

## Reviews

---

Andrej STRASZAK (ed.)

**Large Scale Systems: Theory and Applications**

Preprints of the IFAC/IFORS Symposium, Warsaw, Poland, July 1983, Systems Research Institute, Polish Academy of Sciences, Warsaw, 1983, 604 pages.

Any collection of papers is likely to be a mixed bag. The editor of the volume in a short note, recognized this in the phrase:

To ensure prompt publication this diversity could not be overcome, nor could the English be checked properly. Hence the readers are asked to excuse the editor.

It is difficult to imagine a reader who would find all of the papers interesting and relevant to his own work. It is impossible to imagine a reader who would find all of the papers of the same quality. One is therefore entitled to ask why the volume has been published. Well, the fact of the symposium itself is a sufficient justification for the compilation of a permanent record. Moreover, every systems theorist should read or at least browse through this volume in order to understand a turning point. This volume provides a state-of-the-art summary. It is impossible to judge the adequacy of the summary, but the comments reported are in many cases to the point and illuminating. Something happened at this symposium, something important, and the publication *in time* is much more important than the form. Such a view overlooks a well-known law of scholarship which operates to make innovations more and more difficult to implement simply because of the delay of published material.

The aims of this collection are to provide a major body of hypotheses, raise fresh questions, and prepare the ground for future research. I believe that the papers have succeeded in raising fresh questions and that they will undoubtedly

have an impact on future research. In everyday life we often deal with 'decentralized systems', 'hierarchical multilevel systems', and 'complex systems'. In the mid 1960s, the notion of *large scale systems* was introduced in order to allow such concepts to be formulated and manipulated. Over the past 15 years, the literature on large scale systems has grown rapidly, amounting to hundreds of papers, and several textbooks. There is even a journal devoted to the subject. The literature covers a wide range of topics which include applications to such fields as management systems, socio-economic systems, energy systems, water systems, transportation systems, etc.

This volume contains papers accepted by the International Program Committee for presentation at the third IFAC/IFORS Symposium on Large Scale Systems, following the first one held in Udine, Italy, in 1976, and the second one held in Toulouse, France, in 1980. There are 92 papers published in the preprints corresponding to sessions on 17 topics.

In a plenary lecture, professor Silyak from the University of Santa Clara declared that the complexity of the present-day technological, environmental, and societal processes is a new challenging notion in systems theory. Because of our seemingly limitless desires to explore and master our environment, the orthodox design techniques based solely upon high performance quality of simple devices have fast become obsolete. The new emerging notions are subsystems, interconnections, networks, decentralized computing, etc. and it is becoming apparent that the 'well-organized complexity' is the way of the future. Since the amount of computation required to analyze a system grows faster than its size, the problems arising in large systems become either impossible or uneconomical to solve, even with modern computing machines. For this reason, it has long been recognized that it may be beneficial to decompose a large problem into subproblems which can be solved independently, and then combine the solutions of the subproblems in some manner to come up with a solution of the overall problem. Complexity is a subjective notion, and Siljak takes a pragmatic

point of view, considering a system as complex whenever dimensionality, information structure constraints, and uncertainty are present.

Some papers deal with the problem of uncertainty born from decomposition. Stanculescu considers, for example, that the essential uncertainty resides in the interconnections among subsystems. Appropriate concepts for dealing with uncertainty of complex systems are those of stability and structural stability. Miyamichi notes, for instance, that when we are dealing with large scale systems it is often the case that the information about the system is not sufficient to guess the precise value of mutual interactions among its subsystems and we are forced into a situation in which we must check some properties such as system stabilities using insufficient information.

Siljak also notes that it comes as no surprise to system theorists that Lyapunov's direct method is the concept best suited for stability of large dynamic systems. Among other good things, the method as reformulated by Corduneanu in 1960 can be interpreted as an aggregation process, whereby a system with several state variables is represented by a simple scalar Lyapunov function, which contains the pertinent information regarding stability of the entire system. But the reduction of dimensionality is achieved at the expense of the detailed information about each variable.

