

Productivity Management Frontiers-I

Edited by
David J. Sumanth



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Productivity Management Frontiers -I

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Edited by

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PREFACE

Productivity Management Frontiers - I is a result of the First International Conference on Productivity Research (with an exclusive emphasis on "Productivity Engineering" and Productivity Management). This conference was co-sponsored by the University of Miami's Productivity Research Group (in the Department of Industrial Engineering) and the Department of Conference Services. This conference, held at the University of Miami Conference Center/James L. Knight International Center in Miami, Florida, has provided a forum for an international exchange of experience about some of the latest developments in "productivity engineering and management".

From a Call for Papers, over 80 abstracts were received and sent for independent review. Out of these, 64 were accepted. Full papers for these 64 abstracts were subjected to a rigorous blind refereeing process. About two-thirds of the 64 papers were accepted for inclusion in the book. Some of the authors whose full papers were accepted in the refereeing process could not make the publishing deadline or chose not to, for their own reasons.

This book is organized under the following main headings, covering the spectrum of Productivity Measurement, Productivity Evaluation and Planning, Productivity Improvement, and Productivity Management Implementation:

- A. Importance of Productivity Management
- B. Productivity Measurement at Company/Division/Plant/Product Levels
- C. Total and/or Partial Productivity Measurement
- D. White-Collar/Knowledge-Work Productivity Measurement
- E. Productivity Planning
- F. Productivity Improvement Approaches
- G. Productivity Improvement Through Participation and Gainsharing
- H. Implementation of Productivity Management

Productivity measurement and improvement at the international, national, and industry levels have the research concern of mostly economists. Many international conferences and congresses on productivity have been addressing the concerns at these levels. This book narrows the focus at or below the Company/Enterprise level where the action for producing a product or delivering a service begins.

The conference brought together researchers and practitioners from more than 25 countries. The participation truly reflected the international, intellectual flavor of this conference.

It is earnestly hoped that this book will stimulate enough interest among the researchers and practitioners of Productivity Engineering and Management, so that the second International Conference on Productivity Research will reflect further maturity in this evolving discipline.

The reader's constructive comments are most appreciated, and will form a basis for an even more enlightening Frontiers of Productivity Management.

Special gratitude goes to all the conference Presentors and particularly those whose papers are included in this book. A separate Acknowledgement section follows.

David J. Sumanth
Editor

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The following persons of the University of Miami provided the financial and/or administrative support for the conference:

Dr. Norman Einspruch	Dean, College of Engineering
Dean Dennis Tarr	Dean, School of Continuing Studies
Dr. Tarek Khalil	Chairman, Department of Industrial Engineering

The Advisory Committee, Local Conference Committee, Speakers Arrangement Committee, and several other sub-committees made it possible to review abstracts and full papers, to plan the logistics, and to moderate conference sessions. The help rendered has been most unselfish and generous:

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Others who helped with the conference include several students.

Dr. Martin Lydon (Former President, Lowell University) provided his encouragement and support at the time when most needed

Dr. Marcy Ullom (Department of Conference Services at the University of Miami), as the coordinator of the conference took on enormous responsibilities and her painstaking efforts are most sincerely appreciated. Finally, grateful acknowledgement is made to Dr. David Sumanth (Director of the Productivity Research Group at the University of Miami) for conceiving, initiating, and chairing the conference.

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KEYNOTE ADDRESS

PITFALLS ON THE PATH TO PRODUCTIVITY

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ABSTRACT

Mundel, M.E., 1987. Pitfalls on the Path to Productivity. Int. Conference on Productivity Research, Miami, FL, U.S.A., Feb.4-6, 1987.

Eleven pitfalls on the path to productivity improvement are described. In many cases one or more of these pitfalls may not only impede the improvement of productivity but may actually result in lowering it. The discussion of these pitfalls will be followed by some brief suggestions as to how to achieve an increase in productivity.

1. THE ELEVEN PITFALLS

1.1 THE WRONG MIND-SET

In England, 1811-16, the Luddites, bands of workmen, were organized to destroy manufacturing machinery, in the belief that its use diminished employment.

One would have thought, in view of the experience of the 150 years following, that this viewpoint would have died away. However, I assure you that I am still frequently asked the question, "But doesn't improved productivity reduce employment?" I am not sure that my explanation is accepted; "That without increased productivity the goods or services being produced become so expensive that no one can afford them; that unemployment really results from a failure to improve productivity."

