacturing.
20. Fear. Pressure for short-term results. Total organizational fear.
21. Read Tape.
22. Company and union adversarial relationship.
23. Unrealistic goals and objectives.

The Deming 14 Points:

1. Create constancy of purpose toward improvement of product and service, with the aim to become competitive and to stay in business, and to provide jobs.
2. Adopt the new philosophy. We are in a new economic age. Western management must awaken to the challenge, must learn their responsibilities, and take on leadership for change.

3. Cease dependence on inspection to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place.
4. End the practice of awarding business on the basis of price tag. Instead, minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust.
5. Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease costs.
6. Institute training on the job.
7. Institute leadership (see Point 12 and Ch. 8). The aim of supervision should be to help people and machines and gadgets to do a better job. Supervision of management is in need of overhaul, as well as supervision of production workers.
8. Drive out fear, so that everyone may work effectively for the company (see Ch. 3).
9. Break down barriers between departments. People in research, design, sales, and production must work as a team, to foresee problems of production and in use that may be encountered with the product or service.
10. Eliminate slogans, exhortations, and targets for the work force asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the work force. Eliminate work standards (quotas) on the factory floor. Substitute leadership. Eliminate management by objective. Eliminate management by numbers, numerical goals. Substitute leadership.
11. Remove barriers that rob the hourly worker of his right to pride of workmanship. The responsibility of supervisors must be changed from sheer numbers to quality.
12. Remove barriers that rob people in management and in engineering of their right to pride of workmanship. This means, inter alia, abolishment of the annual or merit rating and of management by objective (see Ch. 3).
13. Institute a vigorous program of education and self-improvement.
14. Put everybody in the company to work to accomplish the transformation. The transformation is everybody's job.

APPENDIX G

AUTOMOBILE INDUSTRY STATISTICS

Figure G.1. World Car Production, 1990 to 1998.
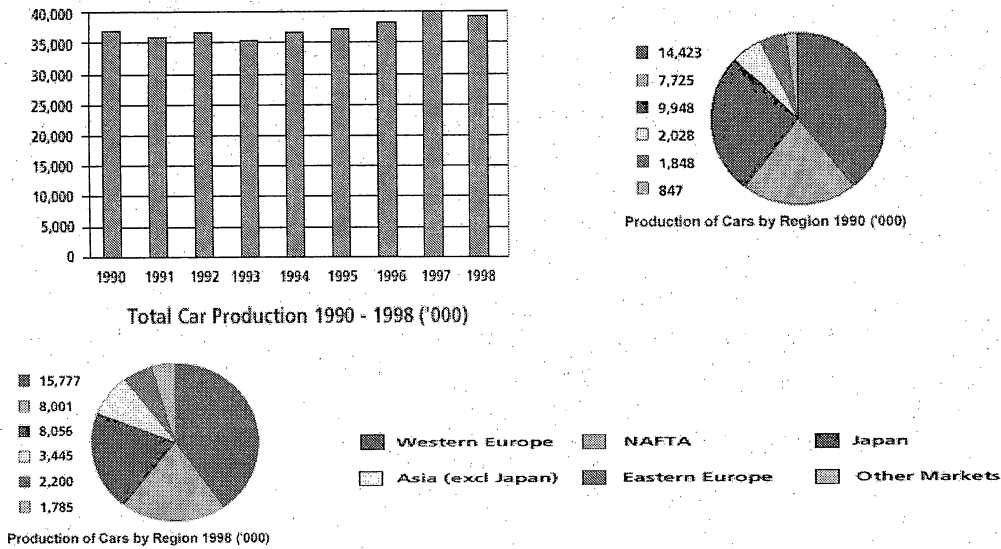Source: Economist Intelligence Unit
(EIU)

Total Car Production 1990 - 1998 ('000)

14,423
7,725
9,948
2,028
1,848
847

Production of Cars by Region 1990 ('000)

15,777
8,001
8,056
3,445
2,200
1,785

Production of Cars by Region 1998 ('000)

Western Europe   NAFTA   Japan

Asia (excl Japan)   Eastern Europe   Other Markets

Table G.1. CAFE standards
(Source: Standard and Poor's, Second Edition,
Volume One:1227)

Requirements	New Passenger Cars	Light Trucks
CAFE	27.5 miles per gallon	20.2 miles per gallon
U.S.	26.9 miles per gallon	20.4 miles per gallon
Imported	29.0 miles per gallon	22.4 miles per gallon

Figure G.2. Percentage of Total U.S. Car Market
A (a)
(Source: The Wall Street Journal, 01/04/2001)
(a): Domestic vehicles are those built in the U.S.,
Canada, and Mexico for sales in the U.S.