Although the theory of large scale systems is dominated by the decomposition approach, everybody seems to be warning against the dangers of using it. These new warnings can be easily related to old warnings. According to A. Armstrong (*The Cambridge History of Later Greek and Early Medieval Philosophy*, Cambridge University Press, 1970, p. 490), Leontius from Byzantium, in the 6th century, was the first to observe that "our impression of the work is general but vague, not revealing the truth; and if we attempt to particularize by division into genera and species and individuals, although the vagueness is reduced, the general view is lost: we are heading not towards the truth but towards an infinite regress". Fourteen centuries later, Pierre Duhem, in a book entitled *Physics: Its Object and Structure* (Chevalier and Rivière, Paris, 1906), makes a distinction between practical facts, which are expressed in vague, qualitative, ordinary language, and theoretical facts, which are expressed in precise, quantitative language. Duhem argues that confidence in the truth of vague asser-

tions may be justified just because of its vagueness which makes it compatible with a whole range of observed facts. The laws of physics can acquire minuteness of detail only by sacrificing some of the fixed and absolute certainty of common sense laws. According to Duhem "there is a sort of balance between precision and certainty, one cannot be increased except to the detriment of the other".

It seems that due to old and new warnings, some papers got oriented towards a fuzzy set approach. According to this approach, the price to be paid for decomposition is to represent the parts as fuzzy systems, or, equivalently, as verbal models.

The use of a particular word represents a certain type of experience. When I say, 'this system is big', I am describing *my* experience. We cannot identify the system with any single experience; an experience which was entirely unique and did not recur would not be worth naming. The function of words is not to name everything, but to pick up the recurrent pattern in our experience. Words identify our present experience as being of the same type as others. The group of experiences constituting a linguistic variable includes all the different views we can obtain at different distances, from different angles, and in different lights, no two of them exactly alike, but all of them variations on one central pattern.

This type of global approach has certain clear advantages. By accepting a linguistic description we escape being involved in any reference to uncertainty. But this advantage is obtained at a cost. We have lost the deductive properties of numerical models. These properties are related to the order structure proper to the real line. It is when bearing in mind this structure that we can speak about optimization or evaluation in general. Any global evaluation, like the linguistic variable, can be represented as a family of crisp evaluations based on numbers. A translation from fuzzy to crisp means a transition from simple to complex. When translating a vague concept – via the fuzzy set model – into a function, we automatically introduce dimensionality and uncertainty. A 'small' linguistic model becomes a 'large' arithmomorphic model changing the language. 'Small' and 'large' are relative attributes depending on what language we are using to describe a system.

Complexity and uncertainty are related to the

observer, not to the real systems. Complexity is not a property of real systems, it is in the observer's eye. Silyak is right when he asserts that complexity is a subjective notion, and that without rigorous theoretical development, our theoretical development is not very useful. Nothing works as well as a good theory. However, the real question is which is that 'good' theory? Can it be the same for technical and social systems? How can one coordinate human systems?

Recent studies in human systems management (see R.F. Geyer and J. van der Zouwen, eds., *Dependence and Inequality. A Systems Approach to the Problems of Mexico and other Developing Countries*, Pergamon Press, Oxford, 1982) have shown that we have to be very careful when considering human systems as subsystems. One of the paradoxes of modern social sciences is that their two main approaches – the individualistic and the collectivistic – have never been properly reconciled. A society is viewed either as a network of human meanings or a hypothetical construct hovering over, or standing against its individual members. I believe that the reconciliation is not only a problem waiting to be solved, but that it will represent a major advance in understanding complexity.

Many social scientists, including anthropologists, lament that specialists in other disciplines make little use of their data. With some additional effort to articulate well with other investigators' interests, sociocultural research can make a genuine contribution to such topics as large scale systems.

Constantin NEGOIȚĂ  
City University of New York  
New York, NY 10021, USA

P.R. LAWRENCE AND D. DYER  
**Renewing American Industry**  
The Free Press, New York, 1983, 384 pages.

