A COMPENDIUM OF IDEAS

ABOUT

QUALITY AND COMPETITIVE STRATEGY

DR. CHET RICHARDS

DR. LINDA P. BECKERMAN

REVISION 2N

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WINNING IS A PROCESS

"WE'VE LEARNED SOMETHING VERY IMPORTANT ABOUT THE COMPETITIVE ENVIRONMENT TODAY --NO ADVANTAGE IS PERMANENT."

DON PETERSEN, CHAIRMAN & CEO, FORD

"THE WORST MAXIM AROUND IS 'DON'T FIX IT IF IT AIN'T BROKE.' YOU'D BETTER BE IMPROVING IT BECAUSE YOUR COMPETITOR IS."

WAYNE CALLOWAY, CEO, PEPSICO

"IN THE 1990S, ANY COMPANY THAT IS CONTENT WITH 'GOOD ENOUGH' SHOULD BE PREPARED TO FILE A CORPORATE DEATH CERTIFICATE, WRITTEN IN JAPANESE."

ALAN WEBBER, MANAGING EDITOR, HARVARD BUSINESS REVIEW.

ARE WE LOSING THE RACE?

THE EROSION OF U.S. DOMINANCE IN KEY INDUSTRIES:

1970 SMOKESTACK INDUSTRIES (STEEL, BRASS, TEXTILES)

1975 APPLIANCES

1980 AUTOMOBILES

1985 ELECTRONICS

1990 (?) AEROSPACE

(GOLDRATT & FOX, 3)

WHAT AMERICA NEEDS TO DO

From the MIT Commission on Industrial Productivity
June 1989

"The verdict is that U.S. industry indeed shows systematic weaknesses that are hampering the ability of many firms to adapt to a changing international business environment." (Berger, 40)

For example:

Japanese-designed cars "retain their quality advantage even when assembled in U.S. factories." In other words, Japanese engineers have designed in features to make it easier to build a quality product. (Berger, 42)

DEMING'S PROGNOSIS

"WE ARE NOT GOING TO MAKE IT."

SOURCE: NANCY R. MANN, THE KEYS TO EXCELLENCE, P. viii

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IMPLICATIONS FOR U.S DEFENSE INDUSTRIES

"If the Defense Industrial Base could produce as efficiently as Japanese industry, The United States could have the defense systems it requires, early enough to allow its technical superiority to convey a decisive operational advantage with high system reliability and with corresponding improvement in the ratio of support to fighting personnel. This could be accomplished in the face of a flat to declining defense budget." (U.S. DoD Technology Assessment Team, iv)

HOW SAFE IS ANYBODY'S AEROSPACE BUSINESS?

"BY THE EARLY 1960S, AMERICAN MANAGERS VIEWED AUTOMOBILE MANUFACTURE AS A STABLE OR "MATURE" TECHNOLOGY, ASSUMING CERTAIN LIMITS TO PRODUCTIVITY, MINIMUM EFFICIENT SCALES OF PRODUCTION, UNIT COSTS, QUALITY, AND THE ABILITY OF WORKERS AND SUPPLIERS TO COOPERATE (OR BE COERCED) AND TO CONTRIBUTE TO IMPROVING PRODUCTION OPERATIONS."

BUT "...MANAGERS SUCH AS TOYOTA'S OHNO DID NOT ACCEPT U.S. PRACTICES AS THE ONLY VIABLE WAY...AND DID NOT BELIEVE THAT U.S. FIRMS HAD REACHED THEIR LIMITS IN CAPITAL AND WORKER PRODUCTIVITY, QUALITY, OR INVENTORY TURNOVER."

(CUSUMANO, 38)

HOW SAFE IS ANYBODY'S AEROSPACE BUSINESS? (II)

BASED ON WHAT THE JAPANESE AND OTHERS HAVE ACHIEVED, RESULTS LIKE THE FOLLOWING APPEAR POSSIBLE:

- REDUCE THE NUMBER OF HOURS REQUIRED TO BUILD THE HARDWARE BY 50%
- DRIVE DEFECTS TO ZERO.
- REDUCE THE LENGTH OF TIME REQUIRED TO DEVELOP NEW MODELS AND CAPABILITIES BY 50%
- INTRODUCE A MAJOR NEW CUSTOMER-INSPIRED CAPABILITY EVERY 6-12 MONTHS.
- DOUBLE CURRENT SALES.

AGILITY IN THE CORPORATE SETTING

"THE SURVIVAL OF ALL COMPANIES IN THE FUTURE DEPENDS ON WHETHER THEY CAN RESPOND QUICKLY TO CUSTOMER ORDERS. . . IF THE CUSTOMER WANTS IT NOW, YOU PRODUCE IT AND DELIVER IT NOW."

ISAO SHINOHARA, NEW PRODUCTION SYSTEM,
P. 167

WHY IMPROVEMENT LIKE THIS IS POSSIBLE

THE BEST OF ALL POSSIBLE WORLDS

"IN MANY COMPANIES EVERYONE FROM TOP MANAGEMENT TO MIDDLE MANAGEMENT, MAYBE EVEN DOWN TO PRODUCTION-FLOOR WORKERS, BELIEVES THAT THEIR PRESENT WAY IS THE BEST . . . THEY ARE A BUNCH OF SELF-DELUDERS.

"A COMPANY CANNOT CONTINUE TO SURVIVE UNLESS A REVOLUTION OF CONSCIOUSNESS TAKES PLACE."

TAIICHI OHNO, FORMER VP, TOYOTA
& CREATOR OF THE TOYOTA PRODUC-
TION SYSTEM, IN SHINOHARA'S NPS,
NEW PRODUCTION SYSTEM, P. 146

WHAT IS POSSIBLE?

1. VALTEK, INC.: REDUCED TYPICAL THROUGHPUT TIMES FROM ONE MONTH TO LESS THAN ONE WEEK.

2. PONTIAC: REDUCED COST OF ENGINE PRODUCTION BY 30% IN 18 MOS.

3. YOKOGAWA HOKUSHIN ELECTRIC: TIME FROM RECEIPT OF AN ORDER TO SHIPPING THE FINISHED PRODUCT REDUCED FROM AN AVERAGE OF ONE MONTH TO TWO DAYS IN SOME CASES, WITH A GOAL OF "SHIPPING TOMORROW WHAT IS ORDERED TODAY."

4. NOZAWA: REDUCED SET-UP TIME FROM 60 MINUTES TO 6
   REDUCED DELIVERY TIME FROM 30 DAYS TO 5 DAYS
   REDUCED MINIMUM LOT SIZE FROM 24 TO 3

5. IHARA'S DAIJIN PLANT: REDUCED SET-UP TIME FROM 8 HOURS TO 15 MINUTES

WHAT IS POSSIBLE? (II)

6. EASTMAN KODAK COPY PRODUCTS: REDUCED AVERAGE DEFECTS PER UNIT BY 50% EVERY 7.6 MONTHS FOR 36 MONTHS

7. HEWLETT-PACKARD DISK PACKS: REDUCED FAILURE RATE AND TIME TO CORRECT DEFECTS BY 90%. REDUCED MATERIALS AND LABOR COSTS BY 50% AND TIME TO SERVE CUSTOMERS BY 2/3.

   CUT THE TIME REQUIRED TO DELIVER ORDERS FOR ELECTRONIC TESTING EQUIPMENT FROM 4 WEEKS TO 5 DAYS.

8. SHERWIN-WILLIAMS: CUT LABOR COSTS BY 50% WHILE IMPROVING PRODUCT QUALITY.

9. FORD: PRESIDENT & COO DON PETERSEN HIRES DEMING--1981
   FORD OUTEARNS GM IN 1986, 1987, & 1988
   FORD SETS ALL-TIME INDUSTRY EARNING RECORDS--1987 & 1988 (TREECE, 75)

   SINCE 1980, FORD HAS REDUCED ITS BREAKEVEN POINT BY 40%, "LARGELY BY DEVELOPING A MANAGEMENT SYSTEM THAT EMPHASIZED TEAMWORK AND QUALITY CONTROL." (BALLEN, 118)

WHAT IS POSSIBLE? (III)

10. TOYOTA: RAISED VEHICLES PRODUCED PER WORKER PER YEAR FROM 38 IN 1970 TO 60 IN 1985. (IN 1985, THE FIGURES FOR GM AND FORD WERE 11 AND 15 RESPECTIVELY)

    REDUCED STARTUP AND PREPRODUCTION COSTS BY MORE THAN 60% BETWEEN 1977 AND 1984.