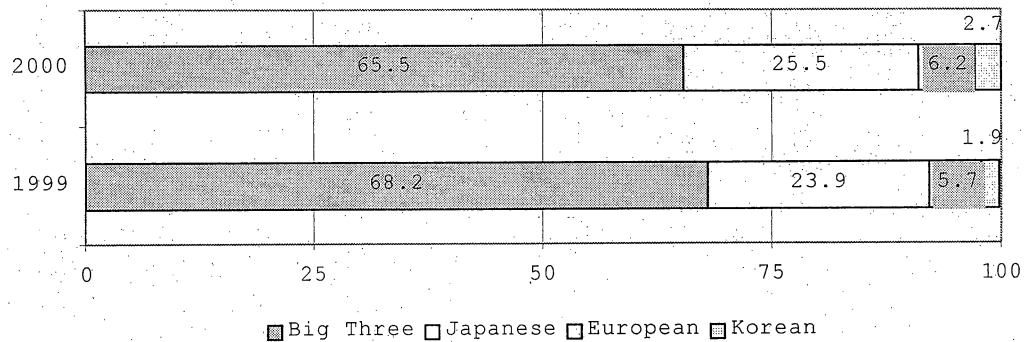Big Three ☐ Japanese ☐ European ☐ Korean

91

Figure G.3. Percentage of Total U.S. Car Market
B (a)

(Source: The Wall Street Journal, 01/04/2001)
(a): Domestic vehicles are those built in the U.S.,
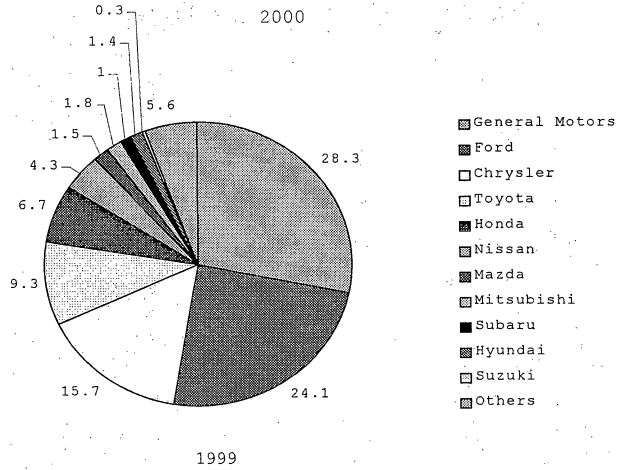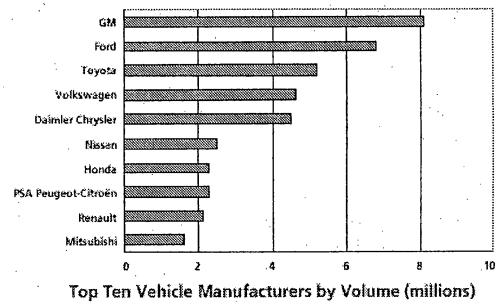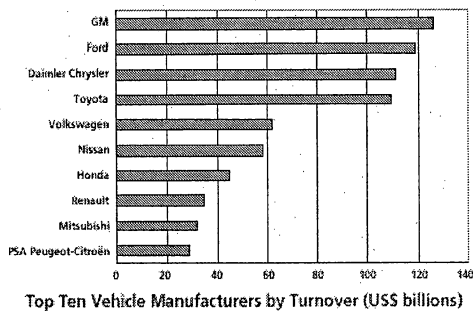*Canada, and Mexico for sales in the U.S.*

2000

- 0.3
- 1.4
- 1
- 1.8
- 1.5
- 4.3
- 6.7
- 9.3
- 15.7
- 5.6
- 28.3
- 24.1

Legend:
- General Motors
- Ford
- Chrysler
- Toyota
- Honda
- Nissan
- Mazda
- Mitsubishi
- Subaru
- Hyundai
- Suzuki
- Others

1999

- 5.2
- 0.3
- 1
- 0.9
- 1.5
- 1.4
- 4
- 6.4
- 8.7
- 16.7
- 29.4
- 24.5

Figure G.4. Top Ten Vehicle Manufacturers

Top Ten Vehicle Manufacturers by Turnover (US$ billions)

