Preface

I've been concerned about the practice of industrial engineering for 4 decades. It's not easy to find useful books introducing the effectiveness of industrial engineering (IE) practice as it relates to the fundamental background of the field, its techniques, and in-depth theory. At one time, there was an abundance of useful books on motion and time study; however, the shelves display limited titles today.

Many books provide an overview of productivity and profitability as enlightenment for management, but these guides are not suitable for the practice itself in companies by professional engineers and their support staff. You will see plenty of titles defining useful technologies for inventory and lead-time improvement or participatory management practice, but it's not easy to find books concentrating on labor productivity that introduce basic tools of industrial engineering that can be applied in various industries.

Allow me to draw your attention to a discussion by consultants and professors many years ago in the *Journal of Industrial Engineering*. One of the key points was the introduction of classic IE, or modern IE. The age of computer technology came to IE in the form of new applications in work measurement and line balancing; mechanization, or automation, was set to transform manufacturing. Implementation of small group activity (SGA) and lean production entered many companies. As results were glorified regarding productivity and cost reduction, not only were terms associated with motion and time study virtually eliminated, industrial engineering itself became lost in translation.

These conditions were especially evident in Japan. Personally, I thought the classification "classic IE" or "modern IE" was not a suitable term. I preferred "basic IE". In the journal, Dr. Harold B. Maynard stated: "I do not for a moment believe that traditional industrial engineering is on the way out. Man did not discard the hammer when the saw was invented. He needed the hammer for pounding and the saw for cutting. In the same ways, IE needs different tools for solving different problems. He needs the old techniques as well as the new ones."

One reason that industrial engineering is in the shadows is that it is not known for contributions to management requirements. It may not get the trust by man-

agement due to its humble contribution, considering the many and hard requirements of true management.

There is an expression in Japan: “Gold coin for cat”. A cat does not realize the value or usefulness of a gold coin. It has no meaning for a cat. With no value placed on it by the cat, the coin has nothing to do until the right person comes, attaches value and knows how to use it. In Japan, this is mind innovation; the right mind makes reasonable answers and attaches reasonable meanings.

At times, industrial engineering performs the activity of “nonreal gain”, or small improvements with a small-cycle time reduction from time to time, place to place. The effect of this “improvement” is calculated by reduced cycle time in an annual occurrence. Such a calculated effect is a kind of ghost...invisible. Does this make sense?

Real gain should be pursuance. For example, reducing the allocated number of workers to reduce paid-hours immediately but accrue the same or more powerful results. This is an example of “real gain”. Management, particularly in human resources departments, is interested in these types of gains. Industrial engineering should be a department that fosters these connections. Industrial engineering tools are effective enough to support management with these goals in mind.

Industrial engineering staffs should be cherished by management, given reasonable demands of improvement and receive them warmly. The result is that industrial engineers gain confidence and are motivated to develop higher standards of meeting staff services.

There are a lot of fashionable topics in productivity improvement, and there always will be. However, management and industrial engineers together must look ahead always. Basic industrial engineering technologies are not hackneyed. Effective results come when industrial engineers know how to use the technologies and demonstrate their abilities. This includes going back to the basics.

Experts never choose the tools themselves; as demonstrated in the following chapters; they need only apply them correctly.

Part I, Strategy for Improving Profitability and Productivity, introduces an overview and summary concerning significant points that management should care about in profitability and productivity. They should be eager to follow effective approaches not only in the interest of lean production but also participative management. There is a misunderstanding that if strong-market or high-profit companies are productive, there aren’t many changes to make in the ways they do business. Strategy for manufacturing is not common but recommended in the interest of successful competition. Guess again. Companies must understand that there is a gold mine of productivity tools found only in a slightly different approach. The next three sections are filled with examples.

Part II, Theory of Productivity, presents a reasonable and precise theory about productivity. What is the true definition of productivity? Why is it important? International competition in today’s business sphere is giving meaningful answers that readers can learn from.

Part III, Outline A of the Engineering Approach to Productivity, classifies productivity in three distinct dimensions that are particularly important to companies

that desire large-scale improvements. What is the engineering approach that is effective in getting unique results? What is the difference between kaizen and the engineering approach in this book? The approach leads to nonempty gain. Methods engineering and searching for an innovative change of methods is key.

Many people are interested in productivity but misunderstand the relationship between corporate results and the approach to profitability and productivity. For example, the majority of kaizen or incremental improvement activities in manufacturing yield empty gains that do not stand out in business results. What is needed is a design approach focused on finding creative ideas that set and achieve theoretical design targets and directly impact earnings. In these chapters, I will present not only the core concepts of productivity improvement, but also a concrete approach for lasting success based on experience and results.

A concept of methods engineering that is not common in the world is introduced. Common sense and concrete contributions to corporate processes are described in this section. Additionally, work measurement practices are introduced with accurate, classical applications, but effective engineering for large contributions to improving productivity and profitability. A unique and practical approach based on engineering for challenging white collar productivity improvement is also introduced.

This book is the first time that some of this information will come to light. Improving "white collar areas" of productivity are also introduced.

Part IV, Monitoring Productivity, introduces fundamental ways to measure using theory. Means of measurement on the shop floor and in office areas are based on long-time consultancy-supported experiences.

Part V, Keys to Success for Improvement Management, provides cases. A company is required to restructure its organization, and the project team must concentrate on specific key indicators. Ordinary, or regular, attitudes and behaviors are not good enough. Mind innovation is required to successfully improve productivity and profitability. The single objective is to find the answer to what it is, not how to do it. I believe that any effective management tools are tools for stimulating mind innovation for the entire organization, and the right activities have to follow.

I am a management consultant with 40 years of experience in Europe, Asia, and Japan. This means that all the contents of this book are practiced with industrial engineering theory as the foundation.

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