11. GM/TOYOTA: THE NUMMI JOINT VENTURE PLANT IN FREMONT, CALIFORNIA IS APPROXIMATELY 40% MORE PRODUCTIVE THAN EITHER AVERAGE OR HIGH-TECH GM PLANTS.

    NUMMI PRODUCES MORE CARS NOW WITH 2,500 WORKERS THAN GM FREMONT DID WITH 7,800.

12. GRANVILLE-PHILLIPS: ELIMINATED INVENTORIES OF FINISHED PRODUCTS AND INTER-PROCESS STOCK, CUT SET-UP TIMES FROM HOURS TO TWO MINUTES OR LESS, INSTITUTED PROCESS (CELL) GROUPING, AND SHORTENED LEAD TIMES FROM FOUR WEEKS TO TWO HOURS. RESULT: EARNINGS INCREASED 500%.

13. NORTHERN TELECOM: (STONE MOUNTAIN, GA, PLANT) REDUCED CIRCUIT ASSEMBLY TIMES FROM 120 HRS TO 12 HRS; HALVED RATE OF INCORRECTLY INSTALLED COMPONENTS (TO < .00002); HALVED NUMBER OF SYSTEMS RETURNED BY CUSTOMERS.

WHAT IS POSSIBLE (IV)

14. IBM: REDUCED THE PARTS COUNT FOR THE PROPRINTER BY 60%, TO THE POINT WHERE A "HIGHLY AUTOMATED AND EXPENSIVE" FACTORY WAS NO LONGER REQUIRED (BERGER, 42).

15. FORD: REDUCED PIECES IN A CAR-BODY SIDEPANEL FROM 15 TO 2.

16. HONDA MOTORS: ROLLED THE FIRST ACURA OFF THE LINE 18 MONTHS AFTER START OF DESIGN; QUALITY WAS EQUAL TO THE REST OF THE HONDA LINE. (RELATED BY PROF. SHIGEO SHINGO AT THE 1988 APICS CONFERENCE)

17. JIDOSHA KIKI (BENDIX/JAPAN): INSTALLED JUST-IN-TIME PRODUCTION SYSTEM IN 1978. WITHIN 2 YEARS, PRODUCTIVITY DOUBLED AND INVENTORY TURNOVER TRIPLED.

18. OMARK INDUSTRIES: CUT WORK-IN-PROGRESS INVENTORY BY 94% AND LABOR HOURS BY 40%

19. GENERAL MOTORS: REDUCED THE GM/JAPAN DEFECT RATIO FROM 2.7 PER CAR IN 1982 TO 1.4 IN 1988. (TAYLOR, 53)

    (BUICK CITY PLANT) SINCE 1986, CUT DEFECTS BY 90% AND REDUCED ASSEMBLY HOURS PER CAR BY 41%.

WHAT IS POSSIBLE (V)

19. GENERAL MOTORS (CONTINUED):

(INLAND DIV., LIVONIA, MI, PLANT) SINCE 1986, CUT TIME REQUIRED TO MAKE A CAR INTERIOR FROM 48.1 HRS TO 12.1 HRS. GOAL IS 6 MIN. (TREECE, 78)

20. GENERAL ELECTRIC: REDUCED DELIVERY TIMES FOR CUSTOM INDUSTRIAL CIRCUIT BREAKERS FROM 3 WEEKS TO 3 DAYS, IMPROVED PRODUCTIVITY BY 20%, AND REDUCED COSTS BY 30%. (DUMAINE, 54-56)

(GE/MAJOR APPLIANCES BUSINESS GROUP) REDUCED THE COST OF REFRIGERATOR COMPRESSORS FROM $48 TO LESS THAN $20, WHICH WAS--AND IS--LESS THAN THE COST OF BUYING THEM FROM BRAZIL OR JAPAN. (MAGAZINER, 116, 123)

21. MOTOROLA: SINCE 1985, REDUCED THE DEFECT RATE FROM 1 PER 1,000 TO ONE PER 4,300.

22. SCHLUMBERGER/HOUSTON DOWNHOLE SENSORS: SINCE 1985, REDUCED SOME DEFECT RATES BY A FACTOR OF 10, ACHIEVED 100% ON-TIME DELIVERY, REDUCED TOTAL INVENTORY BY 60%, AND QUADRUPLED WORK-IN-PROGRESS INVENTORY TURNS. (ASHTON, 107)

WHAT IS POSSIBLE (VI)

23. HONEYWELL (CHANDLER, ARIZONA PLANT): AFTER REDESIGN OF CIRCUITBOARD PLANT, INCREASED QUALITY YIELD FROM 82% TO 99.5%, AND REDUCED UNIT COST TO 46% OF ITS ORIGINAL LEVEL. (SHERWOOD, 16).

24. UAL CORP (PARENT OF UNITED AIR LINES): WITHIN THE LAST YEAT, DOUBLED BOTH STOCK PRICE AND QUARTERLY EARNINGS, INDICATING THE SUCCESS OF CEO STEPHEN M. WOLF'S "SIMPLE BATTLE PLAN," THAT "QUALITY SERVICE WOULD LEAD TO IMPROVED EARNINGS." (CRASH, E-1, E-7)

25. THE JAPANESE REPORT THAT IT IS GENERALLY POSSIBLE TO REDUCE LABOR CONTENT BY 40% BY ELIMINATING TRANSPORT AND DELAYS BETWEEN PROCESSES (AND BY IMPLICATION, ADOPTING A SYSTEM WHERE THIS IS POSSIBLE).

26. THE JAPANESE HAVE ACHIEVED ONE NON-CONFORMING PART PER 1 TO 10 MILLION, AND ONE ASSEMBLY ERROR PER 250,000--"LEVELS ESSENTIALLY UNKNOWN IN MUCH OF U.S. INDUSTRY." THEIR GOAL IS NO NON-CONFORMANCES. (KELLY, P. 9)

WHAT IS POSSIBLE (VII)

27. U.S. INDUSTRY SPENDS SOME 30% OF PRODUCTION COSTS TO FIND AND CORRECT ERRORS. THE CORRESPONDING FIGURE FOR JAPAN IS ABOUT 3%. (U.S. DoD TECHNOLOGY ASSESSMENT TEAM, xi)

28. THE MINIMUM ACCEPTABLE FAILURE RATE IN JAPAN IS 64 PARTS PER MILLION. "IN JAPAN, THEY'RE TALKING ABOUT PARTS PER BILLION. THAT IS WHAT THEIR TARGET IS. SO I THINK YOU OUGHT TO KEEP THAT IN MIND." (IURA, 202)

29. SCHONBERGER INCLUDES A LIST OF 84 PLANTS THAT, AS OF 1986, HAD MADE AT LEAST A 500% IMPROVEMENT IN MANUFACTURING LEAD TIMES. (229-236)

THE ESSENCE OF JAPANESE MANAGEMENT

THE BASIC IDEA IS VERY, VERY SIMPLE. HERE IT IS STATED BY AN EXECUTIVE IN JAPAN'S NEW PRODUCTION RESEARCH ASSOCIATION:

> IT IS IMPERATIVE FOR THE MANUFACTURER TO MEET THE CUSTOMER'S REQUIREMENTS AS TO QUALITY, COST, AND DELIVERY TIME. ALL FACTORS THAT HAMPER MEETING THOSE GOALS ARE CONSIDERED WASTE. OUR BASIC PHILOSOPHY IS THE TOTAL ELIMINATION OF WASTE.