Another wrong mind-set is in the failure to perceive that if we really improve productivity there will be various, concomitant, short-term results, particularly when the change is spectacular. There may be some short term redundancy which management must plan to alleviate.

For instance, in one plant a change was introduced that enabled one worker to do work that previously required five people. Management promised all the workers on the operation that no discharges would be made. However, the workers were also told that they would be assigned to other jobs, with the same pay as previously, as soon as vacancies occurred, but they would be expected to learn new skills. With normal labor turnover the vacancies came rapidly. This was not altruism on the part of management. A satisfactory worker, adjusted to

plant procedures, represents a considerable investment; retaining the workers was good business as well as good thinking. Unfortunately, not all managers think this way; they frighten workers with productivity changes which result in immediate layoffs.

In other cases it is the workers who impede productivity improvement by insisting on the maintenance of jobs even though the need has disappeared. For instance, the typesetters have long fought for the maintenance of typesetting jobs on newspapers, not just to tide them over when automation had taken their place, but for perpetuity! After years of giving in, the newspapers have more recently been fighting.

In other cases we have managers who reject productivity measurement systems with the excuse "I want something more sophisticated." They give me the definite impression that they really don't want any system.

To sum up the right mind-set:

Productivity must be measured. If you do not measure you have no datum from which to measure change.

1.2 FAILURE TO ENLIST PARTICIPATION

It may be accepted as axiomatic that people will not willingly participate in an activity that they do not think they understand. Further, if they do not understand, they cannot contribute. Even the original Henry Ford had the concept that the mechanics in his plant could help improve the product and the process although, as time went by, he seemed to forget this.

1.3 OVERLY SIMPLISTIC COUNTING

We frequently delude ourselves into thinking we have developed a means of measuring productivity by having overly simplistic methods of counting our outputs. To give you a sample of the examples of I have seen:

- a. A credit card firm measuring the productivity of local offices by counting "the number of resident accounts maintained."
- b. A weather bureau's productivity measured by "number of typhoons tracked."
- c. Army depots measured by "tons maintained in storage per staff year."
- d. OSHA's productivity (under Eula Bingham) measured by "dollars of fines levied."
- e. Police forces measured by "traffic tickets per officer per day."
- f. Grants offices measured by "dollars of grants per staff year."
- g. A bus line measured by "bus seat miles per month."

This list could be endless. In summary, all too often a simple count is used. We should be aware the word "simple" has another meaning which is probably more appropriate here.

1.4 OVERLY DETAILED "OUTPUTS"; MISTAKING ACTIVITIES FOR OUTPUTS

Of all the personnel offices I have worked with, all but one attempted to climb into this pit. All but one proposed outputs such as:

- a. Personnel file pulled
- b. Personnel file posted
- c. Personnel file re-filed, and so forth.

More appropriate outputs would have been "Promotion processed"; "Pay change processed", and so forth.

With the original list you can do any amount of 'a' and 'c' and accomplish nothing but kill time!

1.5 POOR WORK MEASUREMENT METHODS AND ATTITUDES

The faults committed here range from secret hidden readings on stop watches, carried in one's pocket, as advocated by some purveyors of what they call "short interval scheduling", to micromasurement of tasks with varying content. The Veterans Administration spent 57 man years of effort using detailed MTM to set the standards for employees of the Dept. of Medicine and Surgery; employees such as Ward Secretaries, Mail delivery persons, Medical Records Typists, and so on. When the task was done it indicated 1600 employees too many when in reality the hospitals were badly understaffed.

1.6 OVERLY COMPLEX REPORTING SYSTEM

When work goes through a series of steps, with different employees, there is no need to count the production at each step, particularly when the final step becomes a recorded fact in a management information system. Further, additional work may inadvertently be introduced into a system. I have seen several cases where documents were worked on in sequence. In order to reduce the time to move the work it was ordered that "work shall move in batches of 200." Subsequently, the workers spent considerable time, at each step of the work, counting the number of items in a batch to make sure that they were passing on 200!

