

Supporting Management Decisions with *Ex ante* Accounting Information

MARC WOUTERS, *University of Twente, The Netherlands*

PETER VERDAASDONK, *Eindhoven University of Technology, The Netherlands*

This paper is about the relationship between management decisions and accounting information. Management decisions have consequences in different functional areas, departments, and different companies along the value chain. Accounting information regarding decisions aims to translate as many as possible of the diverse consequences of a decision alternative into a single financial unit of measure. This makes such information both powerful and weak: various sources of information are integrated to allow trade-offs, but operational richness gets lost in the translation. The research is based on case studies and identifies situations in which managers find accounting information useful to support decision-making: (1) when they must make a significant, new or rarely taken decision, (2) when they must take new considerations into account, and (3) when operational knowledge is distributed across various people from different parts of the organization. © 2002 Elsevier Science Ltd. All rights reserved.

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Introduction

This paper is about operations managers and their usage of accounting information for decision-making. It is an important area for management research to improve the usefulness of accounting information for managers, because research has shown that managers are often dissatisfied with the accounting information they receive (McKinnon and Bruns, 1992). Clearly, we have to understand better what kind of accounting information operations managers use or would like to use for making decisions. Zimmerman (1997) describes two purposes of internal accounting

systems: to provide some of the knowledge necessary for planning and decision-making and to help motivate and monitor people in organizations. This paper is about the first of these two purposes. Studies about when and how managers use accounting information for decision-making in operations are scarce (see for example Kaplan, 1983; Jönsson and Grönlund, 1988; Fry *et al.*, 1995; Ahrens 1997). The motivation for this study is to give a better understanding of the interactions between management decision-making and accounting information. We focus on the operations function of profit organizations.¹

Managers frequently have to make complex decisions, because of shorter product life-cycles, a greater variety of products and services, more rapid changes in technology, less predictability of customer preferences, less heterogeneity of customers, and a greater number of different markets and distribution channels (Gilmore and Pine, 1997; Lampel and Mintzberg, 1996; Anderson *et al.*, 1997). 'Managers are hungry for better information to support their work' according to McKinnon and Bruns (1992). Many studies have found that managers want more timely accounting information, incorporating external and non-accounting data, focussed on a range of functional areas and decisions, if there is more uncertainty of the environment and the task and if there are more interdependencies between organizational units and between tasks (Chenhall and Morris 1986, 1995; Gul and Chia, 1994; Chong, 1996). However, managers often consider the management accounting information that is provided as not very useful for decision-making and they would like to have better information (Karmarkar *et al.*, 1990; Sullivan and Smith, 1993). Libby and Waterhouse (1996) report that accounting information systems are mainly changed to improve decision support information, which is another indication that accounting information is considered useful for supporting decisions.

We define *ex ante* accounting information as information about the expected financial impact of a decision alternative on one or more financial criteria (e.g. net present value, profit). A decision-maker can use this information before choosing a particular course of action. There are many situations, however, in which operations managers do not use accounting information to evaluate decisions beforehand, even when they make complex decisions that have a significant financial impact. McKinnon and Bruns (1992) describe, for example, that most production plans have a medium-length time horizon, frequently about three months. Production planning is closely tied to sales forecasts and these are revised each month. Managers check existing factors (labour force numbers, inventories, machine capacities, etc.) versus new needs in revised forecasts and make changes (e.g. they hire or layoff workers, revise work schedules, find new suppliers or change existing contracts to accommodate new materials needs, or they revise process schedules, set up times, line change times, inventory levels, etc.). McKinnon and Bruns (1992) conclude that these decisions are often made without financial evaluation. Scapens *et al.* (1996) and Sillince and Sykes (1995) also provide examples of important decisions for which managers do not use accounting information. Mouritsen and Bekke (1999), as another example, describe a situation in which decisions were only based on consequences on the dimension of time, instead of cost.

Accounting information is not likely to be useful for every decision problem, because it has specific advantages and disadvantages. Management decisions in operations often have consequences for different dimensions, and trade-offs between these dimensions must be made, e.g. number of units produced, lead-time of processes, reliability of processes, service towards customers, inventory levels, capacity utilization levels, number of different products. Accounting information can be used to translate these different dimensions into a common financial dimension. Accounting information uses formalized categories for collecting and reporting information that creates a common language with which members of the organization can communicate. Formalization permits the transmission of information with fewer symbols and this facilitates the coordination between different functions that need to provide input to the decision-making process (Galbraith, 1973). However, accounting information is also an imperfect representation of the underlying decision problem, since not all aspects involved can be quantified perfectly in financial numbers (Galbraith, 1973).

Data have been gathered in case studies of eight different companies. In all our case studies *ex ante* accounting information is being used with the explicit goal of displaying the economic consequences of management decisions in operations. The companies did not have this information before each case project started, and this lack of information is

uncertainty in Galbraith's (1973) definition. Why did these companies invest resources in figuring out these economic consequences of decisions? Many management decisions in operations are not explicitly analysed for their economic consequences, so why was it done in these cases? The contribution of this paper is to identify a number of situations in which decision-makers consider the use of *ex ante* accounting information to be important. In other words: we identify situations in which 'money' is a useful common language to express the various consequences of a decision: (1) when a decision is rarely taken or completely new, (2) when new considerations must be taken into account when making a familiar decision, and (3) when knowledge about the various consequences is dispersed across people/departments.

The paper is structured as follows: In the second section we present a literature review to summarize the existing knowledge on the topic. The method is described in the third section. In the fourth section we present case studies to develop explanations for the use of *ex ante* accounting information for management decisions in operations. The fifth section concludes the paper.

Literature Review and Research Question

Management decisions in operations have an impact on various dimensions, such as costs, quality, and time. There are many models in the operations management literature in which these consequences are expressed in costs, and optimal decisions can be determined. For example, Lee and Nahmias (1993) provide an overview of inventory control models. The objective of virtually all these models is to minimize costs, such as the sum of holding costs, ordering costs, and penalty costs. Cost minimization is assumed to also maximize profits. The models use a wide variety of cost functions (e.g. by introducing quantity discounts, cost of perishable items, inflation, distinction between fixed and variable ordering cost components, cost of transportation, etc). Thomas and McClain (1993) discuss financial trade-offs in production planning. In these models cost information is involved by comparing the marginal cost of production with the marginal benefit. Costs considered in these models usually include cost of oversupply (including inventory holding costs, obsolescence, etc), regular production costs, cost of alternative methods of production (e.g. using overtime, subcontracting), cost of changing the level of production (e.g. by subcontracting, hiring additional workers), and cost of not satisfying demand. In the area of quality a trade-off is made between efforts to prevent failure and the consequences of failure. The costs of failure are compared with the costs of pre-

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