SHINOHARA, NPS, P. 130

WHAT IT TAKES TO WIN

1. If, as Deming maintains, The System causes 94% of a company's problems, then fix The System.

2. The uniquely human component of the company system is called "culture." Because people really are the company--they use equipment, follow procedures, etc.--culture is the single most powerful driver of company performance.

3. Invest shrewdly in automation, and only after culture and other major pieces of the company system are substantially improved.

4. Business is a competition where the winner is decided by the customer. Everybody at your company, therefore, is doing marketing (to paraphrase Northrop Chairman Tom Jones).

5. Quality is the only basis for a successful, sustainable strategy.

This presentation will consider each of these topics in turn.

RESULTS: SYSTEM/PROCESSES

"EVERY COMPANY IS A SYSTEM." (BOWER & HOUT)

"OF ALL THE POSSIBLE TECHNIQUES FOR IMPROVING PRODUCTIVITY, ONLY THE JIT (JUST-IN-TIME) RELATED ONES ARE STATISTICALLY, DEMONSTRABLY EFFECTIVE." (SCHMENNER; SEE ALSO DELEERSNYDER, 1079, 1087)

"INVENTORY MUST BE ELIMINATED . . . LEAD TIMES MUST BE CUT DRAMATICALLY." "AT THE ROOT OF THE SYSTEM IS THE TOTAL ELIMINATION OF WASTE." (SHINGO)

". . . TO REGARD AS WASTE ANY ELEMENT THAT DOES NOT CONTRIBUTE TO MEETING THE QUALITY, PRICE, OR DELIVERY REQUIRED BY THE CUSTOMER." (SHINOHARA)

"MANY AMERICAN COMPANIES SIMPLY DO NOT DEVOTE ENOUGH ATTENTION TO THE MANUFACTURING PROCESS." (MIT COMMISSION ON INDUSTRIAL PRODUCTIVITY, IN BERGER, 42)

MUDA
(WASTE)

WASTE IN PROCESSING ITSELF

WASTE OF TIME

WASTE OF MAKING DEFECTIVE PARTS

WASTE OF MOTION

WASTE OF OVERPRODUCTION

WASTE OF INVENTORY

WASTE OF TRANSPORTATION

TAIICHI OHNO, CREATOR OF THE TOYOTA PRODUCTION SYSTEM (IN SCHNEIDERMAN, P. 53)

TO WHICH SCHERKENBACH ADDS:

"THE WASTE DUE TO FEAR IS ENORMOUS." (P. 76)

RESULTS: SYSTEM/PROCESSES (II)

AVOID PASSIVE OPERATIONAL IMPROVEMENTS, WHERE THE PRESENT METHOD IS TAKEN FOR GRANTED.

"INSTEAD, DETERMINE WHICH FUNCTIONS ARE REQUIRED, AND THEN DETERMINE HOW TO PROVIDE THE REQUIRED FUNCTIONS." (EMPHASIS ADDED)

SHINGO, 313-314.

OBSERVATION: A COMPANY IS A SYSTEM, AND IF THE KEY TO RADICAL IMPROVEMENT LIES IN DETERMINING WHICH FUNCTIONS ARE REALLY REQUIRED AND DECIDING THE BEST WAYS OF PROVIDING THEM, THEN CREATING A SYSTEMS SPECIFICATION FOR THE COMPANY MAY PROVE AN INVALUABLE TOOL.

RESULTS: SYSTEM/PROCESSES (III)

SOME THOUGHTS ON THE CRITICAL ROLE OF INDUSTRIAL ENGINEERING:

> "WITH ANY PLANT, WE MUST FIRST DETERMINE THE WHAT AND THE WHO BEFORE MOVING ON TO CONSIDER THE HOW, THE WHERE, AND THE WHEN . . . THE QUESTION WHY SHOULD THEN BE ASKED ABOUT EACH OF THESE COMPONENTS." (PROF. SHIGEO SHINGO, NON-STOCK PRODUCTION, P. 76)
>
> IN JAPANESE PLANTS, THIS IS THE FUNCTION OF INDUSTRIAL ENGINEERS, WHICH IS WHAT SHINGO, OHNO, AND THE OTHER FOUNDERS OF THE ADVANCED JAPANESE SYSTEMS CONSIDERED THEMSELVES.

> "WE HAVE 2100 TEAM MEMBERS ON THE FACTORY FLOOR, THEREFORE WE HAVE 2100 INDUSTRIAL ENGINEERS." (EXECUTIVE OF THE GM/TOYOTA JOINT VENTURE, NUMMI, IN CALIFORNIA; QUOTED BY KRAFCIK)

RESULTS: SYSTEM/PROCESSES (IV)

MORE ON INDUSTRIAL ENGINEERING'S ROLE

THE DATA SHOW THAT: "PROGRESSIVE COMPANIES IN MANY INDUSTRIES NO LONGER TRACK AND REPORT LABOR EFFICIENCY AND MACHINE UTILIZATION. . . PROGRESSIVE COMPANIES HAVE SCUTTLED THESE MEASURES." (SCHMENNER)

"THE WORK STANDARD . . . IS A BARRIER TO ELIMINATING THE PROBLEMS AND IMPROVING THE PROCESS. . . THE EXISTING PROCESS IS PRESERVED IN CONCRETE." (MANN, QUOTING DEMING)

ONE STUDY OF JAPANESE INDUSTRIES SHOWED THAT THE JAPANESE SPEND SOME 30% MORE OF THEIR INNOVATION RESOURCES ON MANUFACTURING, TOOLING, EQUIPMENT, AND START-UP THAN DO SIMILAR U.S. FIRMS. (MANSFIELD)

IT IS THE RESPONSIBILITY OF MANAGEMENT TO "... GO THROUGH A DISCIPLINED MENTAL PROCESS OF DECOMPOSING ..." THEIR COMPANY SYSTEMS "... AND THEN RESTRUCTURING THEM FROM SCRATCH." "ROWING HARDER DOESN'T HELP IF THE BOAT IS HEADED IN THE WRONG DIRECTION." (OHMAE, "COMPANYISM," 125, 129)

RESULTS: SYSTEM/PROCESSES (V)

"He who runs his company on visible figures alone will soon have neither company nor visible figures to work with." (Deming, quoted by Scherkenbach, 44)

The most successful U.S. companies have found ways to achieve simultaneous improvements in quality, cost, and speed of commercialization. (Berger, 44) Comment: They have fixed their overall systems, rather than suboptimizing individual areas.

"Total spending on research and development in the U.S. is significantly higher than that in any other country and still three times the R&D spending of Japan." (Reich, 42)

RESULTS: CORPORATE CULTURE

THE GENERAL PATTERNS OF HOW THE COMPANY REWARDS AND PUNISHES ITS PEOPLE, ASSIGNS THEM TO POSITIONS, ETC. -- "THE WAY WE DO THINGS AROUND HERE"[1] -- IS THE LARGEST SINGLE DETERMINANT OF QUALITY AND PRODUCTIVITY.

". . . CORPORATE CULTURE HAS A STRONG INFLUENCE ON PLANT PERFORMANCE." (KRAFCIK, WHOSE STUDY SHOWED THAT THE SAME WAS NOT TRUE OF AUTOMATION)

"THE ISSUE OF HUMAN NATURE IS THE MOST BASIC PROBLEM . . . THE MOST IMPORTANT FACTOR IS MAINTAINING A RELATIONSHIP OF TRUST BETWEEN LABOR AND MANAGEMENT." (SHINGO)

ACCORDING TO SOME JAPANESE FIRMS, THEIR MANUFACTURING STARTUP COSTS TEND TO BE RELATIVELY LOW BECAUSE "THEIR ENGINEERS WORK MORE CLOSELY AND DIRECTLY WITH THEIR WORKFORCE THAN DO THOSE IN MANY AMERICAN FIRMS." (MANSFIELD)

"WE WANTED TO KNOW WHAT QUALITY IMPROVEMENT TOOLS WE COULD USE. HE WANTED TO TALK TO US ABOUT CULTURE CHANGE . . . HE WANTED TO DISCUSS SENIOR MANAGEMENT'S VISION FOR THE COMPANY." (BETTI, ON DEMING'S FIRST VISIT TO FORD, 1980)

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[1] Marvin Bower, former Managing Director of McKinsey & Co., in Deal & Kennedy, p. 4.