1.7 FAILURE TO EMPLOY PC'S IN THE PRODUCTIVITY REPORTING SYSTEM

Some productivity systems are abandoned because of the inordinately large amount of time required to prepare the necessary reports. We just have not fully learned what the PC can do for us. (I could devote this whole paper to this topic.)

1.8 LOOKING FOR A UNIVERSAL "BUCKET OF IMPROVEMENTS"

Unfortunately, too many people expect to find a "bucket of improvements" in a book or at a seminar. Being told "where and how to look" is not enough for

them. Unfortunately, they do not seem to realize that what is an improvement in one situation may be a dis-improvement in another. Even a suggestion to replace labor with equipment, even in the office, is not specific enough for these "lazy brains."

1.9 "WHO ELSE HAS DONE IT?"

This pitfall is the assumption that if no one else has done it, it is not worth trying to do it, when the reverse may be the real truth. When I was a consultant for a large meat packer my client lost a large order for sausage when a competitor underbid him. The sausage master claimed the competitor was losing money. I claimed that they probably were using different cuts of meat. The sausage master claimed this was impossible. I suggested using linear programming to find the cheapest legal mixture. The Chairman of the Board asked if it had ever been done before. I admitted that I knew of no case.

"Get to work at it, and get to work fast," he said. "But stay mum!"

We increased our profit on the first sausage to which we applied the approach by 2800 percent! We had the industry "by the tail" for years.

1.10 NEGATIVE MOTIVATORS

Hospitals, for years, have measured their outputs, and been reimbursed essentially by "patient bed-days."

In 1971 we worked with two small Indian Health Service hospitals. We found that if you both measured productivity and budgeted the hospitals in terms of "weighted patients restored to health," that productivity went up 22 percent in the first year, and they usually had empty beds.

The use of patient-bed days for reimbursement, a few years ago, was driving Medicare costs through the ceiling. Medicare introduced DRG's, diagnostic related groupings, with a standard bed-day value for each category, as a basis for payment. A hospital bed ceased being an automatic money making machine. As a result of the use of the DRG's there are loads of empty hospital beds in areas with heavy Medicare populations.

The Veterans Administration hospitals used to be so full you had to be on a waiting list to get in. The VA applied a procedure similar to the DRG to control hospital costs. Most VA hospitals now have empty beds, lower cost and shorter ALOS's (average length of stay.) Each bed in the VA is no longer an automatic money making machine.

For another case, a client came to me with the complaint that his factory designs were resulting in overly expensive factories. Their measure of the productivity of the design department was "the difference between design cost and 10 percent of the factory construction costs."

Would the high cost of their factories surprise you?

Another great way to motivate a design department in the wrong direction is to count the number of drawings made.

It should surprise no one to learn that it is very easy to make an enormous number of views of anything!

1.11 THE FAILURE TO "STAY WITH IT"

This is the last pitfall I want to talk about. American management seems to have taken on one new direction after another, and then dropped each idea in place of a new fad.

To mention a few, we've had "statistical quality control", "job enlargement", "job enrichment", "zero defects", "the management grid", and now, "just in time", "zero inventory", and "quality circles"; in government we've had "workload based budgets", "planning, programming, budgeting", "zero based budgets", "productivity improvement", and so forth.

I am not saying that some of these may not have been good ideas, or good programs, but to pursue them for too short a period to really see what they can do, and then chase after something else, only to drop that shortly afterwards, does not appear to me to be the way to get things done.

2. BEING SUCCESSFUL AT IMPROVING PRODUCTIVITY

2.1 "LUCKING OUT"

One way would be to "luck out." It is possible that an organization can, by chance, stumble on to a highly productive way to work. However, this cannot go on time after time. Some systematic approach is needed.

2.2 A SYSTEMATIC APPROACH

All of the successful attempts to improve productivity that I have seen have resulted from an approach characterized by the following 11 steps, or some variant of these steps, but with essentially the same content.

(a) General reconnaissance and missionary work

This step consists of two things. One, finding out what is really going on, and two, making certain that those who will participate know the objectives and ground rules.

I learned this step the hard way. I took on a job to improve the productivity of a leather tanning plant's shipping department; a plant that tanned leather for men's shoe uppers. I did not do a preliminary reconnaissance. I PRESUMED that leather would be heavy for work shoes and light for dress shoes; that it would be black or brown. You can imagine my consternation when I