American Management: Reformation or Revolution?

The Transfer of Japanese Management Technology to the US

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Introduction

Today I will discuss the transfer of management technology from Japan to the US. Before introducing formal economic analysis, I will first outline ongoing changes in US management theory and practice, and then illustrate my main theoretical point with an example from Japanese business history. I will then give three vignettes of change in American management philosophy and techniques, focussing on the automotive industry. Only then will I introduce an explicit economic model of technical change and diffusion. I will conclude by applying this model to predict whether the reformation is a prelude to a revolution in practice, or will fall prey to a counter-reformation.

The American Management Reformation

There is a widespread perception that American manufacturing faces serious problems. Recent cover stories of Business Week include: "THE PRODUCTIVITY PARADOX: Special Report, Can America Compete?" (June 6, 1989) and "INNOVATION IN AMERICA: The Challenge We Face -- What Must Be Done" (1989 Bonus Issue). MIT recently published Made in America: Regaining the Productive Edge, the report of its first commission on a major national issue since World War II. Furthermore, a consensus is forming that the central problem is one of management, rather than a changed external environment.¹ The current management literature is replete with terms such as "alliance," "team," "people involvement," "quality," "design for manufacture," "world-class," "market oriented" and "cross-functional." To use the term of Prof. Stanley Stark of the Michigan State University Business School, a reformation of American management is underway.

This reformation -- as with the Protestant Reformation -- is not limited to the "theology" of management. Companies are reducing the number of layers in their management hierarchy; they are paying more attention to personnel development; they are

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learning to cooperate rather than compete with suppliers — and with other departments within their own company. Firms are listening to customers, and are improving quality while reducing costs. Most important, there is a renewed emphasis — at least in a handful of highly visible companies — on manufacturing and service, rather than on the monitoring, control and rearrangement of a portfolio of business lines.

The business press is full of reports of "excellent companies" that are able to match both foreign and domestic competition in terms of price and quality and are able to deliver what customers want ahead of rivals. Prominent business periodicals are talking of technique as well; another recent Business Week cover story was "GO TEAM! The Payoff from Worker Participation" (July 10, 1989). Of course consultants now abound who will expound on such topics. Last of all, even academics are beginning to study these changes, particularly in the area of labor relations.

Now to a Japanese audience this sounds like American managers are merely beginning to apply common sense management, that is, Japanese management. The resemblance is not coincidental; Japanese management has had a significant impact on American managers. We will undoubtedly find multiple articles on Japan, Japanese management and Japanese companies in any American management journal; recent issues of the Harvard Business Review each had 2-3 articles with "Japan" in the title or which were motivated by or used examples from Japanese management. The same is true of the business press: Forbes, Fortune and (as already noted) Business Week. "How to" books aimed at middle managers now abound; the Productivity Press markets over 50 titles on just-in-time (JIT), statistical process control (SPC) and total quality control (TQC), including numerous translations of Japanese

2. For example, see profiles of Kodak, Timken and Corning in "Beating Japan at Its Own Game: A 'quiet revolution' is changing America's factory floors," New York Times business section, July 16, 1989.

3. See, for example, Harry Katz, Shifting Gears (MIT, 1985).

4. HBR, 1989, issues 2 & 4. Examples include David Burton, "Managing Suppliers Up to Speed" (July/August 1989), a review of a book on the Fuji Xerox / Xerox turnaround, and two articles by Kenichi Ohmae. Recent California Management Review issues include studies of strategic alliances, corporate groups and NUMMI, the Toyota-GM joint venture.
works. Consultants are doing well; Deming is now a well-paid hero in his own land, helping Americans to relearn American management techniques after a 3-decade hiatus. Finally, American businessmen are flocking to Asian plants for tours; a few firms are even explicitly striving to learn from Japan, both through their own efforts within Japan or (in the case of the Big Three) through joint ventures with Japanese firms in the US. Nevertheless, on the whole these developments do not represent a transfer of Japanese management technology to the US.

