



PRODUCTIVITY MEASUREMENT: AN INTRODUCTION

The purpose of this publication is to make available to industry the results of research conducted by the Construction Industry Institute (CII). The publication does not necessarily represent the views of CII member companies, but is offered as a contribution to the industry.

CII was founded in 1983 to improve the cost effectiveness of the nation's largest industry. The members, who represent a broad cross-section of owners and contractors, believe that many of the problems that limit cost effectiveness are common ones, and that real improvements can be best accomplished in a cooperative environment with the benefits being shared by the construction industry at large.

CII uses the acronym TOPICS to describe the research effort. TOPICS signifies the six research thrust areas: Technology, Organization, People, Information, Controls, and Sigma (meaning others). The task forces for each area are listed below.

Technology

- Advanced Technological Systems
- Computer Integrated Design & Construction
- Constructability
- Electronic Data Management
- EPC Flexibility
- Modularization
- Technology

Organization

- Constructability Implementation
- Partnering
- Project Organization
- Project Team Building
- Project Team Risk/Reward Allocation

People

- Construction Work Force
- Education and Training
- Employee Effectiveness
- Safety
- Zero Accidents

Information

- CICE Impact Evaluation
- Industry Data & Statistics
- International Construction
- Model Plant
- Owner Engineering Organization
- Project Management Assessment Survey

Controls

- ASCE Quality Manual
- Change Order Impacts
- Claims
- Contracting, Phase II
- Contracts
- Cost/Schedule Controls
- Design
- Materials Management
- Overtime
- Overtime Phase II
- Productivity Measurement
- Quality Management
- Quality Performance Measurement
- Total Quality Management

Sigma

- Construction 2000
- Insurance
- Retrofit Projects
- U.S. Navy Demonstration Project

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**Productivity Measurement:
An Introduction**

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The Construction Industry Institute
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**Publication 2-3
October 1990**

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The University of Texas at Austin.

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Printed in the United States of America.

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INTRODUCTION

The Construction Industry Institute (CII) was founded in 1983 to carry forward the recommendations of The Business Roundtable's Construction Industry Cost Effectiveness (CICE) Project. One of the first research efforts by CII addressed the productivity measurement recommendations in the CICE A-1 Report, *Measuring Productivity in Construction*. The A-1 Report identifies a steady decline in construction productivity and concludes that effective productivity measuring techniques are a prerequisite to reversing the trend. A CII task force was established to identify productivity measurement methods utilized in the construction industry, consider the potential for standardization, establish a basis for trending industry productivity over time, and develop a manual that would show how productivity measurement is performed.

The U.S. Department of Commerce estimates the size of the construction industry at \$388 billion for 1986, but the business volume claimed by the *ENR* 400 largest contractors was only \$103 billion—domestic (*ENR*, April 16, 1987), or 27 percent of the total. Much of the 73 percent of the construction industry not represented by the *ENR*, and even some *ENR* 400 constructors, probably are not regularly measuring productivity and are therefore forfeiting a fundamental management tool for managing labor costs.

Many in the industry admit that they do not measure productivity. Many contractors have accounting systems that can be used only to determine actual costs at project completion. Still others have systems that monitor elements of construction cost over the life of the project, but cannot provide productivity information within the short time intervals necessary for the contractor and owner to identify problems and take corrective action. Few of these contractors actively use construction productivity measurement as a management tool. The fact that they do not adds to the cost of their services and increases the risk of being non-profitable.

Why is productivity measurement not universally applied? Contractors who do not measure productivity generally give one or more of the following reasons:

"I don't know how to measure productivity."

"I've never monitored it before, and I am still in business."

"Productivity control is a part of a cost control system that is too complicated and expensive for my company to implement."

"Productivity cannot be controlled."

"Productivity measurement tells me little about my project that I do not already know."