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Authors: Kihn Lili-Anne
Name of article: An Empirical investigation of the use and success of budgetary control and information systems
Name of work: Contributions to Accounting, Finance, and Management Science : Essays in Honour of Professor Timo Salmi
Editors of work: Laitinen Erkki K., Laitinen Teija
Year of publication: 2005
ISBN: 952-476-098-3
Publisher: University of Vaasa
Pages: 109-131
Series name and number: Acta Wasaensia 143
ISSN: 0355-2667
Discipline: Social sciences / Business and Management
Language: en
School/Other Unit: School of Management

URN: <http://urn.fi/urn:nbn:uta-3-730>

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An Empirical investigation of the use and success of budgetary control and information systems¹

Lili-Anne Kihn

Dedicated to Timo Salmi on the occasion of his 60th birthday

Abstract

Kihn, Lili-Anne (2005). An empirical investigation of the use and success of budgetary control and information systems. In *Contributions to Accounting, Finance, and Management Science. Essays in Honour of Professor Timo Salmi*. Acta Wasaensia No. 143, 109–131. Eds Erkki K. Laitinen and Teija Laitinen.

This study begins with a review of prior Finnish budgetary control research, and then examines the state of the art of budgetary processes and information systems in Finland. In particular, the perceived use and success of budgetary control and information systems is addressed. The empirical results are based on data collected from 174 managers from about 98 business units. The findings cover, first, the extent to which various types of budgets and budgetary information systems are applied. Second, the results suggest certain tendencies in how budgetary processes are actually used in management. Finally, the perceived success of applied budgetary processes and information systems is evaluated.

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Key words: Budget, budgetary control.

1. Introduction

Academic research on budgetary control has long traditions. According to Hägg, Magnusson & Samuelsson (1988), such research began in the first half of the 20th Century, Finnish scholars became interested in aspects broadly related to budgetary control in the early 1950s, and it seems that at least six streams of budgetary control research could be identified in Finland by 1988.

¹ Acknowledgements: The paper reports some of the results of a research project designed jointly with Chris Chapman, and financed by the Academy of Finland and the Foundation for Economic Education.

Whilst the earliest Finnish research concerned investment decisions and financial planning (e.g., Honko 1966; Artto 1968), the first stream of research that was explicitly titled as budgeting research includes studies by Jääskeläinen (1972), Jääskeläinen & Salmi (1975), Salmi (1976), Jääskeläinen, Salmi & Wasiljeff (1976), and Laitinen (1981). All these studies applied operations research techniques. The topics ranged from multi-period production and financial planning with two-stage linear programming (Salmi 1976) to risky currency, operating and capital budgeting decisions of multinational firms (Jääskeläinen et al. 1975, 1976).

A strategic perspective to budgetary control (e.g., Kyläkoski 1980; Jääskeläinen 1973) was mentioned as the third stream of research. The fourth perspective applied the contingency approach to determinants of the budgeting processes (Alaluusua 1982) and to follow-up budgetary control processes (Akkanen 1982). A conceptual approach to management control was mentioned as the fifth perspective (Ekholm 1983), and a behavioral approach concerned with budgetary planning (see Pihlanto 1983) and biasing (Lukka 1985, 1988a, 1988b) as the sixth main perspective.

Since 1988, budgeting studies have remained popular in Finland.² There is now a significant number of such studies that seem to have followed or combined the above mentioned paths. For example, Kyläkoski (1990) has extended the research on strategic aspects to firms operating in international markets. Hassel (1991, 1992), Hassel & Cunningham (1996, 2004), and Saarikoski (2004) have analyzed budgetary participation using the contingency approach and combining it with the behavioral approach. Lumijärvi (1989, 1991), Vuorinen (1991, 1995), and Ihantola (1988, 1991, 1997, 1998 a, 1998 b, 1998 c) have published several behavioral studies on capital budgeting, the reflective and constructive roles of budgeting, and budgeting atmosphere. Siitonen (1992, 1993) applied multiple approaches to examine the planning and evaluation roles of budgetary control in a multinational setting. Several of these and other studies have been empirical in nature, examining budgeting in a particular case company or industry. In addition, a few studies have analyzed the latest budgeting innovations (Ekholm & Wallin 2000; Sandström 2004).

² In addition to academic studies, the Finnish budgetary control publications include several text books, practitioner oriented studies, and an increasing number of publications related to local, central, and EU government.

Moreover, some recent studies have adopted an information systems perspective and, in part, explored the extent to which various types of information systems have been used or associated with problems in budgeting (Granlund & Malmi 2001; Hyvönen 2003). The current survey supplements these latest studies.

This study extends prior literature by shedding light on the perceived use and success of budgetary control and information systems in large Finnish industrial firms. The study directly addresses the following research questions:

1. To what extent are various types of budgets and budgetary information systems used?
2. How are budgetary processes used in management?
3. How successful are the existing budgetary processes and information systems perceived to be?