RESULTS: CORPORATE CULTURE (II)

The Eye Of The Tiger

"OVER THE YEARS, TOYOTA HAS DESIGNED ITS ORGANIZATION TO SPEED INFORMATION, DECISIONS, AND MATERIALS THROUGH . . . (ITS) CRITICAL OPERATING CYCLES, INDIVIDUALLY AND AS PARTS OF THE WHOLE. THE RESULT IS BETTER ORGANIZATIONAL PERFORMANCE ON THE DIMENSIONS THAT MATTER TO CUSTOMERS--COST, QUALITY, RESPONSIVENESS, INNOVATION. (EMPHASIS ADDED)

A HIGHLY COMPETITIVE, "FAST CYCLE" COMPANY IS LIKE A FIGHTER ACE, EXECUTING ITS OBSERVE-ORIENT-DECIDE-ACT (OODA) LOOPS MORE RAPIDLY THAN ITS COMPETITORS: IN THE CASE OF TOYOTA VS. DETROIT, BETWEEN 2 AND 5 TIMES AS FAST. (BOWER & HOUT, 111-112)

THE SIDE WITH THE FASTER OODA LOOP WILL BEGIN TO APPEAR AMBIGUOUS AND MENACING TO ITS OPPONENT. IN TIME, THE FASTER COMPETITOR WILL "GENERATE UNCERTAINTY, CONFUSION, DISORDER, PANIC, AND CHAOS" IN THE DECISION MECHANISMS OF THE OTHER, BRINGING ABOUT THEIR PARALYSIS AND ULTIMATE COLLAPSE. (COL. JOHN R. BOYD, ORIGINATOR OF THE OODA LOOP CONCEPT, "PATTERNS", 132)

PRINCIPLES OF THE BLITZKRIEG

An Organizational Climate for Operational Success
--Col. John R. Boyd

1. EINHEITSPRINZIP (UNITY, THROUGH MUTUAL TRUST AND UNDERSTANDING)

2. AUFTRAG (CONTRACT BETWEEN SUPERIOR AND SUBORDINATE)

3. FINGERSPITZENGEFUHL (INTUITIVE UNDERSTANDING, "FEEL")

4. SCHWERPUNKT (FOCUS AND DIRECTION)

5. BEWEGLICHKEIT (MENTAL AGILITY)

6. AUFROLLEN (EXPANDING TORRENT)

7. KESSELSCHLACHTEN (ENCIRCLEMENT AND ANNIHILATION)

KEY POINT: FIVE OF THE SEVEN ADDRESS HUMAN/CULTURAL ELEMENTS

SOURCES: Nos. 1-4, Boyd, "Patterns"
Nos. 5-7, Livingston

CORPORATE CULTURE: THE H-Y WAR

IN 1981, YAMAHA ANNOUNCED THAT IT WOULD BECOME THE WORLD'S LARGEST MOTORCYCLE MANUFACTURER, A POSITION THEN HELD BY HONDA.

ITS PRESTIGE THUS CHALLENGED, HONDA COUNTERATTACKED BY:

1. ADOPTING THE WAR CRY "YAMAHA WO TSUBUSU!" ("WE WILL CRUSH, SQUASH, SLAUGHTER YAMAHA!")

2. CUTTING PRICES, FLOODING DISTRIBUTION CHANNELS, AND INCREASING ADVERTISING.

3. IN THE NEXT EIGHTEEN MONTHS, INTRODUCING 113 NEW MODELS TO REPLACE THE 60 IT HAD AT THE START OF THE WAR, EFFECTIVELY TURNING OVER ITS ENTIRE PRODUCT LINE TWICE.

   IN CONTRAST, YAMAHA WAS ONLY ABLE TO BRING OUT 37 NEW MODELS.

4. REDEFINING THE TERMS OF THE MOTORCYCLE MARKET AS A MATTER OF FASHION, WHERE NEWNESS WAS OF ITSELF A MATTER OF CUSTOMER VALUE.

   NEXT TO A HONDA, A YAMAHA LOOKED DRAB AND UNIMAGINATIVE.

ANALYSIS: HONDA HAD "MANAGED STRUCTURAL CHANGES THAT ENABLED THEIR OPERATIONS TO EXECUTE THEIR PROCESSES MUCH FASTER."

AFTER 18 MONTHS, YAMAHA ACCEPTED A HUMILIATING SURRENDER: "WE WANT TO END THE H-Y WAR. IT WAS OUR FAULT."

SOURCE: STALK, "TIME--THE NEXT SOURCE OF COMPETITIVE ADVANTAGE," HBR 4/88.

RESULTS: CORPORATE CULTURE (III)

"MOST SYSTEM PROBLEMS TURN ON A HUMAN FACTOR. AND IF PROBLEMS ARE NOT PURSUED FAR ENOUGH TO FIND THAT FACTOR, SOLUTIONS WILL BE INADEQUATE." (JAPAN MGMT. ASSOC.)

"ADVANCED MANUFACTURING TECHNOLOGY MAKES HUMAN SKILLS AND WORKER COMMITMENT MORE IMPORTANT THAN EVER." (WALTON AND SUSMAN)

IN 1982, TOYOTA WORKERS SUBMITTED "1,905,682 SUGGESTIONS, OR 32.7 PER WORKER. MOREOVER, 95 PERCENT WERE IMPLEMENTED." (PETERS)
CANON WORKERS SUBMIT AN AVERAGE OF 50/YEAR. (JMA)

"ADOPT AND INSTITUTE LEADERSHIP." (DEMING'S POINT 7; OUT OF FOURTEEN POINTS, TWELVE--ALL BUT #3 & #4--ADDRESS CULTURE)

"IT IS NOT CHANGE ITSELF THAT IS FEARED OR RESISTED BY HUMAN BEINGS SO MUCH AS IT IS CHANGE ASSOCIATED WITH UNCERTAIN OR POSSIBLY DETRIMENTAL OUTCOMES." SUCCESSFUL COMPANIES HAD ". . . A STRONG AND PURSUASIVE CHAMPION WHO LOBBIED PASSIONATELY." (BEATTY AND GORDON)

"YOU'RE NEVER GOING TO GET ANYONE TO CHARGE THE MACHINE GUNS ONLY FOR FINANCIAL OBJECTIVES." (REUBEN MARK, CEO OF COLGATE, IN DUMAINE, "LEADERS," 50)

"THERE IS NO SUCH THING AS A PARTTIME PASSION." (PETERS)

RESULTS: CORPORATE CULTURE (IV)

"Few businesses succeed because of control. Most make it because of motivation, entrepreneurship, customer relationships, creativity, persistence, and attention to the 'softer' aspects of organization, such as values and skills." (Ohmae, "Global," 151)

"...reveal an 'obsession for control' by high-level superiors over low-level subordinates that restricts any imagination, initiative, and adaptability needed by a system to evolve the indistinct-irregular-mobile tactics that could counter the increase in weapons lethality." (Boyd, on why many battles from the American Civil War through the end of WW I resulted in bloodbaths, Patterns, 62).

". . . there is no way you can watch over and control, constantly, what every man and team does or how they do it or when they do it. The only way you can build the kind of control essential for battlefield teamwork is to build that control into the individuals and teams themselves. Build internal control." (US Army Colonel Mike Malone, 89)

On excellence in fighter units: "An atmosphere of trust exists up and down the chain of command. Supervisors and commanders trust their people to do the job correctly without taking shortcuts." (USAF Col Don Waddell, 7)

THE TRUE COMPETITIVE ADVANTAGE OF JAPAN

"We will win and you will lose because your companies are based on Taylor's principles. You firmly believe that sound managment means executives on one side and workers on the other--on one side men who think and on the other side men who can only work. We are aware that business is terribly complex...filled with risk, the unexpected, and competition. For us, management is the entire work force's intellectual commitment at the service of the company ... without self-imposed functional or class barriers." (Konosuka Matsushita, founder of Matsushita Industrial Co., in the Report of The U.S. DoD technology Assessment Team, xvii. Emphasis added.)