How can American manufacturing be adopting Japanese-style management, without transferring Japanese management methods? Analyzing this puzzle should teach us something about the overall problem of technology transfer. Formally, I want to emphasize the importance of induced technical change, rather than autonomous or science-based technical change. Secondarily, and implicit in the above, I want to stress that organizational change is both costly and difficult, and must ultimately reflect in-house efforts relative to borrowing from external sources. Both are themes from the economics literature on technical change, and help us to understand why change is so difficult.

American Management in Japan

Let us go back, say, 40 years to 1949. If you remember -- and I should add that I was not born until a few years later -- inflation was high, the budget deficit was large, and it looked like SCAP might have to turn to Washington for money. Instead, an arch-conservative Detroit banker by the name of Joseph Dodge was sent to Tokyo with the task of squeezing out inflation and putting the economy on a sound footing. That is the sort of thing the IMF now does, and the methods he suggested were very similar: unify the exchange rate, limit growth of the money supply and balance the budget.

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5. Xerox and Motorola stand out; see, respectively, John Hillkirk and Gary Jacobson, *Xerox: American Samurai* (MacMillan, 1986) and Ronald Henkoff, "What Motorola Learns from Japan," *Fortune*, April 24, 1989. The Big 3 joint ventures are GM with Toyota (NUMMI), Chrysler with Mitsubishi Motors (Diamond-Star Motors) and Ford with Mazda (Flat Rock).
Then, as now, this combination of policies brought on a sharp recession, which caused labor problems and bankruptcies. Japanese managers responded with programs of rationalization. What did "rationalization" mean? If you go back to the newspapers and government pronouncements of the early postwar years, it meant nothing other than adopting American management and production technology.

Those of you who remember the founding days of this department can, I am sure, provide many personal impressions of what "Made in America" meant. Good design. Lower prices. Quality. Wealth. Willys Jeeps rolled off ships in numbers which defied imagination—and drove over what the Japanese called roads without breaking down. Productivity was so high in the US that even before the wartime economy had reverted to normal production, American GIs could give away goods without a second thought. Clearly, an economy that could do this deserved to be copied, and that meant copying American products, American production methods, and using American machinery and American corporate management. So in the early 1950s Japanese management underwent a wave of Americanization. There were study trips to the US, American management specialists brought in at great expense to Japan, and your own consultants and journalists parading the latest in "American" management. A few from these groups even knew what they were talking about.

Most changes that made their way into Japanese head offices and factory floors, however, were not very American, in that these changes certainly did not represent a straightforward transfer of American technology. Very few Japanese managers had any direct contact with US firms or US managers; most who did had only the most cursory knowledge, garnered from at most two or three days of seminars and plant tours. The same was true of the consultants and business writers. Even when they were very sharp, and American, they were often preaching what in truth were practices peripheral to contemporary American management, such as worker-implemented SPC; even 10 years ago, the names Juran and Deming were virtually unknown in the US.

Nevertheless Japanese management practices changed very rapidly, and for the better, and it is indisputable that many of these changes were due to American management. I do
not believe it appropriate, however, to call this process the transfer of American technology or American management to Japan. Certainly many hints were garnered from Americans on what might work, and what direction was likely to be most fruitful. But this would have made little difference had it not been that 40 years ago the US faced Japan with a challenge that could not be ignored, and a fairly clear set of goals that had to be reached to meet that challenge.

The same thing is happening in the US today: Japanese firms are presenting American companies in many industries with a direct challenge in quality, price and adaptability to the market. In struggling to meet this challenge, some firms have sought to learn from Japan directly; many have been influenced indirectly; others have independently developed new management approaches. Let me provide a few examples, before turning to economics.