GM, Ford, Daimler Chrysler, Toyota, Volkswagen, Nissan, Honda, Renault, Mitsubishi, PSA Peugeot-Citroën
(0, 20, 40, 60, 80, 100, 120, 140)

Top Ten Vehicle Manufacturers by Volume (millions)

GM, Ford, Toyota, Volkswagen, Daimler Chrysler, Nissan, Honda, PSA Peugeot-Citroën, Renault, Mitsubishi
(0, 2, 4, 6, 8, 10)

92

REFERENCES

Aguyao, R. (1990). Dr. Deming, the American who taught the Japanese about Quality. What every business person should know about successful management bringing Quality back home. A fireside book, Simon and Schuster, NY.

Cole, R.E. (1999). Managing Quality Fads:. Oxford University Press

Collins, J.C., and Porras, J.I. (1997). Built To Last. HarperCollins Boos, NY 10022.

Cox, A., (1982). Inside Corporate America. Perspectives on Management Practices and Career Options. St Martin's Press.

Crosby, P. (1995). Quality without tears. The art of hassle-free management. McGraw-Hill, Inc.

Deming, W. E. (1989). Out of the Crisis. The Massachusetts institute of Technology, center for Advanced Engineering Study, Cambridge, Massachusetts, seventh printing.

Elmuti, D., Taisier, F. A. (Spring 1995). Improving Quality and organizational effectiveness go hand in hand through Deming's management system, Journal of Business Strategies 12, No.1 pages 86-98, Sam Houston State University.

Forbes, J. B., and Piercy, J. E. (1991). Corporate Mobility and Paths to the Top. Studies for HR and Management Development Specialist. Quorum Book.

Gabor, A. (1990) The man who discovered Quality, How W. Edwards Deming brought the Quality revolution to America – the story of Ford, Xerox, and GM. Random House, Inc., New York.

George, S. and Weimerskirch, A. (1998). Total Quality Management. Strategies and Techniques proven at

today's most successful companies. John Wiley and Sons, Inc.

Gitlow, H., Gitlow S. (1990). Planning for Quality, Productivity, and Competitive Position. Richard D. Irwin, Inc.

Gitlow, H., Gitlow S., Oppenheimer A. (1989) Tools and methods for the improvement of Quality. Homewood, III.: Richard D. Irwin, Inc.

Hofstede, G. (1983). Culture's consequences. International Differences in work-related values. Sage Publications.

Ishikawa, K. (1982). Guide to Quality Control. Asian Productivity Organization, Tokyo.

Ishikawa, K. (1985). What is Total Quality Control? The Japanese Way. Translated by David J. Lu. Prentice Hall, Inc.

Juran, J. M. (1951). Quality Control Handbook. Third Edition. McGraw Hill Book Company, Inc., New York.

Juran, J. M. (1964). Managerial Breakthrough, A New Concept of the Manager's Job. McGraw Hill Book Company, New York.

Juran, J. M. (1988). Juran on Planning for Quality. The Free Press, a division of Macmillan, Inc., New York.

Juran, J. M. (1989). Juran on Leadership for Quality, An Executive Handbook. The Free Press, a division of Macmillan, Inc., New York.

Kotler, P., (2000). Marketing Management, The Millennium Edition, Ninth Edition. Prentice-Hall, Inc.

Mendell, A. (1996). How men think. The seven essential rules for making it in a man's world. A Fawcett Columbine Book.

Nemoto, M. (1987). Total Quality Control for Management, Strategies and Techniques from Toyota and Toyoda Gosei. Translated by David J. Lu. Prentice Hall, Inc.

Rath, Strong, (May 1994). Personal Initiative Survey. Quality progress. pages 14 and 16

Roth, W. (1993). The Evolution of Management Theory, Past, Present, Future. St Lucie Press.

Stead, B. A. (1985) Women in Management. Prentice-Hall.

Tichy, N.M. and Sherman, S. (1993). Control your destiny or someone else will. Lessons in mastering change-from the principles jack Welch is using to revolutionize GE. Harper Business, a division of HarperCollins Publishers.

Wachs Book, E., (2000). Why the best man for the job is a woman. HarperCollins Publishers.