THE CULTURE OF ADVANCED

JAPANESE PRODUCTION SYSTEMS

WHY DO THE WORKERS IN JAPAN'S LEADING COMPANIES WORK SO HARD?

ONE ANSWER IS THAT THESE COMPANIES HAVE NOT ADOPTED AN

US-OR-THEM PHILOSOPHY WITH REGARD TO THEIR PRODUCTION EMPLOYEES:

> IT IS TOTALLY UNACCEPTABLE TO FIRE WORKERS WHO BECOME SUPERFLUOUS AS EFFICIENCY IMPROVES. THIS IS BETRAYING YOUR COLLEAGUES.

AND:

> EACH OF US HAS ONLY ONE LIFE TO LIVE. JUST BECAUSE A WORKER IS BEING PAID DOES NOT GIVE THE COMPANY THE RIGHT TO MAKE THAT PERSON WORK AT TASKS THAT ARE OF NO VALUE. DOING THAT IS NOTHING MORE THAN DERILICTION OF DUTY ON THE PART OF MANAGEMENT.

SUZUMURA, IN SHINOHARA, NPS, PP. 116-117

MORE JAPANESE INDUSTRIAL CULTURE

HOW DO ADVANCED JAPANESE COMPANIES DEAL WITH BUSINESS DOWNTURNS? THEY LAY OFF WORKERS AS A LAST RESORT:

> WE DO NOT ASK WORKERS TO WORK HARD SO THAT THEIR COLLEAGUES CAN BE FIRED. THIS IS INHUMAN . . . WE ALSO SAY, "DO NOT HIRE A WORKER WHEN A WORKER QUITS." WHEN YOU HIRE WORKERS, YOU HAVE TO BE WILLING TO KEEP THEM FOR A LIFETIME.
>
> KINOSHITA, IN SHINOHARA, 134.

MIKIYA KINOSHITA, INCIDENTALLY, IS A DIRECTOR OF THE NPS RESEARCH ASSOCIATION, AN ORGANIZATION WHOSE STATED GOAL IS THE TOTAL ELIMINATION OF WASTE.

CULTURE AND THE BOTTOM LINE

A strong culture is an informal system of values that are known and shared by all employees. In a strong culture, people intuitively know what to do most of the time. This translates directly into increased productivity:

> "The impact of a strong culture is amazing. In the extreme, we estimate that a company can gain as much as one or two hours of productive work per employee per day. (Deal & Kennedy, 15, 22)

In contrast, many authoritarian, "Theory X," cultures are actually weak because their systems rely on explicit rules, orders, and supervision.

"The biggest obstacle is not having the conviction to shake up the culture." (Andrall Pearson, Harvard, former President of PepsiCo, in Dumaine, 79)

CELEBRATING SUCCESS

The Canon Production System is widely recognized in Japan as one of the country's most advanced. With great fanfare, Canon holds several "conventions" each year to recognize worker involvement in improving the system.

Awards are given for suggestions in all areas of improvement, including production efficiency, quality, and cost reduction. The Canon system has several features that may seem unusual to American managers:

1. It awards over 130 prizes in 11 categories
2. The largest prize is only $1,500
3. To win top prize, a shop must make 30% annual improvement for three years running--this in an already world class production system.

(Japan Mgmt. Assoc., 89-96)

RESULTS: AUTOMATION

OBSTACLE: "THE SUPPOSITION THAT SOLVING PROBLEMS, AUTOMATION, GADGETS, AND NEW MACHINERY WILL TRANSFORM INDUSTRY" (DEMING)

"MEANWHILE, A NAIVE FAITH IN TECHNOLOGICAL SILVER BULLETS DIVERTS MANUFACTURERS FROM THE HARD WORK OF REBUILDING NORTH AMERICA'S INDUSTRIAL BASE." (WARNER)

GM HAS SPENT $40 BILLION SINCE 1980 ON MODERNIZATION, WITH MUCH OF THIS ON FLEXIBLE MANUFACTURING. YET, ITS COSTS CONTINE TO CLIMB AND ITS MARKET SHARE TO DROP. THERE IS ONLY A "MODEST SIMPLE CORRELATION BETWEEN ROBOTICS AND QUALITY." (KRAFCIK)

"THE BASIC CONCEPT IS THAT PROPERLY MOTIVATED PEOPLE CAN DO MORE THAN ROBOTS AND OTHER TYPES OF AUTOMATION, PARTICULARLY IN A PLANT STRESSING FLEXIBILITY." (CORNING EXEC. VP, NORMAN E. GARRITY, IN HOLUSHA, 3;8. EMPHASIS ADDED)

RESULTS: AUTOMATION (II)

Based on his study of 26 automobile factories worldwide, MIT analyst John Krafcik concluded:

> Of the six U.S. plants (excluding transplants from Japan) that achieved productivity comparable to the Japanese, three were highly automated with robotics and three were not.
>
> "There is only a modest simple correlation between robotics and quality (R = -0.398)."
>
> Flexible manufacturing is not flexible. The correlation (R) between model mix diversity and robotics is -0.125.

(Krafcik, 50-51)

RESULTS: AUTOMATION (III)

"THE BEST COURSE OF ACTION IS TO ENSURE THAT MANUFACTURING PROCESSES ARE EFFICIENT AS POSSIBLE BEFORE AUTOMATION IS CONSIDERED." (BEATTY & GORDON; CF. ALSO DEMING, KRAFCIK, ETC.)

"MOST THRIVING FIRMS IN THE U.S. HAVE ALSO REALIZED THAT BUSINESS STRATEGIES BASED ON THROWING HARDWARE AT PERFORMANCE PROBLEMS ARE UNLIKELY TO WORK." (MIT COMM. ON INDUSTRIAL PRODUCTIVITY, IN BERGER, 44)

"C'EST MAGNIFIQUE, MAIS CE N'EST PAS LA GUERRE."[1] MARSHAL PIERRE BOSQUET, WATCHING THE CHARGE OF THE LIGHT BRIGADE AT BALAKLAVA, 1854.

---

[1] It is magnificent, but it is not war.

RESULTS: CUSTOMER

THE GOLDEN RULE: HE WHO HAS THE GOLD (THE CUSTOMER) MAKES THE RULES. -- OLD BELTWAY BANDIT ADAGE.

"WHILE THE JAPANESE WERE LEAPFROGGING IN DESIGN QUALITY, DETROIT WAS TRYING TO CATCH UP IN CONFORMANCE QUALITY. . . AMERICAN CONSUMERS DID NOT PERCEIVE THIS PROGRESS." (BUZZELL & GALES)

"A SUPPOSITION THAT IT IS ONLY NECESSARY TO MEET SPECIFICATIONS." (DEMING, OBSTACLE NO. 13, P. 139)

"THE CUSTOMER IS THE MOST IMPORTANT PART OF THE PRODUCTION LINE." (DEMING, CHAPTER 6, P. 174)

"TURN MANUFACTURING INTO A MARKETING WEAPON" (PETERS, TITLE OF A CHAPTER IN THRIVING ON CHAOS)

RESULTS: CUSTOMER (II)

THE MOST IMPORTANT DETERMINANT OF BUSINESS UNIT PERFORMANCE IS THE QUALITY OF ITS PRODUCTS. BUT IT IS NOT JUST CONFORMANCE QUALITY, IT IS HOW WELL ITS PRODUCTS COMPARE TO THOSE OF THE COMPETITION IN THE ASPECTS OF QUALITY THAT OUR CUSTOMERS PERCEIVE AND VALUE. (BUZZELL & GALE, BASED ON DATA FROM NEARLY 3,000 STRATEGIC BUSINESS UNITS)

