

Introduction

Two considerations prompted the decision to develop this special technical publication and its supporting symposium. The first consideration is to present the best of the present American industrial changeover experience, plus that of other countries, such as Great Britain, that have preceded us down the road to national metrication. It is hoped that this volume will be a fruitful reference document for the majority of U.S. industry that has yet to complete its changeover planning. The second consideration is to give more recognition to the key role of industrial standards in accomplishing changeover and to the need for a great standards development effort by industry if we are to manage transition so as to maximize the opportunity for technological gain and economic benefit that the national metrication movement is offering. Even without metrication industrial standards were destined to have a more important role in product definition and acceptance in the future. Metrication will hasten this process, but we can expect a relatively unstable industrial standards situation for years to come. An important part of metrication planning for industry is to recognize the larger role industrial standards will have in the post-transition world.

For over 100 years, the United States has been increasing its use of a metric measurement language. Until recently, the rate of change to metric in the United States has been slow because industry, for the most part, had been opposed to adopting metric. Today, industry favors adopting the modernized metric language called the International System of Units (SI) as the primary measurement system. Industry is converting to SI today at a rate that will make for a predominantly metric nation within a decade. A good question is what changed industry's collective mind? The answer, we believe, lies in powerful economic forces that became evident during the sixties. These powerful economic forces are:

1. *Rise of the large multinational industrial organization.* It is difficult for most Americans to appreciate the pervasive presence of the multinational corporation throughout the rest of the industrial world, because the growth of the multinational corporate entity has, until recently, been largely an American effort that occurred outside the United States. The advantage to the large multinational corporation of adopting the world's principal measurement language is clear when one considers the benefits of a common measurement language in

encouraging uniform engineering practices and drawings, uniform fabrication processes, and common industrial standards.

2. *Loss of technological dominance by the United States.* The decline in the competitive position of the United States in high technology products since World War II is well documented. Without a clear technological superiority, manufacturing to a measurement system different from what is used by the rest of the industrial world becomes a handicap in the international marketing of products.
3. *Aggregation of markets within economic blocs.* For a long time, the United States had been the largest, most affluent market in the world. The largely fragmented markets of Europe, Asia, Africa, and South America were hardly worth tooling up for. Today these areas have formed into economic blocs that work to aggregate the area's markets. The European Economic Community (Common Market) is an aggregated market of 260 million people and represents attractive marketing opportunities for American industry. But it is a market that rests significantly on metric industrial standards.
4. *Growing role of industrial standards to define or limit market entry conditions.* Unlike the United States, most industrial nations develop industrial standards as a quasi-government activity and then use the standards to some degree to define product acceptance. Beginning in 1977, products traded among Common Market countries must be in accordance with approved metric standards. Adopting SI will give U.S. industry increased capability to develop metric standards and to fabricate to standards acceptable in other countries.

Changeover to SI among the large multinationals is forcing thousands of their suppliers and customers to adapt, and thus acts as a catalyst inducing changeover throughout the entire U. S. economy.

The advantages of a simpler measurement system, of a common world measurement language, and of uniform world industrial standards will accrue to the benefit of all. But to proceed from our present use of mixed measurement systems in the United States to the more rational SI requires a transition period that must be managed well if we are to minimize confusion and economic dislocation, and maximize the benefits of this once-in-a-nation's-lifetime opportunity.

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