



# Management control and the production environment: A review

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## Abstract

A modern production environment reasonably requires a management control system that is tailored to fit the specific circumstances of this kind of organization. A modern environment relates to many elements: flexible machines, low inventories, production to order, etc. This paper reviews and discusses the literature that addresses the relationship between elements of the production environment and aspects of management control systems. This review of the relevant conceptual and empirical research in the field reveals limited and inconclusive evidence on the extent to which organizations have aligned management control systems with the production environment. The review indicates that new forms of production and inventory control (e.g., just in time) are not always easily captured by the conventional classifications of technology that are commonly used in the empirical literature. The paper also addresses problems and issues related to the existing literature, and makes suggestions for avenues of future research.

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## 1. Introduction

Current business practice is characterized by intense international competition, rapid product innovation, increased use of automation, and significant organizational changes in response to new manufacturing and information technologies. Correspondingly, also the operating function is undergoing many significant changes. The mass production model is being replaced by a flexible

multi-product firm that emphasizes quality and speedy response to market conditions, while using technologically advanced equipment and new forms of organization (Milgrom and Roberts, 1995).

In this new industrial environment, several authors regard the traditional cost accounting models as no longer relevant, since these are based on an assumption of long production runs of a standard product with unchanging characteristics and specifications (Kaplan, 1983). However, different opinions seem to exist on the importance of cost accounting in today's business environment

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(Jazayeri and Hopper, 1999). Defenders of cost accounting emphasize its relevance for product profitability decisions, whereas critics expect that the (internal) cost reporting role will diminish as managers spend more time on physical customer-centered measures of continuous improvement. The literature not only comments on the way in which the traditional cost accounting function is performed in the current business setting, but also signals a need for an extension of the function of accounting. Traditional management accounting practices have thus been labeled inadequate, failing to meet the needs of ‘modern operations’ and hindering quality improvements, manufacturing flexibility, and innovation (e.g., Howell and Soucy, 1987; Daniel and Reitsperger, 1991). Others already observe a change in scope, taking account of a wide variety of changes that are occurring in high technology firms. They state that notions about the role of management accounting information, traditionally only relating to labor, materials, and overhead, now have expanded to include information about technologies, quality, innovativeness, and flexibility (Young and Selto, 1991).

It is generally accepted that the changes in the business environment, and more specifically in the operating function, should be accompanied by changes in performance evaluation and incentive systems to derive higher performance (e.g., Parthasarthy and Sethi, 1993; Milgrom and Roberts, 1995; Abernethy and Lillis, 1995). Little evidence is available, however, on the way these changes take place and on the relationship between performance management and the current business setting. As Ittner and Larcker (2001) indicate, despite the initial enthusiasm on the topic in the late 1980s, the body of research on the interface between accounting and operations management is still underdeveloped and leaves many interesting research topics unexplored. In examining the literature on the relationship between management control system design and the characteristics of the operating function, this paper attempts to shed light on the results obtained in previous literature, to discuss problems and inconsistencies, and to identify potential research topics.

This paper contains four sections. Section 2 reviews the literature on the relationship between the production environment and the management control system. Section 3 evaluates the literature, provides a synthesis and some suggestions for future research, and Section 4 discusses the conclusions.

## 2. Management control and the production environment

Langfield-Smith (1997) states that the continued focus on senior management’s use of controls could be misplaced and that the success of a strategy may be directly influenced by activities that take place in other areas of the business, for example at the operational areas of the business. The recognition that the distinction between traditional and modern operational environments is essential begins with the relevance lost movement (Kaplan, 1983), which states that the design of management accounting systems is no longer suitable for the modern environment. The accounting and control literature now often argues that companies pursuing new strategies and acting in new competitive realities have to shift from treating financial figures as the foundation for performance measurement to treating them as one element in a broader set of measures (e.g., Eccles, 1991). Moreover, it is believed to be vital that the management accounting and control system supports the management behavior necessary to satisfy the order-winning criteria defined in the production strategy. Nevertheless, it is often noticed that various aspects of companies’ management accounting and control systems are not adequately attuned to the modern production environment, e.g., too aggregate numbers, too much focus on standards, and too much focus on financial reporting goals (Nanni et al., 1988; Fisher, 1992; Howell and Soucy, 1987).

The above arguments suggest that the changes in the production environment are relevant for management control system design. Hence, the distinction between the traditional and the modern production environment is addressed in Table 1. Following Milgrom and Roberts (1990), a lot of

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