MANUFACTURERS OF MECHANICAL WATCHES DID NOT DISAPPEAR BECAUSE THEIR PRODUCTS FAILED TO CONFORM TO SPECIFICATIONS. (AN OBSERVATION, SUGGESTED BY DEMING, CH. 6)

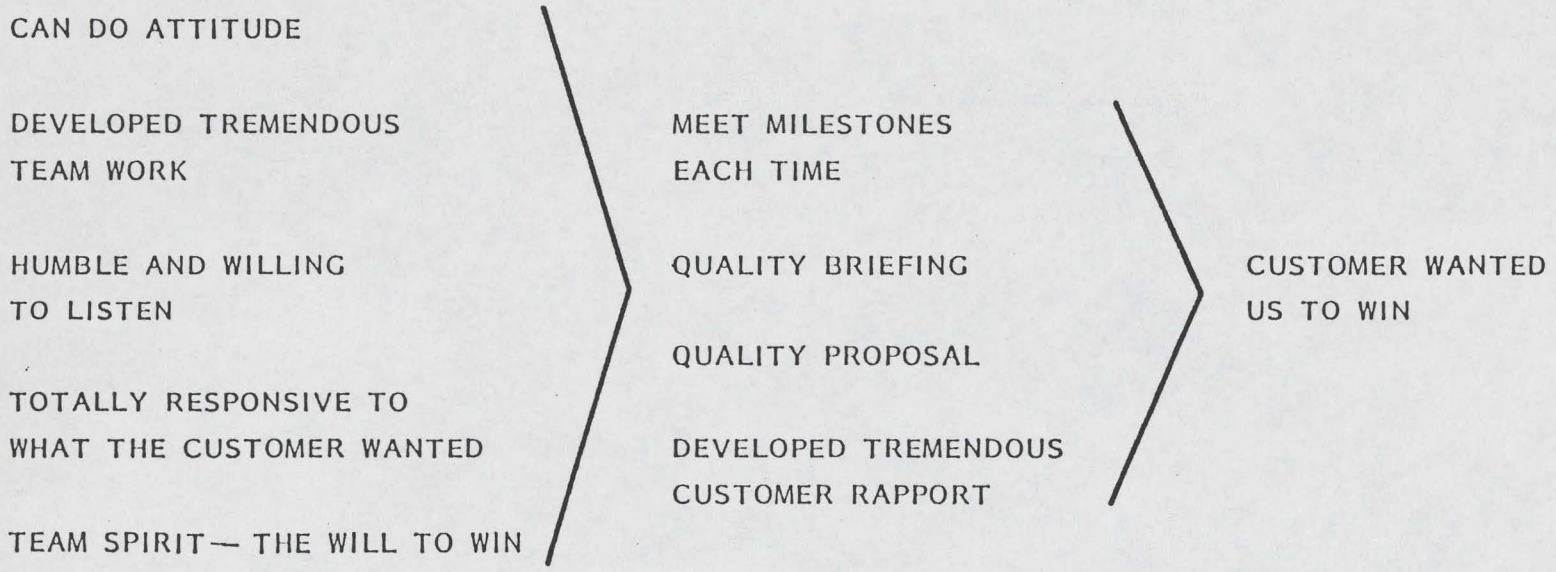
"BUT IF A COFFEE SHOP IS WHAT HIS CUSTOMERS WANT, A COFFEE SHOP IS WHAT THEY'LL GET." (WHY RUPERT LECRAW'S "ALMOST FANATICAL INSISTENCE ON SERVICE" HAS RAISED ATLANTA'S OXFORD BOOK STORE TO ONE OF THE TOP FIVE IN THE COUNTRY. ENGLADE, 46)

"STRATEGY ISN'T BEATING THE COMPETITION; IT'S SERVING CUSTOMERS' REAL NEEDS. . . IN JAPAN TODAY, THE HANDWRITING IS ON THE WALL FOR MANY INDUSTRIES: THE STRATEGIC POSITIONING THAT HAS SERVED THEM SO WELL IN THE PAST IS NO LONGER TENABLE." (OHMAE)

RESULTS: CUSTOMER (III)

"Today's customer expects that it will be on time; the competitive issue is, 'What's the lead time?' Efficiency and utilization clearly are of no interest to the customer, especially since some of our ways of pursuing those internal goals conflict with our ability to deliver quality and provide flexible response." (Schonberger, 205)

ANATOMY OF A WINNER



TEN COMMANDMENTS OF CONSULTING*

I. DO NOT ANGER OR INSULT YOUR CLIENT, ELSE HE WILL NOT RENEW YOUR CONTRACT.

II. DELIVER TO YOUR CLIENT THE QUALITY SERVICES AND PRODUCTS THAT YOU HAVE PROMISED, ELSE HE WILL NOT RENEW YOUR CONTRACT.

III. BE RESPONSIVE AND ATTENTIVE TO YOUR CLIENTS, BOTH OLD AND NEW, LEST THEY WONDER WHAT YOU ARE DOING WITH THEIR MONEY, AND NOT RENEW YOUR CONTRACTS.

IV. DO NOT DISCUSS YOUR CLIENT'S PROBLEMS OUTSIDE YOUR COMPANY, FOR YOUR CLIENT WILL LEARN OF YOUR INDISCRETION AND BECOME ANGRY, AND HE WILL NOT RENEW YOUR CONTRACT.

V. BE PLEASANT, CHEERFUL, AND EASY TO DO BUSINESS WITH, ELSE YOUR CLIENT WILL SEEK THOSE WHO ARE (AND HE WILL NOT RENEW YOUR CONTRACT).

VI. GIVE YOUR CLIENT EARLY RESULTS AND SATISFACTIONS WITH YOUR WORK, FOR HE *TOO* NEEDS TO BE PROUD OF YOUR WORK IN FRONT OF HIS BOSS.

VII. PRESENT YOUR QUALITY PRODUCTS AND SERVICES TO YOUR CLIENT IN PERSON. DO NOT MAKE LIGHT OF YOUR EFFORTS ON HIS BEHALF, ELSE HE WILL THINK YOU HAVE LITTLE INTEREST IN HIM OR IN HIS PROJECT.

VIII. PRAISE YOUR COMPANY AND YOUR ASSOCIATES WHEN IN THE PRESENCE OF YOUR CLIENT, ELSE HE WILL NOT BELIEVE YOU HAVE PRIDE IN YOUR AFFILIATION.

IX. NEVER DISCUSS WITH YOUR CLIENT THE SHORTCOMINGS OF HIS STAFF, ELSE HE WILL SUSPECT THAT YOU DISCUSS *HIS* SHORTCOMINGS WITH OTHERS, TOO.

X. AND THIS IS THE GREATEST COMMANDMENT OF ALL—REMEMBER THE GOLDEN RULE: "HE WHO HAS THE GOLD (THE CLIENT) MAKES THE RULES."

*AS CHISELED INTO THE TABLET OF JACK LONDON C.A.C.I.

CARE AND FEEDING OF THE CUSTOMER

CONSULTANTS ESTIMATE THAT 75% OF THEIR NEW BUSINESS COMES FROM EXISTING CUSTOMERS . . . OBVIOUSLY FROM EXISTING SATISFIED CUSTOMERS.

IN FACT, KEEPING A CUSTOMER COSTS ONLY ONE-FIFTH AS MUCH AS FINDING A NEW ONE. (SELLERS, 38)

SO THEY LEAVE NOTHING TO CHANCE.

RESULTS: QUALITY

DATA FROM SOME 3000 BUSINESS UNITS INDICATE:

QUALITY IS "THE MOST IMPORTANT SINGLE FACTOR AFFECTING A BUSINESS UNIT'S LONG-TERM PERFORMANCE. "

" . . . CHANGES IN RELATIVE QUALITY HAVE A FAR MORE POTENT EFFECT ON MARKET SHARE THAN DO CHANGES IN PRICE."

BUT, THE QUALITY THAT HAS THIS STATISTICALLY VALID EFFECT MUST BE:

-- PERCEIVED BY THE CUSTOMER

-- RELATIVE TO THE COMPETITION.