Example One, Before Japan Arrived: The US Automotive Industry

Soon after 1949, the last of the smaller American car firms either failed or merged into the perennially weak American Motors. The era of the Big Three had arrived (with Chrysler very much #3), and throughout the 1950s and 1960s they faced no serious competitors. During the 1950s, in turn, the adversarial but very stylized system of labor relations took on its classic form of highly segmented job classifications and work rules; over time, much of the white collar work force came to be organized in a comparable manner. Similarly, the product and design strategies, the manufacturing approach and purchasing all fell into relatively fixed patterns as both technology and demand stabilized. On the whole, the design concept was formulated with little input from marketing, the design process took place through discrete stages with little interaction among (for example) product engineering and manufacturing, and the use of competitive bids for one-year, arms-length contracts dominated purchasing. In general the approach was rigid, compartmentalized and took place

6. A Japanese advantage is primarily apparent in assembly-oriented manufacturing; Japanese firms are not predominant in chemicals and other continuous-process areas, or in the service sector.
in what became extremely large scale organizations. (At its peak GM employed over 800,000 people world-wide.) And while in many facets the automotive industry was distinctive, it often set the pattern for developments elsewhere in management approach, labor relations and organizational structure.

Overall, then, management in the auto industry faced few challenges. In a relatively static world, neither technology nor growth placed demands on organizational change. Inputs could be procured in the market at market prices – and internal costs (both labor and parts) tended to be taken for granted. The focus of American management in general came to reflect this: the task of top management was to obtain an adequate return on investment, so as to be able to satisfy shareholders and earn a decent performance bonus. To minimize the need to devote attention to factories and other operations, tight financial controls were all too often placed upon the production side of firms. Corporate human resources, suppliers and customers were all neglected.

In Japan, in contrast, change predominated. Technology evolved rapidly as firms sought to catch up to US and European practice, and more importantly, to keep ahead of numerous rivals. (In contrast to the US, there were as many as 14 automotive firms in Japan in the 1950s.) In that dynamic environment, costs could not be managed from above; this was made the responsibility of middle- and lower-level managers. Furthermore, output increased by leaps and bounds, while skilled labor and capable suppliers were hard to find. The cultivation of organizational resources became the focus of top management. This meant first enhancing the firm's human resources through intensive training, and second strengthening its primary suppliers and dealership network.

7. David Halberstam in The Reckoning (William Morrow & Company, 1966) vividly describes the damage caused by such controls at Ford.

Two other aspects of management can be distinguished subsidiary to these grand management strategies of asset management in the US and organizational enhancement in Japan. One is the intermediate level of general approaches to product development, labor relations and procurement, such as the traditional use of rivalry for parts purchases by the Big Three, implemented via annual competitive bids. The other is that of specific management tools, such as the utilization of JIT for controlling production and SPC for maintaining quality in Japan, and the use of MRP (materials resource planning) for scheduling and final inspection for quality control in the US. In practice, all three levels are interrelated; change at one level may force, or be contingent upon, change elsewhere.  

The management system employed in the US automotive industry began to change — or at least change in the system began to be discussed — in the early 1970s. Initially, this was at the intermediate level of general approaches, and in labor relations at the lower level of specific management tools. On the one hand, quality problems and clean air legislation forced the Big Three to pay greater attention to interactions with suppliers, and even to turn to suppliers for "black box" design. Second, by 1972 price increases, problems in obtaining adequate supplies of steel and other materials and capacity constraints at suppliers began to change the role of purchasing. At Chrysler, for example, purchasing was centralized in the late 1960s, and gradually gained clout within the company. In order to maintain access to parts and materials, Chrysler adopted a less adversarial relation with suppliers (and labor), and it and the other auto makers made informal multi-year commitments (and on occasion formal contracts) on a limited basis.

9. SPC, for example, requires broader skills and training from workers, while also requiring that they receive support from and interact with low-level managers, maintenance workers and engineers. This is not compatible with a narrow emphasis on job description and responsibilities.