The first research question stems from an interest to describe and analyze the state of the art of the budget and information system choices of large Finnish firms. This is because there is still very little documented information on these systems from a budgeting standpoint.

The second research questions stems from prior behavioral literature, in which it has been emphasized that it is not only important whether accounting information systems exist, but also how they are actually used (Hopwood 1972; Vuorinen 1991, 1995; Simons 1995; etc.). In particular, based on the recent studies of Adler & Borys (1996) and Ahrens & Chapman (2004), it is examined how enabling the use of budgetary processes is perceived to be in business unit management.

The third research question aids in further analyzing the perceived success of existing information systems and processes in and around budgetary control. Several recent studies have emphasized that it is not obvious that such processes and systems are successful (e.g., Ekholm & Wallin 2000; Cooper & Kaplan 2000; Davenport 2000).

The remainder of this paper is structured as follows. First, prior literature is reviewed in the next section. Second, the sample is described. Third, the measurement instruments are reviewed. Fourth, empirical results are analyzed. Finally, various conclusions are presented.

2. Prior literature

Budget types

The main budget types include fixed, revised, rolling, flexible, and hybrid budgets (Horngren, Bhimani, Datar & Foster 2002; Järvenpää, Partanen & Tuomela 2001; Wallin et al. 2000). *Fixed or static budgets*, by definition, refer to budgets that are fixed for the period once set. In contrast, *revised budgets* are revised during the period. Rolling budgets (or forecasts) incrementally extend the forecasting period. *Flexible* budgets recalculate budgeted profit using standard costs and revenues but at actual levels of activity. *A hybrid budgeting system* incorporates budget information with other systems such as “balanced scorecard”.

Budgetary information systems

Over the years companies have made significant investments in various types of accounting information systems that typically have been separate standalone systems. More recently, an increasing number of companies worldwide have made significant investments in integrated corporate information systems called enterprise resource planning (ERP) systems. These systems are expected to integrate different kinds of previously incompatible information in a seamless and cost-effective way, whether it is information about finances, production, human resources, supply chains, or customers.

A series of academic studies have explored potential effects of ERP systems on management accounting and on the roles of management accountants (e.g., Granlund &

Malmi 2002; Caglio 2003; Hyvönen 2003; Lodh & Gaffikin 2003; Scapens & Jazayeri 2003). Yet, relatively little is still actually known about firms' information technology solutions and processes in and around budgetary control. The only recent exceptions from the information systems perspective include the Granlund et al. (2002) and Hyvönen (2003) studies, which were also conducted in Finland.

In Granlund & Malmi's field study on ten companies, four companies were found to use ERP systems for budgeting, while the majority used other separate systems. The authors explained the slightly higher popularity of separate budgeting systems by their functionality and quality, and by consolidation problems, if all units are not using the same ERP system. Overall the scholars reported ERP systems to have caused low to moderate changes in the management accounting and control procedures, and questioned whether they were lags or resulted in a permanent outcome. Hyvönen's survey (based on 86 business unit managers) suggested that slightly over half (53%) of the business units had implemented an ERP system and the others were using traditional standalone systems.

Budgetary processes

Budgetary processes can be used in different ways despite the information system. The fundamental premise of this study is that it is not only important whether and to what extent budgetary control and information systems are used, but also how they are actually used (e.g., Hopwood 1972; Vuorinen 1991, 1995; Simons 1995; etc.). In the following, the extent of enabling (versus coercive) use of budgetary processes is examined based on Adler & Borys (1996) and Ahrens & Chapman (2004).

An enabling system is defined as a system designed with the intelligence of the users in mind. Rather than aiming to set accurate work processes, they are designed to empower employees to deal more effectively with inevitable contingencies. In contrast, coercive control refers to the stereotypical top-down control approach that emphasizes centralization and preplanning.

The following four design principles underlie the enabling use of budgetary systems: repair, flexibility, local transparency, and global transparency. In terms of Ahrens & Chapman (2004: 276–277), *repair* attends to the breakdown of budgetary control processes and provides capabilities for fixing them, preferably by the users of the control systems. *Internal transparency* refers to an understanding of the working of local processes. *Global transparency* refers to an understanding of where and how the local processes fit into the organization as a whole. *Flexibility* refers to the organizational members' discretion over the use of control systems (i.e, to the extent that they can turn them off).