R.B. REICH  
**The Next American Frontier**  
Times Books, New York, 1983, 324 pages.

These two books are only a sample of the recent literature which tries to diagnose the ills of the US

economy. They both recognize that the US "has failed to keep its number one position" in industry after industry. Their objective is to find a solution to this riddle.

Lawrence and Dyer acknowledge that "a lack of agreement on the underlying causes for the poor economic performance precludes any concerted remedial action". "Why", do they ask, "Why do so many American firms and industries fail, in their maturity, to maintain their competitive vitality?" Salvation lies in what they call "the readaptive process", which they define as "the process by which organizations repeatedly reconcile efficiency and innovation".

The US "has been particularly successful at developing new industries". Problems appear as an industry matures. To prove their point, Lawrence and Dyer study the development paths of several key American industries in the context of their Analytical Framework of Adaption which shows the position of each industry at any point of its development on a two-coordinate map of resource scarcity (RS) and information complexity (IC). *Resource scarcity* is defined as the degree of difficulty which an organization experiences to secure the resources it needs to survive and grow, whereas *information complexity*, represents the "number of variations in an organization's immediate environment which directly influence its choice of which goods and services to supply". These two variables define nine areas, depending whether either RS and/or IC is low, intermediate or high.

Industries and firms are shown to move from area to area at different periods, as a result of their own actions or changes in the various environmental elements. The authors devote one chapter of their book to each of several industries: autos, steel, hospitals, agriculture, residential construction, coal, and telecommunications. They chart the historical and chronological path of each industry through their Adaption Map and find whether the industry was able to *reconcile efficiency and innovation* when faced with new environmental conditions which challenge its lead and profitability.

A firm's structure is determined by its degree of differentiation (D) and integration (I):

"The more an organization is faced with information complexity (IC) the more it needs differentiation. On the other hand, integration is the reciprocal of differentiation since an increase in D tends to lower I. As a result, the more integrative activity is needed to pull things together."

As the reader might appreciate from the above sample, Lawrence and Dyer attempt a thorough analysis of each industry's capability to combine efficiency with appropriate innovation, and to react to changes in environmental conditions. They propose tactical options to move an organization toward an optimal balance of intermediate information complexity and intermediate resource scarcity.

This text makes worthwhile reading and should be taken seriously. It makes a courageous attempt to diagnose what is wrong with the US industrial complex. As most of us would expect, none of the dilemmas are resolved. However, the reader feels a sense of accomplishment to have surveyed a whole spectrum of industries, and to have acquired a better understanding of the inherent capability of each to cope with the uncertainties of the market place and the impact of technological change. The reviewer has only one deep regret: it is obvious that the Harvard Business School does not hold Systems Theory in high regard. Most of the concepts used by Lawrence and Dyer have long ago been defined in systems terms. In the final analysis, what is a firm's ability to cope with information complexity and resource scarcity if it is not its power to generate variety to counter the environment's variety? It is nothing more and nothing less than the application of Ashby's Law of Requisite Variety enunciated thirty years ago and repeated in all of Stafford Beer's books. "When shall they learn?"

Another shortcoming of this book is that it overlooks the most important segment of American enterprise today, i.e. high technology. One chapter is devoted to telecommunications and the 'new rules' for the Bell System. However, it would have been interesting to also situate the highly touted high-technology sector on Lawrence and Dyer's Analytical Framework of Adaption. They should attempt to predict whether high technology will experience the same difficulties, in the near future, as other once prosperous and trail blazing industries. The present economic difficulties of several computer manufacturers seem to confirm our worst fears.

Reich's *The Next American Frontier*, treads the same ground as Lawrence and Dyer's book. Reich acknowledges that "America's economy has been slowly unraveling since the late 1960s". He states:

"Our decline has a great deal to do with how we have come to view our roles as economic actors and as citizens and with the mismatch between that view and the changed environment we face. This book is about the origins of America's industrial organization and the social values bound with it, about the economic evolution that is making them both obsolete, and about the change that must occur if we are to regain our momentum".

