



# Factors influencing the performance of activity based costing teams: a field study of ABC model development time in the automobile industry<sup>☆</sup>

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## Abstract

This paper examines how the group dynamics of activity based costing (ABC) development teams and the level of organizational resources devoted to model development affect model complexity and development time. A theoretical framework is developed based on the organizational literature on teams. The framework is tested using objective data from 18 ABC projects in two automobile manufacturing firms and survey data from ABC team members. Results show that ABC team cohesion is the key determinant of the time it takes to develop the first ABC model. Further, ABC models become more complex in the presence of an external consultant and as the level of competition increases. © 2002 Elsevier Science Ltd. All rights reserved.

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## 1. Introduction

Satisfaction with, and acceptance of, activity based costing (ABC) systems has been mixed (Cooper, Kaplan, Maisel, Morrissey, & Oehm, 1992; Ness & Cuccuzza, 1995) and the process of implementation has been implicated in these results. Research on the determinants of ABC system implementation effectiveness has identified contextual and implementation process factors that correlate with evaluations of the ABC system (Anderson, 1995; Anderson & Young, 1999; Foster & Swenson, 1997; Gosselin, 1997; Shields,

1995; Swenson, 1995). These studies define factors that relate the ABC implementation initiative to the broader organization. For example, Foster and Swenson (1997) and Shields (1995) examine whether the initiative is perceived to have top management support, and whether users believe there are benefits associated with adopting ABC.

An aspect of ABC implementation that researchers have neglected is the process of designing the ABC model—i.e. the resources, activities and cost drivers that are the “economic map” of the organization (Kaplan & Cooper, 1998, p. 79). Studies have investigated the structure of ABC models that emerge from the design process (e.g. Noreen & Soderstrom, 1994) but have not explored how group processes that culminate in a particular model design affect the ABC implementation project outcomes. Failure to consider these issues is particularly incongruous with early writings on ABC implementation (Beaujon

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<sup>☆</sup> The authors are not permitted to redistribute the data of this study without permission of the participating firms.

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& Singhal, 1990; Cooper, 1990; Eiler & Campi, 1990; Haedicke & Feil, 1991; Jones, 1991). These studies, and recent research on teams in the organizational literature (Cohen & Bailey, 1997), focused on the composition, training and group dynamics of the ABC development team. Since organizations have begun to rely on teams as a significant form of organizing work, gaining more insight about the inner workings of teams has assumed a high level of importance for researchers and practitioners.

The objective of this paper is to provide more understanding about how the external environment, team processes and team dynamics affect ABC team performance. We develop the general framework from the literature. We use pre-study interviews to develop operational measures of key constructs and test the hypotheses derived from the framework using survey data from team members.<sup>1</sup> Then we test the hypotheses using objective data about the ABC projects and survey data from ABC developers from 18 ABC teams in two US auto manufacturers (which we refer to as Company A and Company B).<sup>2</sup>

Our findings suggest that a key benefit of ABC training for team members is that it strongly influences the perceived significance of the task of developing the first ABC model, as does the perceived level of competition each plant faces. As perceptions of task significance and the ability to resolve team conflicts increase, so does the level of team cohesion. Three factors affect ABC model complexity: the presence of an external ABC consultant, the level of external competition and the ability to resolve team conflicts. Finally, while the degree of model complexity does not significantly affect the time to complete the model, a higher level of team cohesion leads to faster development of the first ABC model.

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<sup>1</sup> Data were collected from a different group of respondents from those interviewed in the pre-study phase.

<sup>2</sup> In total, we studied 21 ABC projects. Three sites were excluded from this study. Two were excluded because they include significant non-manufacturing activities. The nature of the production process is quite different and consequently it is not valid to compare the model structure of these sites with the others. Similarly, the other site is excluded because it included an assembly plant.

The paper is organized into five sections. Section 2 reviews the organizational literature on development teams and the literature on ABC implementation to develop the theoretical framework of the study. Section 3 describes the research method, data collection and variable measurement. Section 4 presents the results of hypothesis testing. The implications of these findings are discussed in Section 5.

## **2. A framework for studying ABC development teams**

Approximately 68% of the Fortune 1000 firms use self-managed teams as a work unit to perform many types of organizational tasks (Lawler, Mohrman, & Ledford, 1995). The high incidence of the use of teams has generated a significant amount of research in the organizational studies literature (Bettenhausen, 1991; Galbraith & Lawler, 1993; Guzzo & Shea, 1992; Katzenbach & Smith, 1993; Mohrman, Cohen, & Mohrman, 1995). Some research has also been conducted within management accounting although the focus has centered on workgroups performing routine tasks (Drake, Haka, & Ravenscroft, 1999; Young, Fisher, & Lindquist, 1993; Young & Selto, 1993). Typically, workgroups perform production tasks in manufacturing settings (Safizadeh, 1991). However, implementing management innovations (such as ABC) usually involves project and development teams (Cohen, 1993). Unlike workgroups, project and development teams are cross-functional; comprised of engineers, cost analysts, designers, operators, functional managers and others who together perform non-routine tasks. By including a diverse set of perspectives, development teams have the potential to generate new ideas or derive novel solutions to vexing problems. This research extends previous studies on team performance in management accounting contexts to development teams.

The framework that we employ is derived from the literature on group dynamics (e.g. Lewin, 1943), previous research on ABC implementation (Anderson, 1995; Anderson & Young, 1999; Foster & Swenson, 1997; Shields, 1995) and pre-study

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