10. Some components had always been developed on the outside. Typically, however, the auto firms would force cross-licensing of technology, and would pull production in-house once volumes had increased, e.g., for air conditioners (interview with Joseph Goldsten) or pollution control equipment (Susan Helper, *Supplier Relations and Technical Change: Theory and Application to the US Automobile Industry*, Ph.D. Dissertation, Harvard University, 1986).
Labor costs also exploded, under the impact of the automatic cost-of-living adjustments (COLAs) negotiated in the late 1960s. Since all the auto firms faced the same union and the same basic wage structure, and since import competition was minimal, no firm was willing to risk a prolonged strike in order to moderate the growth of labor costs. The Big Three saw little that they could do to control costs except gradually to adopt more automation. Instead, higher costs were passed on to consumers via higher prices. Nevertheless, quality and morale problems were evident in many plants, while adversarial labor relations caused interruptions in production. From the mid-1970s, formal "quality of working life" (QWL) programs and other experiments were tried at the plant level at GM (even while the overall structure remained fixed). In several plants a teamwork approach was successfully implemented leading to improved morale, quality and productivity.11

The auto industry was anything but an example of "excellent" management, but a very slight movement to "Japanese" management could be discerned. However, there was no significant transfer of Japanese management itself. To the extent that there was an outside influence, it was that of Europe (especially Sweden) in labor relations -- which itself echoed the "American Plan" of the 1920s.12

Example Two, Japan Arrives: The Automotive Industry

In the late 1970s an awareness of Japan increased sharply in American management; this was particularly true in the automotive industry. First of all, while others had made forays into the market for smaller cars in the past, it had always been a niche market. That changed with the first oil crisis in 1973-4; imports from Japan doubled during 1975-8. Second and more important, the niche did not disappear when Detroit was able to launch downsized cars, because of the cost and quality advantage of Nissan, Honda and Toyota, and


because for the first time a sizable body of Americans had actually come to like small cars. Third, US macroeconomic policy led to high interest rates which, because most Americans purchased cars with installment loans, put the domestic industry as a whole into a tailspin. Chrysler teetered on the edge of bankruptcy; Ford was kept afloat only because its European operation was highly profitable.

For the first time since the early post-WWII era, the Big Three, and particularly Ford and Chrysler, had to change. At Ford the process began in 1980 with the development of the Taurus/Sable, and with a massive shedding of white collar staff; labor relations began to change from 1982. In neither case were these efforts significantly influenced by Japanese approaches to product development or labor relations. Instead, they represented a groping response to crisis, which forced rather than permitted experiments.\(^\text{13}\)

At Chrysler, a much more Japanese-like approach to purchasing developed, starting in 1980. Chrysler brought in suppliers and provided them with detailed production schedules, sales forecasts and new product plans. Suppliers were given assurances of 3 years of repeat business. All of this was revolutionary for Chrysler, which in the past had been particularly poor at communicating with suppliers. The impetus was the need to keep Chrysler afloat: unless suppliers were willing to provide Chrysler with parts on extended credit, the company would go bankrupt. And since many suppliers feared that Chrysler would go bankrupt, the company had to present them with detailed information on its current status and development of future products to try to convince them to stay. Some did not stay, and no longer supply Chrysler. But once the turnaround succeeded, those that did stick with Chrysler were rewarded with several years of comfortable margins. In short, the philosophy of *kyoei, kyozon* ("prosper together, suffer together") was explicitly adopted. But

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\(^{13}\) See David Halberstam, *The Reckoning*, pp. 662-667. Only in 1984 did Ford begin borrowing from Japan -- by hiring Edward Deming (p. 732), and by co-developing a transaxle with Mazda.
again, change was dominated by *ad hoc* responses to crisis rather than by a deliberate attempt to reform management practices, much less to learn from others.\(^\text{14}\)

Example Three, Japanese Medicine: Transplants and Joint Ventures

When the Japanese car companies did not fade away in the US market of their own accord, political methods were used: a "voluntary" export restraint (VER) was imposed. If nothing else, Japanese market share could be limited, and perhaps (by setting up a cartel) prices raised. At the same time, transplants would be encouraged. The Big Three could not deny the higher quality of Japanese cars; they reluctantly admitted that the designs provided advantages in manufacturing. But GM and to a lesser extent Chrysler could and did continue to deny that problems were deeper. It was clear that Japanese production costs were lower, but this was blamed on cheap labor or (equivalently) a strong dollar. Once the Japanese were forced to manufacture cars in the US with US labor, their cost and even quality advantages would disappear. And if that was the case, then there was nothing to learn from Japan.