We recall Lawrence and Dyer's hypothesis concerning the opposing targets of efficiency and innovation. This seeming contradiction is presented in a similar view by Reich who tells us that Americans tend to oppose the realm of business and economics and that of government and politics. Reich deplores the cleavage between these two so-called 'cultures', and states that it is wrong to have to choose between two sets of central values 'social justice or prosperity', 'government or free market', 'community or freedom', and, in Lawrence and Dyer's terms, *between* innovation and *efficiency*. These choices are false choices:

"America must transcend the peculiar distinction traditionally drawn between our civic culture and our business culture. The cleavage between the business and civic culture in America is a legacy of the nation's singular history".

In order to retain our role of economic leadership, we must move into the realm of *flexible-system production* which is based "on a skilled, adaptable and innovative labor force and on a more flexible, less hierarchical organization of work". We should complement the usual industrial mix with technologies which are devoted to precision products, customer products, and technology-driven products. The latter depend on rapidly changing technologies but are relatively less immune, either to competitive decline, or to foreign competition. Examples of products or processes that depend on rapidly changing technologies are computers, integrated circuits, biotechnologies, fiber optics, lasers and ceramics. These product categories are precision-manufactured, custom-tailored and technology driven. This type of production is called 'flexible system'.

It is not a question of abandoning older industries in favor of new ones but to use the former as 'gateways' to the latter. Flexible-system production is "radically different from standardized production". It requires a "basic restructuring of business, labor, and government and a massive

change in the skills of American labor, requiring investments in human capital beyond the capacity of any individual firm". Flexible-system production is predicated "on ever-changing markets and conditions" and is, therefore, less vulnerable to changes in market demand. Change toward flexible-system production "cannot be evaluated according to traditional investment criteria, and thus, will be shunned by traditional managers and investors. Reich calls for a radical change in America's industrial base to restore prosperity. Changes must take place in the way that professional managers resort to increase a firm's earnings through paper rearrangement of industrial assets. Changes must take place in the attitude of labor toward social welfare and employment policies. Changes must also occur in the training and skills of labor, if the promise of flexible-system industries is to be fulfilled. The so-called super-structures of government and business (the meta-system) have sought to preserve the old industrial base and protect declining industries. Reich, like Lawrence and Dyer in the first book reviewed here, deplores the lack of adaptability of American industry. It is designed for stability, not adaptability. Government social policies make "no reference to the goal of economic evolution" and, as much, perpetuate obsolete production processes and methods. "America's social policies have been disconnected from its economic development". Only the high-technology industries "refrain from pleas for historic preservation" because they know they have much to gain from rapid adjustment. We must take new initiatives. "The transformation of America demands that we invest heavily in people" and that we stop separating "issues of social justice (America's civic culture) from questions of economic growth and development (America's business culture)". The neglect of one culture in favor of the other "has been proven barren". They must be considered together to adapt the industrial complex to a new world.

Whereas these two books are centered on the problems of American industry, the lessons drawn are applicable world-wide, to other continents and other countries. Indeed, the analysis of problems faced by American industry can be applied to similar woes faced by Britain, Belgium, or France. In the last decade, the industrial might of these countries has also eroded. The books reviewed herein represent an attempt to discuss openly some

of the industrial policy dilemmas faced by many countries of the world, when confronting the turbulent environment of change and innovation. It is easily understandable why these books are on the best-seller lists.

John P. van GIGCH  
*California State University  
 Sacramento, CA 95819, USA*

T.L. BEAUCHAMP

**Case Studies in Business, Society, and Ethics**

Prentice Hall, Englewood Cliffs (NJ), 1983, 258 pages.

R.D. HAY and E.R. GRAY (eds.)

**Business & Society: Cases and Text**

Southwestern, Ohio, 1981, 2nd ed., 425 pages.

Both of these books provide a set of cases on current public-policy issues in business and government. Succinctly written, the cases clearly reflect the circumstances in which difficult social decisions must be made. The two books and this review focus on the ethical issues they raise.