Yoshida, K. (Fall, 1989). "Deming Management Philosophy: Does it work in the U.S. as well as in Japan?". Columbia Journal of World Business 8, No.5, pages 10-17

The Special Power Report. J.D. Power and Associates. (October 2000)

Business Week. (November 1992). "Quality".

Business Week. (August 1994). "How to make it pay".

Business Week. (August 1994). "Quality: from buzzword to payoff".

Business Week. (August 1994) "Return on Quality: Beyond the buzzword".

Business Week. (October 1994). "Total Quality Management: Now, it's a class act".

Business Week. (January 1995) "James Champy on
Reengineering Management".

The Economist. (January 1995) "The straining of
Quality".

The Economist. (May 1995) "Gurus in government.
Managing the public sector".

Business Week. (January 1996) "Bill Dauphinais: The
Paradox Principle".

Business Week. (August 1996). "Michael Hammer: Beyond
Reengineering".

Business Week. (June 1997) "Commentary: management
theory - or FAO of the month".

Business Week. (June 2000) "The Web of Quality".

Consumer International 1999-2000. 6th Edition.

The Wall Street Journal (January 4, 2001). "U.S. Auto
Sales Declined 8% in December".

http://academic.emporia.edu/smithwil/s98mg423/EJAwebs
/cartetqm.htm

http://academic.emporia.edu/smithwil/s99mg423/eja/hil
l.html

http://assoc.wanadoo.fr/deming/Demingprize.html

http://barney.sbe.csuhayward.edu/~sstarlin/starling/t
qmczech.htm

http://bls.org

http://coba.shsu.edu/jbs/vol12/no1/12-1-6.htm

http://deming.ces.clemson.edu/pub/den/deming_prize3.h
tm

http://deming.eng.clemson.edu/pub/den/files/dspk.txt

http://ford.com

http://gm.com

http://pegasus.cc.ucf.edu/~amw91794/paper/html

http://www.9000-2000.com/information-sheets/kk-history/history.htm

http://www.amanet1.org/books/catalog/Quality/05105.htm

http://www.armyec.sra.com/knowbase/docs/doc92/3003af.htm

http://www.asq.org/about/history/ishikawa.html

http://www.asqc.org/standcert/iso.html

http://www.att.com/press/1094/941018.chb.html

http://www.auto.com/industry

http://www.autonews.com

http://www.berkeley.edu/news/media/releases/99legacy/2-16-1999.html

http://www.businessforum.com/iso01.html

http://www.catalystwomen.org

http://www.cavendishscott.com/Services/Int_Std_Org.htm

http://www.crp.cornell.edu/courses/spring97/crp649/worktransform.htm

http://www.dardenneassociates.com/Qualitycounts/Quality2.html

http://www.dbainc.com/dba2/company/process.html

http://www.deming.org/deminghtml/wedi.html

http://www.depaul.edu/ethics/fort.html

http://www.emporia.edu/ibed/jour/jour14om/greg.htm

http://www.european-Quality.co.uk/articles/juran.html

http://www.fed.org/onlinemag/july00/reviews.htm

http://www.fujixerox.co.jp/headline/991118.html

http://www.haas.berkeley.edu/mot/cole.html#bookabstract

http://www.haas.berkeley.edu/News/cmr/editorKI.html

http://www.ilo.org

http://www.informaticsgroup.com/tqm/tart-slo.htm

http://www.interaccess.com/bpr/tqmdef.htm

http://www.iso.ch/wtotbt/wtotbt.htm

http://www.istis.unomaha.edu/cmit/bsad8030/chp6/tsld030.htm

http://www.juran.com/about.html

http://www.np.edu.sg/library/qrc/QRCArticles/Compare.htm

http://www.organizationdesign.com/pages/articles/bw2.html

http://www.oup-usa.com/isbn/0195122607.html

http://www.Quality.nist.gov/docs/winners/97win/abs-2pg.htm

http://www.Quality.nist.gov/faq9704.htm

http://www.Quality.nist.gov/winners/winlist.htm

http://www.Quality.nist/gov/98fact-b.htm

http://www.Qualitymag.com/tomwilliams/

http://www.skyenet.net/~leg/tqm.htm

http://www.skymark.com/resources/leaders/ishikawa.asp

http://www.sun.com/smi/Press/sunflash/9711/sunflash.971117.4.html

http://www.tntech.edu/www/acad/mayberry/tqa/640/terms.html

http://www.well.com/user/vamead/demingdist.html