As we all know now, the transplants have been highly successful. Honda's Marysville, Ohio plant opened in 1982 and Nissan's Smyrna, Tennessee plant in 1983. Both operations thrived. But the greatest impact came in 1984, when the first car rolled off the assembly line of NUMMI, the joint venture between Toyota and GM. It soon became the highest quality, lowest cost assembly plant in the US, without the use of high technology. Furthermore, NUMMI had taken over the old GM Fremont assembly plant, and employed the same UAW (United Auto Workers) members -- yet the plant was one where union-management relations were so bad that it had been closed by GM in 1982. Mazda, Mitsubishi, Suzuki, Toyota, Isuzu and Fuji Heavy Industries are all operating plants (including joint ventures) in the US. The plant with the highest quality of any in the world is now in the US, under Japanese

\(^{14}\) Interviews with former Chrysler procurement staff, August 1989.
management. In short, the Japanese ability to beat the Big Three was not due to production in Japan.

In fact, the contrast in capability has become even more evident, and the challenge to US producers more direct. First, the advantage of the Japanese firms has proved not to be limited to small cars. Second, it has not been limited to cost and quality, but includes design and engineering. Four-wheel drive on passenger cars, anti-locking brakes, multi-valve and rotary engines and other innovations were first widely applied by Japanese firms. More important, as the work of researchers at the MIT International Motor Vehicle Project and the Harvard Business School have shown, the Japanese auto firms are on average able to develop a new car in 2/3rds the time and at roughly half the cost of Detroit.15 The Mazda Miata, the hit car of the US 1989 model year, was even designed more quickly and at a cost of only $100 million. Finally, the Japanese producers are here to stay in the US market, with approximately 2 million units of production capacity in place or under construction.

The challenge presented by Japanese car producers cannot now be ignored. Transplants have demonstrated that the source of the Japanese competitive advantage is in management and not conditions unique to Japan or small cars. Equally important, the challenge is not only intellectual, but one of survival: the US market is not big enough to absorb 2 million units of additional capacity, while the Japanese advantage in the design process suggests that they will be able to adapt to market trends more rapidly than GM, Chrysler or Ford.

Unlike in 1980, there is no immediate crisis, but the challenge is not being ignored. Chrysler is beginning to approach change systematically. First, as a firm it is seeking to deliberately learn from Japan (and from Europe). One avenue is to learn from Mitsubishi Motors, both through delegating select staff to Diamond-Star Motors, their Mitsubishi-managed joint venture in Illinois, and by sending large numbers of middle managers and all

senior managers to visit it and Mitsubishi plants in Japan. A second avenue is to use consultants, to develop training programs for senior and upper middle management. While the curriculum for these business-school like programs is not specifically geared towards learning from Japan, in fact most if not all case studies include a Japan-based segment, reflecting the increasing interest in and knowledge of Japan among American academics. Finally, the Chrysler president, Bob Lutz (who along with many other Chrysler top executives has extensive European experience) has initiated other experiments and changes. These include a platform development approach to car design with target costing and early supplier involvement and selection. The overall outcome is an organization and a management approach that increasingly resembles that of Japanese car manufacturers.

Japanese practice has provided hints as to the direction of change, and undoubtedly specific techniques have been adopted for quality control and other purposes. More important, analyses of the sources of Japanese success in the US car market have focused management attention on quality, labor relations, the product design process and other problems or targets. But most important is that the Japanese firms themselves have faced top management with a business challenge which cannot be ignored -- and the business press and internal education programs have helped make all employees at the Big Three aware of it.