Some of the cases emphasize employer-employee relations, including such issues as job safety, due process, and 'whistle-blowing'. Among the themes underlying these cases, is the importance of employee loyalty versus public responsibility (e.g. to disclose corporate wrong-doing). For example, in cases dealing with corporate coverups of safety hazards in airplanes and automobiles, if a corporate engineer believes that product defects which the firm is unwilling to divulge may have caused accidents, what course of action should he/she take? Does employee loyalty take a back seat to the need for public disclosure? Additionally, is it not in the corporation's long-run self-interest to apprise users, in a timely fashion, of product defects and to correct defects? Other cases deal with discrimination against women and minorities. For instance, is it ethical for a firm to exclude women from a particular work environment because the environment is hazardous to their health? Shouldn't women have the right to make their own decisions in this regard? Is reverse discrimination (e.g. promotion preferences given to minorities, not based on seniority or superior performance) a

legitimate answer to the problem of past discrimination against minorities? Still other cases are concerned with corporate policies on employee participation in community activities. Should major corporations encourage their employees to take an active role in public affairs? Suppose an employee engages in such pursuits and makes public statements in conjunction with these activities that run counter to the firm's policy on a particular issue. Should the firm react to that behavior, and, if so, in what way?

Another set of cases in both books focuses on consumer rights and corporate responsibilities. Isn't the consumer entitled to truthful advertising, as a source of information to make rational purchase decisions? Is advertising pitched to children manipulative and unfair? Still other cases raise the issue of unethical warranty contracts (e.g. on automobiles). Courts will generally void contracts to limit the company's liability (among other contracts) when they fly in the face of the public interest.

Environment is another topic covered by these cases. Do business firms have a responsibility to protect our habitat? Do animals have certain inalienable rights? Do humans have the right to use animals in laboratory experiments and, if so, how can the animals be protected against exploitation (e.g., in testing cosmetics)?

Various cases are concerned with corporate responsibility to society. How much social accountability should corporations exhibit? Should we rely exclusively on business to make profits and on government to be socially responsible? Are social responsibility and profitability compatible as goals of the firm? What should be the nature of corporate social responsibility? How should social responsibility affect corporate decision making?

The thrust of another group of cases is the regulatory role of the federal government in advancing the public interest. To what extent are governmental regulations necessary to prod firms to meet their ethical obligations to society? Does governmental regulation stifle free competition? What should be done if firms (in particular, small ones) suffer severe economic losses due to adherence to such regulations? Should the government prop up failing corporations by guaranteeing their loans?

Other cases have a multinational dimension. Different moral standards prevail in different

countries. In our country, bribery of public officials is unethical because it militates against free competition. In other countries, bribery is an accepted way of transacting business. When a firm does business abroad, which country's ethics should prevail? Is it ethical for a company to manufacture and sell abroad products that are banned in the US? Should American firms do business in South Africa?

In conclusion, both books present a collection of provocative and stimulating cases from recent business and governmental experience. The ethical issues presented in these cases are vitally important for the future of organizational behavior and performance, whether the corporate or non-profit sector is considered. There are no simple answers to those controversial questions.

Robert BLOOM  
*College of Business and Economics*  
*University of Wisconsin*  
*Whitewater, WI 53190, USA*

V.V. NALIMOV

**Faces of Science**

Edited by R.G. Colodny; translated from the Russian

ISI Press, Philadelphia, 1981, 297 pages.

V.V. NALIMOV

**Realms of the Unconscious: The Enchanted Frontier**

ISI Press, Philadelphia, 1982, 320 pages.

Editor's note: *Faces of Science* was already reviewed in *HSM* 3 (1982) 219-220. This second review was authorized because of its very different perspective.