BUZZELL & GALE;
PIMS NEWSLETTERS (QUOTED IN PETERS)

RESULTS: QUALITY (II)

"STRATEGIC QUALITY MANAGEMENT MEANS MORE THAN AVOIDING REPAIRS FOR CONSUMERS. IT MEANS THAT COMPANIES LEARN FROM CUSTOMER EXPERIENCE AND RECONCILE WHAT THEY WANT WITH WHAT ENGINEERS CAN REASONABLY BUILD." (HAUSER & CLAUSING)

"A DEFECT THAT OCCURS WITH A PROBABILITY OF ONE IN A MILLION STILL REPRESENTS A 100% DEFECT RATE TO THE PERSON RECEIVING THE DEFECTIVE PRODUCT. . . IT IS NECESSARY TO DEVELOP FAST, INEXPENSIVE 100-PERCENT INSPECTION SYSTEMS." (SHINGO)

"QUALITY INVARIABLY LOSES ALL SIGNIFICANCE IN A SYSTEM BUILT AROUND MANDATORY QUANTITATIVE DELIVERIES." (KAISER, 102, ON THE FAILURE OF THE SOVIET SYSTEM)

"NO ONE CAN GUESS THE FUTURE LOSS OF BUSINESS FROM A DISSATISFIED CUSTOMER." (DEMING)

QUALITY--THE ONLY PIECE

IN THE PUZZLE?

PRIMARY COMPONENTS OF A COMPETITIVE ENTERPRISE, AS SUGGESTED BY THE TOPICS EMPHASIZED IN THRIVING ON CHAOS:

1. QUALITY -- AS PERCEIVED BY THE CUSTOMER
2. MARKET NICHE CREATION: "IF YOU DON'T HAVE A COMPETITIVE ADVANTAGE, DON'T COMPETE." -- JACK WELCH, CEO OF GENERAL ELECTRIC.
3. RESPONSIVENESS: WHAT THE CUSTOMER WANTS, WHEN HE WANTS IT
4. UNIQUENESS: WHAT MAKES US THE BEST?
5. FAST-PACED INNOVATION -- BECAUSE WE CANNOT PREDICT THE FUTURE
6. INTEGRITY -- WHICH BUILDS TRUST
7. VALUE: QUALITY + COST + PERFORMANCE + ...

QUESTION: OF THESE, HOW MANY ARE EITHER ATTRIBUTES OF "QUALITY" OR THE DIRECT RESULT OF IT?

IMPLEMENTATION SCHEMES

MAKING IT WORK:

IDEAS FROM DEMING, PETERS, ETC.

DEVELOPING COMPETITIVE POWER

1. TREAT THE COMPANY AS A SYSTEM.

2. ORGANIZE WORK IN MULTIFUNCTIONAL TEAMS

3. TRACK CYCLE (OODA LOOP) TIMES THROUGHOUT THE ORGANIZATION. MANAGE THE CYCLE TIMES OF THE INDIVIDUAL ACTIVITIES AND OF THE WHOLE COMPANY SYSTEM.

4. BUILD LEARNING LOOPS INTO THE ORGANIZATION. DECENTRALIZE. DE-BUREAUCRATIZE. CONSTANTLY "RENEW AND REDESIGN" THE SYSTEM.

5. EXAMINE CYCLE TIMES AND RAISE STANDARDS. THE COMPETITION'S PERFORMANCE IS JUST OUR MINIMUM TARGET. "IMPROVEMENTS OF 5% PER YEAR WON`T CHALLENGE THE STATUS QUO."

6. SET UP UNUSUAL ORGANIZATION MECHANISMS TO FOCUS ON CYCLE TIME. PURSUE CONFLICT IN MEETINGS. RESOLVE IT WITH DATA. DON'T JUST LIVE WITH PROBLEMS. KEEP ASKING "WHY?"

7. DEVELOP INFORMATION SYSTEMS TO TRACK VALUE-ADDING ACTIVITY.

8. MAKE TIME COUNT IN MANAGING EMPLOYEES. GET PEOPLE USED TO CHALLENGING AND RETHINKING THEIR OWN ACTIVITIES.

9. POSITION PEOPLE TO ACCELERATE THEIR LEARNING.

SOURCE: BOWER & HOUT

TOM PETERS'S PRINCIPLES

"RX: REVOLUTION"

1. MANAGEMENT BECOMES OBSESSED WITH QUALITY.
2. ADOPT AN IDEOLOGY (DEMING WILL DO JUST FINE).
3. MEASURE QUALITY (I.E., IN NUMBERS).
4. REWARD QUALITY (NOT JUST, OR EVEN PRIMARILY, WITH $$).
5. TRAIN EVERYONE IN TECHNOLOGIES FOR ASSESSING QUALITY.
6. USE TEAMS INVOLVING MULTIPLE FUNCTIONS/SYSTEMS
7. REMEMBER: SMALL IS VERY BEAUTIFUL. THERE IS NO SUCH THING AS INSIGNIFICANT IMPROVEMENT.
8. PROVIDE CONSTANT STIMULATION. CREATE ENDLESS HAWTHORNE EFFECTS.
9. CREATE A NON-BUREAUCRATIC "SHADOW QUALITY ORGANIZATION."
10. MAKE SUPPLIERS AND CUSTOMERS A PART OF THE QUALITY PROCESS.
11. CONVINCE EVERYONE THAT QUALITY IMPROVEMENT IS THE PRIMARY SOURCE OF COST REDUCTION (E.G., THROUGH SIMPLIFICATION OF THE DESIGN OR THE MANUFACTURING PROCESS).
12. SELL THE IDEA THAT QUALITY IMPROVEMENT IS A NEVER-ENDING JOURNEY. QUALITY EITHER IMPROVES OR GETS WORSE; IT NEVER STANDS STILL.

PETERS, THRIVING ON CHAOS, 70-80.

A STRATEGY FOR QUALITY

1. TOP MANAGERS LEARN TO BECOME LEADERS AND TEACHERS.

2. MANAGERS ESTABLISH IMPROVEMENT PROJECTS THAT HAVE HIGH PROBABILITY OF SUCCESS AND GREAT VISUAL IMPACT.

3. TOP MANAGERS PREPARE A 2-YEAR BLUEPRINT FOR QUALITY TRANSFORMATION.

4. MANAGERS ESTABLISH SPECIFIC MECHANISMS TO COORDINATE AND ASSIST QUALITY IMPROVEMENT EFFORTS.

5. MANAGERS UNDERTAKE SPECIFIC EFFORTS TO CHANGE THE ORGANIZATION'S CULTURE TO ONE MORE SUPPORTIVE OF TOTAL QUALITY.

6. TOP MANAGERS INSTITUTE TOTAL TRAINING, SUPPORTED BY THEIR OWN LEADERSHIP AND PLANNING. LEADERS STUDY THREE AREAS: DEMING (14 POINTS), CAUSES OF VARIATION, AND STATISTICAL THINKING.

SOURCE: SHOLTES & HACQUEBORD, "SIX STRATEGIES FOR BEGINNING THE QUALITY TRANSFORMATION, PART II," QUALITY PROGRESS, AUG 88, PP. 44-48.

DEMING'S PLAN OF ACTION

1. MANAGEMENT STRUGGLES OVER AND REACHES CONSENSUS ON THE PRINCIPLES OF TRANSFORMATION, THE DEADLY DISEASES AND THE OBSTACLES.