In short, I rank direct borrowings of Japanese management technology as the least important element of the impact of Japan on the US auto industry. Instead, it is by demonstrating the weakness of traditional American automotive management that Japanese management has had a significant impact on the Big Three. At the level of specific technique there has been substantial utilization of SPC and other quality control techniques; the actual learning, however, has been through the use of American consultants. General management

16. Interview, Artemis March, a consultant to Chrysler’s Kohler training program. In addition to the direct interest in Japan evinced by the current management literature and business press, there has been indirect borrowing. For example, the analytic framework for the influential work of Tom Peters on “excellent companies” is drawn in part from work on Japan by Richard Pascale and Anthony Athos (published as The Art of Japanese Management, Simon & Schuster, 1981). See the introduction and p. 11 of Peters and Waterman, In Search of Excellence.
methods have seen some change, as in an increase in cooperation labor relations through the
use of small teams, and the use of a platform approach to product design. It is not clear how
much of this was due to Japanese influence; both have been employed by some major US
firms for decades. I suspect, however, that an awareness of Japanese automotive
management practice was important in pushing the US auto industry to move more
consistently in this direction, even though the actual transfer has not in general drawn
directly upon a knowledge of Japan. Finally, to the best of my knowledge, there has been
little change in overall management philosophy. A brief introduction to the economics of
technical change should help us understand why that should be so, and to generalize from the
automotive example to American industry as a whole.

Formal Economics: Models of Technical Change

Most of you read comics, I suspect, and so are familiar with the "light bulb" model
of technical change. In this model invention is the essence of change, and is the result of
inspiration: a man sitting in a corner comes up with a bright idea, and runs out and
implements it. More formally, this is a model of exogenous change, representing in its more
sophisticated form the progress of science in response to a sequential logic of its own,
independent of markets or demand. If we apply this to management, we must envision a
company president sitting at his desk and suddenly coming up with a totally novel way to run
his organization. Then, by force of personality and because he is president, his company
adopts the method at great cost -- and true to comic-book form, the company suddenly turns
into a star performer. When described in this manner, the light-bulb model must seem quite
unrealistic, but in fact exogenous or science-based models have tended to dominate research
in the history of science. I obviously believe such models are relatively weak -- many ideas
have been around for centuries before they were implemented, while other ideas were

17. Workers at Pitney Bowes, the leading postage meter manufacturer, have been organized
as self-managed teams for several decades (interview at P-B, 1983). See Peters and
Waterman, In Search of Excellence, for examples of cross-functional teams in product design.
implemented despite great cost and uncertainty because of necessity or great potential profit. The atom bomb and the xerox machine, respectively, are good examples.\(^{18}\)

A better model, in my opinion, is that of induced technical change, in which the demand side is central. In popular terms, necessity is the mother of invention. Engineers and tinkerers, not inventors and scientists, are its heroes. The constraints of science are not irrelevant; some things are technically impossible. You must all know Thomas Edison's phrase, that invention is 1% inspiration, 99% perspiration. But Edison's lab, you should also remember, was a commercial venture, not a research scientist's lab. The ideas had to be there, but they were not the driving force.

Another way to distinguish these two approaches is that in the light bulb model, change is implicitly costless. In the induced innovation model, change is costly, and is only undertaken out of necessity, or in the entrepreneurial version, because there are profits in it. Certainly in the business realm, the cost of change, especially when change means experimenting with management structure or labor relations systems, stands forth as almost self-evident. This is the source of the American maxim that "if it ain't broke, don't fix it."

Finally, in addition to the induced innovation model, and the understanding that change is costly, one further insight is necessary before we can apply our models to the transfer of technology. For new technology to be socially productive, it must be used, and this involves people. Yet all too often it is assumed that technology consists of blueprints. People, however, must be able to operate and repair new machines, and otherwise change. And in the real world, the difficulty of learning to do this is far greater than most people realize. The performance of turnkey plants provides a good illustration. In Meiji Japan, for example, the government imported factories from England, down to the bricks of the buildings. It could not make them run. Similarly, today a less developed country can order a sulfuric acid factory from one of several engineering companies, and be given the keys to a completed plant and a set of complete operations manuals a year or two later. Many never

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18. Note, too, that since economic considerations play no role in such models, I as an economist have little incentive to push them!
run well, even though they are physically identical to successful US or Japanese plants.\(^{19}\) Or again, how many of you were able to use a computer productively after one perusal of the manual? How many of you learned economics from a year of lectures? Experience is a necessary prelude to transferring technology directly, which means that the most important facet, especially for general concepts, is one's own efforts rather than the "knowledge" which is transferred.