In the last decade the classical scientific paradigm has been questioned. The lack of flexibility allowed by its principles have been perceived as naive and not at all adaptable to the domain of the social sciences which seems to exhibit ever increasing and baffling complexity. Fortunately, the most remarkable characteristic of science is that, in the process of its *evolution*, science perpetually makes its participants face new, more and more complicated problems. Actually, scientific theories do

not explain the whole problem because they always make us face new, more serious problems. We would rather say that they 'reconcile us' to new knowledge discovered in the infinite process of the mastery of the world. We say that they 'reconcile us' because within these new theories, new phenomena are arranged according to the prior categories familiar to us. This is Nalimov's contemplation of science. These are not the thoughts of a historian philosopher – they belong to a person who, all his life, has been a common soldier of science.

The two books reviewed here are written in a highly similar manner. They are an attempt to discuss the central problem of today – the problem of man in the contemporary world. Man is revealed through his vision of the world. Science, in the dialectical opposition of the logical versus the illogical, reflects human nature rather than the nature of that world described by man. Therefore, the study of the nature of science is primarily a way of understanding man.

It is well known that the problem of whether science should be regarded as a rational structure or as an irrational one, is hotly debated today. Popper is supposed to be a supporter of the first view, and Kuhn of the second. Answering this question, Feyerabend says, 'yes and no'. Yes, science should be regarded as irrational because there does not exist a unique and constant set of rules for decision making, regarding what a scientific judgement is. No, it is not irrational because every step is made on the basis of logical judgements.

We have to acknowledge with a certain amazement that the depths of our unconscious are remarkably bottomless, able to generate mutually exclusive conceptions of the world and able to reconcile them with one another. The acknowledgement of the right to describe a phenomenon by a number of inconsistent models, the awareness of the fact that chance is in no way the expression of our ignorance but, on the contrary, one of the ways to present knowledge, and the use of semantically fuzzy concepts to enrich our scientific language, all broaden the limits of consciousness generated by science.

Nalimov is a mathematician. Close to Kolmogorov who axiomatized the theory of probability, he noticed that we cannot say that man's degree of membership in the set of tall men is equal to the probability that an observer would classify them

as tall. Words are always interpreted at the continuous level. This is the principal advantage of a semantic approach to artificial intelligence. A person is always in contact with his continuous consciousness, even in everyday verbal communication. However, the first knowledge of this consciousness is realized by means of words. Continuous consciousness is an *insight*. This allows the researcher to interpret scientific creativity as an insight. The individuality is determined by an evaluation – a distribution of truth values – and the dynamics of its progress determined by its restructuring. A perfect matching with recent results in the cybernetics of human systems, where individuality is defined as a state in the semantic field. This means a holistic vision of the world integrated through interaction with the semantic field. It also means a validation of a new methodology of science: we can use the order structure of numbers not only to measure but also to express beliefs. When modeling a word as a function, one borrows the order of numbers, and consequently the same order is given to the world of words.

We may say, a little too schematically, that a person posing a question, on the unconscious level, gets an answer as a function constructed on the semantic continuum. However, a person is never separated from the unconscious. With amazement, Nalimov notices that the new paradigm of science is nothing more than a response to what had been stated much earlier by Leibnitz, Kant, Jung, or Heidegger not to mention the Greeks. He even considers his approach as a realization of the dream of Pythagoras and Plotinus to describe the world through numbers.

The central idea advanced in these books is that randomness is nothing else than fuzziness. Nalimov states that it is noteworthy that the commonly accepted axiomatics of probabilistic logic requires that we first overcome a very serious obstacle: common, not-metaphorical usage of the language of probabilistic concepts demands that both the space of elementary events and its metrics be given. However, strictly speaking, the semantics we use when studying the psychology of thinking cannot have any metrics. On the other hand, Bayesian statistics is confined to problems with well-metricized variables. This is the obvious reason why the Bayesian approach, in its traditional form, has so insufficiently penetrated linguistics and psychology.

Nalimov's books could be very helpful for those interested in the field of systems management who seek to combine human intuition with the traditional analytical approach of management science. Nalimov explores the polarity between reason and intuition, the classical polarity which has led to the two cultures, of science and art. He argues that these two human faculties are not only compatible, but the synthesis of the two is a vital requirement, if we are to respond to the problem of what science is, scientific principles or scientific approaches.