Success of budgetary control and information systems

As documented in Ekholm & Wallin's (2000) literature review, annual budgets have been criticized in recent years. In essence, some have viewed annual budgets incapable of meeting the demands of the competitive environment in the information age. But, a part of the criticism has referred to problems in the effective use of budgets. Ekholm & Wallin's survey findings of 168 large Finnish companies suggested that 25% of the companies indicated no perceived need for major changes in budgeting, relatively few companies were planning to abandon the annual budget completely, and most companies (60.7%) reported that they constantly try to develop it to meet new demands. Their results suggest that annual budgets have a role to play as a means of maintaining internal effectiveness and communicating information to shareholders and other interested parties. However, a considerable number of even those intending to hold on to the annual budget indicated strong agreement with the primary elements of the criticism. Several respondents indicated that complementary systems such as rolling forecasts and monitoring systems similar to the Balanced Scorecard already exist, running in parallel with the annual budget.

The success of information systems has also been questioned. Granlund & Mouritsen's (2003) literature review concludes that as information technology enables the running of modern accounting and management control, it may also limit the design and implementation of such systems. Cooper & Kaplan (2000: 109) have discussed about "the promise and peril" of integrated cost systems and Davenport (2000: 128) has warned that ERP

systems “can deliver great rewards, but the risks they carry are equally great”. However, according to Mabert, Soni & Venkataramanan (2001), most companies are generally pleased with their ERP systems.

Hyvönen’s survey on Finnish firms found that most respondents (55%) indicated no change in budgeting, 35% of the respondents fewer problems, and 10% more problems after information system implementation. ERP adopters were reported to have significantly more problems with budget planning after new information system implementation than the units using only standalone systems.

The goal of this study is to further analyze the use and success of budgetary control and information systems in a relatively large sample of Finnish firms

3. Sample

The empirical data was collected with two rounds of interviews and a mail questionnaire. The purpose of the interviews was to aid in the development of a new measurement instrument and in the interpretation of the statistical results. A highly successful and profit conscious business unit, which had implemented SAP enterprise resource planning system in its budgetary control processes two years earlier was selected as the site of the interviews. A total of nine directors and managers were interviewed using structured, semi-structured and open-ended questions first in the spring of 2004, and seven of them again in the December of 2004.

A mail survey was conducted applying Dillman’s mail survey method during the May-June of 2004. The questionnaire was mailed to 300 directors and managers representing business units of 86 industrial firms. The firms had been randomly selected from ETLA’s data base, which includes information on the largest firms in Finland. The selected firms represented the following industries: electronics, food, chemistry & plastics, metal, forest, construction materials, and textiles. In addition, some of the firms also represented multiple industries.

The survey was implemented within leadership groups at the business unit level. Telephone calls and/or E-mails confirmed the names and addresses of the appropriate respondents. The initial questionnaire and three follow-ups yielded a total of 174 responses from at least 89 business units and 75 firms. Since clearly most of the targeted respondents (58%), business units (83%) and firms (87%) participated, the results can be considered highly representative.

The vast majority of respondents had answered all the questions. Some had a few missing values, and a few had several missing values. Nevertheless, all the responses are included in the analysis of this study.

The following background statistics can be used to describe the sample and the participants: On average, the latest annual turnover of the participating business units was 336 million euros. The average number of personnel was 818. The respondents were 26-63 years old, and on average about 46 years old. Thirty-eight percent of the respondents represented finance, a fourth production, twenty-two percent research and development, and the remaining fifteen percent other functions. Twenty-seven percent of the respondents reported having got a trade-school or community college degree, sixty-eight percent an academic degree, most commonly an engineering degree (i.e., DI, 32%) or a business degree (i.e., Ekonomi or KTM, 27%) and nine percent an advanced degree. On average, the respondents had been at their current job for about 5.7 years.

4. Measurement instruments

Types of budgets. Five items were designed to define and measure the use of fixed, revised, rolling, flexible, and hybrid budgets. The respondents were asked whether they applied:

- 1 a budget that is fixed for the period once set,
- 2 a budget that is revised during the period,
- 3 a budget that incrementally extends the forecasting period,

- 4 a budget that recalculates budgeted profit using standard costs and revenues but at actual levels of activity, and/or
- 5 a hybrid system (incorporating budget information with other systems such as balanced scorecard).

Budgetary information systems. The respondents were asked to provide information of those information systems (e.g., SAP, Hyperion and/or Excel) that they currently use to support their budgeting processes. The following four alternatives were provided:

- 1 Integrated corporate information systems such as SAP, Oracle, etc. (No = N, or Yes = Y and please detail).
- 2 If you use such systems, did you alter the basic code?
- 3 Please detail any other systems that are integrated with your integrated information systems.
- 4 Please detail any standalone information systems that you use in the budgeting process.

Additional questions were designed to measure whether managers perceive their budgetary information system to be an integrated one. The following statements were provided: "Information in reports produced by our information system is entirely based on common sources of data" and "We have a fully-integrated information system that contains both financial and non-financial information". The applied measurement scale ranged from 1 (disagree completely) to 7 (agree completely).