The Transfer of Japanese Management Technology

Let us now apply our model of technical change and diffusion to Japanese management methods. The first and foremost element, as I have stressed throughout my earlier examples, is that companies must perceive a need to change. As I have been careful to point out, in the auto industry the impetus to change came from many directions, and not merely from the competitive impact of Japanese producers in the US domestic passenger car market. I believe, however, that the single most critical element in changing the external environment has been the Japanese presence in the US market.

Second, the Japanese presence not only induced change in general, but presented specific challenges to the automotive industry. A rational response in terms of management innovation is possible only when the competitive challenge can be broken down into identifiable goals; achieving these goals can then be delegated and approached in an incremental fashion.

Third, the Japanese management model has provided clues as to the appropriate response to problems. Again, I have taken care to point out that in some cases where Japanese-style management methods have been adopted in the US, there was in fact no link to Japan. In effect, firms in both Japan and the US have adopted similar solutions when they faced similar problems in improving the product development process, and overcoming

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quality and morale problems in the workplace. Indeed, one of the basic assumptions of the management reformation is that "excellent" companies everywhere have much in common. But change at this intermediate level is very costly, and furthermore is embodied in people and in the details of organizational behavior; it is implementation and not the concept itself that is central. Since each firm must do this for itself, the scope for direct transfer is limited.

Fourth, there is the transfer of specific techniques rather than general management technologies. Examples might be a particular JIT system, or a specific set of charts for SPC. Here, on the one hand, I see Japanese management as having considerable impact, but at the same time I am skeptical as to how direct the transfer has been. My skepticism comes from a suspicion that much is garbled in the transfer process, and that many techniques were developed within a particular company, and are in their detailed form dependent on the production process, accounting practices and other features that are unlikely to be identical in another firm. In addition, relatively few Americans have direct knowledge of Japanese business, though the number is probably larger than when Japan sought to learn from the US in the 1950s. Nevertheless, I suspect that what many consultants for marketing purposes parade as "Japanese" are in fact largely their own programs -- to the probable benefit of their customers.

Conclusions: Reformation or Revolution?

Certainly no one can deny that there is a "Japan" boom in the US, and that this has helped fuel a reformation in thought about the goals and content of "excellent" management. The business press has been parading a growing list of "excellent" companies that have been converted to the new faith, and seen their lives change. Nevertheless, there is also a "not

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20. Two assumptions operate here, both of which are open to question: that there is one common response to common problems, and that the problems managers face are neither new or nor unique but common. In the extreme, this implies that there will (or should be) a convergence in management practices and labor relations in different firms, industries and countries. This need not prove the case if there are multiple solutions to a problem, if problems are defined by a unique historical or technological context -- and if the market is a weak disciplinarian.
invented here" counter-reformation, which believes that the reformation is not so much heretical as a mere fad which will not work here. In addition, change generates many losers, particularly among middle management at both firms and unions. Numerically, orthodoxy is still dominant. Which will prevail?

The induced innovation model outlined above suggests that the answer will depend on whether executives, managers and workers believe it is necessary to change. Many adherents to the prevailing orthodoxy preach that things really are OK. Others admit there are problems, but deny that they are at fault: the difficulty lies with the poor American labor force, or unfair foreign competition or other external factors, beyond their immediate control. In contrast, the phrases favored by the reformists are "we can no longer be complacent" and "we must change to survive."

I am guardedly optimistic that the reformation will turn into a revolution in many parts of the US economy; I am less sure that it will occur in time for many firms. In my own interviews with American auto companies and analysts I detect a breath of change, in their approach to purchasing and vehicle design, even at GM. However, despite significant downsizing, it and the other US auto makers are still gargantuan organizations by Japanese standards, and it will be a decade or more before the initial reformation will be completely in place. Some "old school" managers will be converted or pushed aside, but for the most part change must wait 10–15 years until they retire. Similarly, there has been change in many of America's big unions; at the annual UAW convention in June 1989, reformist factions won out. The UAW is now formally committed to pursuing "jointness" with the auto industry. At the plant level, one analyst estimated that various forms of teamwork and worker involvement are now in place at over 1,000 factories.21 There are thus many signs of progress.