2. MANAGEMENT TAKES PRIDE IN THEIR ADOPTION OF THE NEW PHILOSOPHY AND THEIR NEW RESPONSIBILITIES.

3. MANAGEMENT SELLS THE NEED FOR CHANGE AND THE PRINCIPLES.

4. STUDY THE SYSTEM AND ITS PROCESSES.

5. IMPLEMENT AN ORGANIZATION TO GUIDE IMPROVEMENT VIA THE SHEWHART/DEMING CYCLE.

6. PUT EVERYONE ON A TEAM.

7. CONSTRUCT AN ORGANIZATION FOR QUALITY, INSPIRED BY DEMING'S "LEADER IN STATISTICAL METHODOLOGY."

AN AGENDA FOR EXCELLENCE

1. Get to know the customer
2. Cut work in progress
3. Cut flow times
4. Cut set-up and changeover times
5. Cut flow distance and space
6. Increase make/deliver frequency for each required item
7. Cut number of suppliers down to a few good ones
8. Cut number of part numbers
9. Make it easy to manufacture the product without error
10. Arrange the work to eliminate search time
11. Cross-train for mastery of more than one job
12. Record and retain production, quality, and problem data at the work place
13. Assure that line people get first crack at problem-solving --before staff experts
14. Maintain and improve existing equipment and human work before thinking about new equipment
15. Look for simple, cheap, movable equipment
16. Seek to have plural instead of singular work stations, machines, cells and lines for each product
17. Automate incrementally, when process variability cannot otherwise be reduced

(Schonberger, 217, 218)

THE THREE STEPS OF IMPROVEMENT

"IMPROVEMENT WORK ALWAYS INVOLVES THREE LEVELS OF INQUIRY:

1. BASIC CONCEPTS
2. SYSTEMS TO GIVE SHAPE TO THOSE CONCEPTS
3. TECHNIQUES FOR IMPLEMENTING SYSTEMS.

"THUS WE CAN BEGIN TO ACHIEVE INNOVATIVE OVERALL IMPROVEMENTS ONLY BY IMPROVING NOT ONLY OUR TECHNIQUES BUT THE HIGHER-LEVEL SYSTEMS THEY SUPPORT AND, STILL HIGHER, THE CONCEPTS OR PREMISES THAT JUSTIFY THEM."

DR. SHIGEO SHINGO, NON-STOCK PRODUCTION, PP. 35-36.

IMPLEMENTATION

A LA JURAN

1. PICK A JOB TO IMPROVE

2. STUDY THE JOB BY VARIOUS DIAGNOSTIC TOOLS, I.E., PROCESS CHART, FLOW DIAGRAM, ETC.

3. CHALLENGE EVERYTHING--WHY DO IT AT ALL, WHY DO IT THIS WAY, ETC.

4. WORK OUT A BETTER WAY, THROUGH ELIMINATING, COMBINING, CHANGING SEQUENCE, IMPROVING, ETC.

5. APPLY THE NEW WAY, BOTH TECHNICALLY AND SOCIALLY

J. M. JURAN, MANAGERIAL BREAKTHROUGH, P. 71.

SELLING NEW IDEAS

B. H. LIDDELL HART

IT IS A BASIC TRUTH THAT "WHENEVER THE HUMAN FACTOR PREDOMINATES, AND A CONFLICT OF WILLS TENDS TO SPRING FROM AN UNDERLYING CONCERN FOR INTERESTS," FORCING NEW IDEAS WILL PRODUCE NOTHING BUT A STUBBORN RESISTANCE.

"CONVERSION IS ACHIEVED MORE EASILY AND RAPIDLY BY THE UNSUSPECTED INFILTRATION OF A NEW IDEA OR BY AN ARGUMENT THAT TURNS THE FLANK OF INSTINCTIVE OPPOSITION."

EXAMPLES:

> THE SUGGESTION OF A BARGAIN IS "FAR MORE POTENT THAN ANY DIRECT APPEAL TO BUY."
>
> THE BEST WAY TO SELL THE BOSS IS "TO PURSUADE HIM THAT IT IS HIS IDEA."
>
> AN EXCELLENT WAY TO INTRODUCE A NEW IDEA IS TO PRESENT IT NOT AS SOMETHING RADICALLY NEW BUT "AS THE REVIVAL IN MODERN TERMS OF A TIME-HONORED PRINCIPLE OR PRACTICE."

LIDDELL HART, STRATEGY, PP. XX - XXI.

OUR WORST PROBLEM

"COMPANIES THAT ARE MAKING EVEN A MODEST PROFIT NEVER USE THE TOYOTA PRODUCTION SYSTEM. ON THE OTHER HAND, THERE ARE NEARLY BANKRUPT COMPANIES THAT IMPLEMENT THE TOYOTA PRODUCTION SYSTEM TO THE FULLEST . . . AND THAT DO MANAGE TO TURN THE COMPANY AROUND . . THIS IS THE ADVANTAGE OF A DEFIANT ATTITUDE.

"COMPANIES THAT ARE DOING FAIRLY WELL BECOME PICKY."

TAIICHI OHNO, IN SHINOHARA, P. 152

HOW SAFE IS ANYBODY'S AEROSPACE BUSINESS (III)*

"Nowhere is this top-to-bottom commitment to management change and company leadership more pronounced than at McDonnell Douglas Corporation. . . This cultural metamorphosis could not happen if those situated in company headquarters in St. Louis weren't absolutely, positively devoted to change. . . The excitement at all levels cascading down to the shop floor is evidence, even to the unexperienced, the McDonnell Douglas is poised to compete in a global marketplace in the 21st century."

(Mescon & Mescon)

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*Unless, of course, you happen to be McDonnell Douglas

RECOMMENDATIONS

1. THERE IS NO MAGIC COOKBOOK FOR IMPROVEMENT, ANY MORE THAN THERE IS FOR MAKING LOVE, WINNING BATTLES, OR FOR ANY OTHER INTERESTING ACTIVITY.

2. CREATE A SYSTEMS SPECIFICATION FOR YOUR BUSINESS UNIT. ALTHOUGH ALL IMPROVEMENT IS SIGNIFICANT, THE GREATEST PAYOFF COMES FROM IMPROVEMENTS AT THE HIGHEST LEVEL. IT IS ONLY AT THE SYSTEMS LEVEL THAT WHOLE CLASSES OF FUNCTIONS AND PROCESSES MAY BE ELIMINATED ENTIRELY.

3. INSTITUTE A STRONG INDUSTRIAL ENGINEERING EFFORT. APPLY SOUND SYSTEMS, ENGINEERING, AND LEADERSHIP TECHNIQUES TO THE PROBLEMS OF CREATING RADICAL IMPROVEMENTS IN OUR MANUFACTURING PROCESSES.

   --APPLY PERSONAL EMPHASIS. ACCEPT NOTHING LESS THAN EXCELLENCE. ADOPT "OVERARCHING GOALS." (BRADFORD & COHEN)

   --ELEVATE THE STATUS OF THE INDUSTRIAL ENGINEERING FUNCTION TO THE HIGHEST LEVEL, WHETHER DONE BY HOURLY OR SALARIED WORKERS, IN AN "ENGINEERING" BRANCH OR ON THE FACTORY FLOOR. CELEBRATE SUCCESSES.

   --DEMPHASIZE WORK MEASUREMENT AND THE SETTING OF STANDARDS AS TOOLS OF IMPROVEMENT. CONTINUE, OF COURSE, TO COMPLY WITH CONTRACTUAL OBLIGATIONS.

RECOMMENDATIONS (II)

4. TAKE ACTIVE MEASURES TO CREATE A QUALITY/PERFORMANCE ORIENTED CULTURE. OTHERWISE, NO SIGNIFICANT IMPROVEMENT IS POSSIBLE. DEMING HAS A GOOD TRACK RECORD IN THIS REGARD.

5. TAKE ACTIVE MEASURES TO IMPROVE THE COMPANY'S EXECUTION OF ITS OBSERVE-ORIENT-DECIDE-ACT (OODA) LOOPS. IN A COMPETITIVE ENVIRONMENT, OODA LOOPS DETERMINE WHETHER AN ORGANIZATION CAN CREATE AND EXPLOIT ADVANTAGES.

TIME IS THE SHADOW OF MOTION

--ONE OF THE PRINCIPLES OF THE NEW PRODUCTION SYSTEM RESEARCH ASSOCIATION OF JAPAN. ATTRIBUTED BY SHIGEO SHINGO TO FRANK & LILLIAN GILBRETH, AMERICAN INDUSTRIAL ENGINEERS.

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