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Reasons for management control systems adoption: Insights from product development systems choice by early-stage entrepreneurial companies

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Abstract

Recent theoretical and empirical work indicates that management control systems (MCS) are an important element in enhancing innovation. We extend this research thrust examining the adoption of MCS in product development, arguably one of the business processes where innovation plays a major role. Using a sample of 69 early-stage entrepreneurial companies, data are collected from questionnaires and interviews with each of the CEO, financial officer, and business development managers pertaining to product development MCS. We examine seven different systems: project milestones, reports comparing actual progress to plan, budget for development projects, project selection process, product portfolio roadmap, product concept testing process, and project team composition guidelines. We address three distinct questions: (1) What are the reasons-for-adoption of these systems? The nature of our sample allows us to trace back to the adoption point and develop a set of reasons-for-adoption from the analysis of the data. While MCS fulfill certain roles as described in the literature, these reasons-for-adoption are distinct from these roles. Results indicate that certain events lead managers to adopt these systems and address the challenges that they face. They include contracting and legitimizing the process with external parties and internal reasons-for-adoption such as managers' background, learning by doing, need to focus the organization, or reaction to problems. (2) Are these reasons-for-adoption associated with differences across companies in the time from their founding date until these systems are adopted (time-to-adoption)? Prior research has looked at the covariance of various organizational variables with this timing; this study goes a step further by looking at the effect of different reasons-for-adoption on this timing. Our evidence finds an association between these two variables. (3) Are these reasons-for-adoption relevant to performance? We find that the reason-for-adoption is associated with the on-time dimension of product development performance.

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Introduction

Formal management control systems (MCS) have traditionally been associated with mechanistic organizations (Burns & Stalker, 1961). These systems support the periodic execution of the same routines with little if any changes. Their relevance to the innovation process – a process associated with uncertainty, with unknown links between inputs and outputs, with exceptions, and with outputs that are often hard to evaluate – is less clear. Ouchi (1979) used a research department to illustrate clan control where social norms substitute for formal management systems. Mintzberg's separation of planning and managing (Mintzberg, 1976) and Quinn's logical incrementalism (Quinn, 1978) also highlight the limitations of traditional MCS. A fundamentally different perspective is that these systems may provide important discipline to help manage uncertainty. Recent theoretical developments offer various concepts that support the need for formal management control systems (MCS) in uncertain settings.[1] For instance, the distinction between coercive and enabling bureaucracies (Adler & Borys, 1996) suggests that MCS may be instrumental to innovation. Gavetti and Levinthal (2000) present a learning model where companies that jointly rely on planning and learning by doing are predicted to perform better in uncertain environments compared to alternative strategies. Thus, forward looking efforts typically associated with MCS complement fast reaction to new information to improve how organizations deal with uncertainty. Zollo and Winter (2002) argue that the essence of dynamic capabilities is adaptive routines – including information-based routines. Simons (1995) interactive systems concept can have an explicit role in sparking innovation around strategic uncertainties.

For the most part, recent empirical evidence also indicates that innovation processes may gain from the presence of MCS. Abernathy and Brownell (1999) use Simons' model to examine the use of budgets "as a dialogue, learning and idea creation machine" during episodes of strategic change. Cardinal (2001) reports an association between control and performance in both radical as well as incremental innovation projects in the pharmaceutical industry.[2] Ditillo (2004) describes MCS as a key element in knowledge intensive firms.[3] Similarly, Chapman (1998) presents evidence consistent with the relevance of these systems in uncertain environments.

Based on a sample of 69 technology-based early-stage companies, the paper examines the adoption of MCS within an organizational process where innovation has a pivotal role: the product development process.[4] The focus on product development led to sampling from technology-based firms.[5] Product development is a key aspect in these firms. If MCS are important to managing innovation, this sample of companies will be (on average) ahead in their use.[6] Our objective of learning about the adoption of MCS led to adding the early-stage criteria. The focus on the adoption stage (rather than the evolution of existing MCS) suggested studying companies that are going through the transition from birth to early-stage when the MCS are

[1] MCS are defined as formal management control systems following Simons' definition: "formal, information-based routines and procedures managers use to maintain or alter patterns in organizational activities" (Simons, 1995, p. 5). Throughout the paper, MCS is used to refer to this definition unless otherwise noted.

[2] Cardinal identifies input, behavior and output control where input control (scientific diversity and professionalization) might be interpreted as informal control while behavior and output control are formal MCS. She finds all three types of control being associated with performance for incremental and radical innovation projects.

[3] Ditillo (2004) interprets MCS similarly to the way this paper uses the term. He describes them as "the design as well as use of coordination mechanisms based on the standardization of either input, action, or results" (p. 402).

[4] Because we study MCS in the specific process of product development, MCS speaks to the systems that are used within this process. In particular we examine the following MCS: project milestones, reports comparing actual progress to plan, budget for development projects, project selection process, product portfolio roadmap, product concept testing process, and project team composition guidelines. We collect data on actual systems rather than on particular theoretical constructs associated with the design and use of these seven systems.

[5] We chose to study a specific realization of innovation through looking at product development process rather than the broader concept of "organizational innovation" to increase the power of the research design by reducing the noise and potential confounding factors.

[6] The objective of the paper is not to examine whether the presence of MCS is needed for a company to be innovative. Rather, its objective is to understand why MCS are adopted in a particular process associated with innovation and whether distinct reasons for adoption are associated with the time it takes to formalize these systems and to on-time performance. To probe the link between the presence of MCS and innovation, one would need to develop a measure of innovativeness and compute this measure on a year-by-year basis for each company in our sample.