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21. See the Business Week, July 10, 1989 cover story, "The Payoff From Teamwork: The Gains in Quality are Substantial -- So Why Isn't It Spreading Faster," especially page 60 on the UAW convention. On the overall diffusion of employee involvement, see Walton, op. cit.
But change is still piecemeal, and many are actively resisting it. The old-school union and management foes in many factories have yet to retire, but there are deeper problems. While the UAW is formally for "jointness," the new vice president of the UAW for GM is very cool to cooperation. This is because shop-floor labor relations are not independent of a firm's overall management philosophy: to maintain profits, GM has closed two of the model plants where teamwork had been most successful. While the "reformation" literature on changing corporate culture may in effect be proposing a move away from the asset management philosophy, few firms have seriously tried to change their culture. Those that have may discover that it cannot be done as a mere supplement to traditional asset management. And in the face of the current wave of hostile takeovers, the impetus at most firms may be toward implementing more stringent financial controls, rather than endeavoring to reform management.

In the end my guarded optimism does not stem from weighing the relative strengths of the current reformation and counter-reformation movements to date. Instead, it hinges upon applying the induced technical change model. I do not believe in the "light bulb" model: that the obvious rightness of the reformation will inevitably lead it to prevail over the forces of darkness. I do believe, however, that the US will remain open to foreign trade, and that the NICs and perhaps even Europe will continue to present American industry with a competitive challenge which cannot easily be dismissed. Equally important, the current trade imbalance in the US has as its counterpart a massive inflow of foreign capital. A small but significant proportion of this has taken the form of direct foreign investment. Over 600 Japanese firms already have manufacturing operations in the US, consisting in most cases of new factories run by Japanese managers. Because of this and other changes, American


23. At the end of 1987 there were 817 plants with over 150,000 employees. "Japan's Expanding U.S. Manufacturing Presence: 1987 Update," JET Report No. 47A, December 16, 1988. If anything, new investment accelerated in 1988 and 1989, so the total must now be far higher. (European firms have been no less active, but have kept a lower profile.)
companies now face domestic competition greater than at any time in the past 40 years -- and the competition will increase over the next decade. In addition, their impact extends far beyond the change they induce in their competitors, since these firms (and their American converts) are affecting other firms, in particular by making new demands on their suppliers.24

American management is being, and will continue to be, induced to change. Increasingly, this is through the experience of doing business with Japanese companies in the US. But as I have repeatedly emphasized, to date the direct role for the transfer of Japanese management innovations to the US has been limited. The greatest exceptions are in areas such as JIT and SPC, but even there most learning has taken place through American consultants. At a more abstract level, and one which is harder to document, the ongoing discussion of Japanese management approaches has helped reinforce the reformist cause. The concepts of Japanese management have in many cases been kicking around for decades. The impact has been more by the force of repeated example, in the vein of In Search of Excellence and the current reporting on US companies. This will, I hope, ultimately induce managers, academics and journalists to rethink their management philosophy.

Not all companies will change in time. But I believe that a critical mass has now been obtained. Martin Luther had many predecessors, and historians are still debating why the Reformation did not occur earlier. Historians are more likely to agree that Japan was the deciding factor in the US management reformation.

24. See K. Theodor Krantz, "How Velcro Got Hooked on Quality," Harvard Business Review 89:5 (September–October 1989), 34-40. For Velcro, it was GM's demands upon their suppliers that stimulated change. Ironically, GM is finding that it is easier to get outside suppliers to change than it is to get their internal parts manufacturing operations to adopt statistical quality control programs. See the case study of GM-Packard Electronics by Toshihiro Nishiguchi, MIT International Motor Vehicle Program.