Constantin NEGOIȚĂ  
City University of New York  
Hunter College  
New York, NY 10021, USA

T.J. PETERS and R.H. WATERMAN, Jr.

**In Search Of Excellence**

Harper and Row, New York, 1982, 360 pages.

This book examines the factors underlying corporate success and in so doing shatters widely-held myths about organizational achievement. Based on their experience as management consultants, the authors evaluate the ingredients of corporate profitability and innovativeness.

The criteria for success, according to Peters and Waterman, are innovativeness, creativity, and new ideas. Innovative companies can readily respond to environmental changes. Such companies display the following attributes: (1) a bias for accomplishment; (2) closeness to their customers; (3) autonomy and entrepreneurship (which is currently called 'intrapreneurship' within the firm), to create an environment in which innovation can flourish; (4) productivity through people and respect for the individual;<sup>1</sup> (5) a hands-on, value-driven ap-

proach on the part of executives (i.e., executives who are not remote); (6) sticking to the knitting (thereby avoiding the acquisition of a business with which executives are not conversant); (7) simple form, lean staff;<sup>2</sup> and (8) simultaneous loose-tight properties (e.g., both centralized and decentralized).

The authors accentuate the importance of people in organizations and their fundamental needs, including: (1) meaning of their work; (2) some control over their work; (3) positive reinforcement, so that they will consider themselves to be winners; and (4) the degree to which actions and behaviors shape attitudes and beliefs rather than vice versa. Peters and Waterman emphasize shared values among the managers in shaping the social dimensions of the firm.

Highly critical of MBA programs, this book argues against the rational approach to management. This approach misses the point, and is dehumanizing; it fails to stress the importance of both people and products. Rationality is too formal a method to use; moreover, people are not all that rational as evidenced by the fact that many decisions are emotional.

Contrary to the wisdom conveyed in our graduate schools of business in recent years, the authors also take issue with the accent on quantitative analysis in decision processes. Quantitative analysis creates false impressions of precision in business decision making. While it can be a useful tool, quantitative analysis is not the be-all and end-all of decision making.

The message of this book is clear and unequivocal: the trouble with all too many American corporations is that managers do not identify with their companies and their employees. American managers are isolated, and are unwilling to make mistakes. For the most part, American corporations have a long way to go towards achieving excellence (e.g., quality control). However, firms can take their cues from success stories in this country and abroad.<sup>3</sup>

<sup>1</sup> This concern for the individual (both customers and employees) reflects the Japanese style of management, which places considerable trust in employees, engendering their satisfaction and productivity. By contrast, there is by-and-large too much mistrust in American corporations; an adversarial relationship prevails between labor and management. See William Ouchi, *Theory Z: How American Business Can Meet the Japanese Challenge* (Addison-Wesley, 1981); Robert H.

Hayes, *Why Japanese factories work*, *Harvard Business Review* (July-August 1981) pp. 51-66; and Gerald E. Wilson, *Theory Z: Implications for management accountants*, *Management Accounting* (November 1983) pp. 58-62.

<sup>2</sup> This also seems to reflect the Japanese style of management.

<sup>3</sup> Consider the following examples: (a) Hewlett-Packett predicts that replacing a detect-and-correct with a zero-defect approach should effect a 33 percent decline in factory em-



Lucidly written, the book furnishes many real-world examples to illustrate the generalizations set forth in each chapter. Although it provides nothing brand new, this book should appeal to organizational executives in the business and non-profit sectors. Furthermore, non-managers may con-

ceivably be motivated to become managers after reading this impressive book.

Robert BLOOM  
*College of Business and Economics*  
*University of Wisconsin*  
*Whitewater, WI 53190, USA*

---

ployees and a 25 percent reduction in factory floor space. (b) Matsushita took over an American television factory and within eight years with the same workers increased output 40 percent and substantially reduced the defect rate. See Robert S. Kaplan, measuring manufacturing performance: A new challenge for managerial accounting research, *The Accounting Review* (October 1983) pp. 686–705.