The use of budgets. Two rounds of interviews were conducted in a highly successful Finnish business unit to identify aspects related to enabling budgeting. In addition, in the spirit of Simons (1995) and Abernethy & Brownell (1999), four items related to the interactive (versus diagnostic) use of budgeting were included as backup measures. Based on the interview results, extensive pre-testing, and principal components analysis, fifteen items were finally included in the new measurement instrument.³ These reflect the four dimensions of enabling budgeting: repair, flexibility, local transparency and global

³ See further, Kihn & Chapman (2005) The Role of Budgets in Strategic Management. A paper presented at the 28th Annual Congress of the European Accounting Association, Göteborg, May 17-20, 2005.

transparency. Here the measurement scale ranges from 1 (disagree completely) to 7 (agree completely).

The success of budgetary processes and information systems. Four items were crafted to measure the perceived success of budgetary processes and information systems. These items assess whether the overall benefits of budgeting processes and information systems used in the budgeting process outweigh the costs and whether the budgetary processes and the used information systems are the right tools for managing the business unit. A measurement scale from 1 (disagree completely) to 7 (agree completely) was used.

5. Results

Budget types

The following five tables summarize the key findings by showing the size of sample (n), and the results as frequencies, percentages, and/or mean values. The results of Table 1 are presented at the business unit level, relying mainly on the scores of financial directors and managers. These results show that all the investigated types of budgets are used in the investigated business units. Furthermore, many business units use more than one type of budget simultaneously.

Table 1. The types of budgets used in business units (n=98 business units).

	F	%
Fixed budget	66	67.3
Revised budget	29	29.6
Rolling budget	22	22.4
Flexible budget	10	10.2
Hybrid budget	18	18.4
Total	145	

In essence, the results indicate that fixed budgets are most popular, followed by revised budgets, rolling budgets, hybrid budgeting systems, and flexible budgets, in that rank order. The vast majority (i.e., two thirds) of the business units use fixed budgets. This extensive use of fixed budgets may seem surprising, since they have been considered most useful in stable conditions. But even in unstable circumstances, fixed budgets may be needed as an evaluation base for managers' incentive systems. Furthermore, many of the surveyed companies have supplemented fixed budgets with other types of budgets.

About 30% of the business units use revised budgets. This suggests that as many as 70% of the business units do not revise their budgets during the budget period. It may be that they do not need to revise their budgets due to highly predictable circumstances, they do not conduct follow-up budgetary control, they might not find revised budgets cost-efficient or might not know how to integrate changes and revisions into their annual budget.

The results also indicate that 22% of the business units report using rolling budgets and 18% hybrid systems. The use of these types of budgets also seems fairly low given that there has been quite a lot of discussion in the recent years on the need to do rolling budgets and balanced scorecards in practitioner literature. Perhaps these types of budgets have not yet been implemented to a large extent, or their implementation has failed.

Finally, an even lower utilization of flexible budgets is observed, i.e., only 10% of the respondents report using them. This result suggests that Finnish firms do not consider flexible budgets as cost efficient, implementations have not been successful, or such budgets may not be well known in Finnish firms.

Budgetary information systems

Table 4 shows the distribution of responses on the use of budgetary information systems (i.e., information systems used to support budgeting processes). Based on the scores of mostly financial directors and managers, these results are also reported at the business unit

level. These results suggest that a wide range of information system software packages are actually used by the investigated business units. Overall, the results also suggest that standalone systems are perceived to be most popular (n=60), followed by integrated corporate information systems and a combined use of both types of systems.

Table 2. The information systems used in budgetary control (n=98 business units).

	F
An integrated corporate information system, most commonly:	44
SAP	21
Oracle	6
Own system	4
Baan	3
A significantly modified version of an integrated information system (i.e., code has been changed)	14
A system integrated to an Integrated Information system, most commonly:	23
Hyperion	9
Excel	2
Cognos	2
A standalone information system, most commonly:	60
Excel	22
Own system	6
Target	5

Table 3 further illustrates managers' perceptions of the degree to which their information systems are integrated or not. The majority of respondents completely or fairly strongly agree with the statement that "information in reports produced by our information systems is entirely based on common sources of data". 58% of the respondents indicated that they completely or fairly strongly disagree with the thought that "we have fully integrated information systems that contain both financial and non-financial information", while about 32% of respondents completely or fairly strongly agree with that statement. These results indicate that systems integrating financial and non-financial information are not yet that common.

Table 3. Nature of information (1= strongly disagree, 7= strongly agree).

The responses as percentages:

	1	2	3	4	5	6	7	N	Avg.
Information in reports produced by our information systems is entirely based on common sources of data	4.2	10.8	12.0	10.8	19.3	30.1	12.7	166	4.7
We have fully-integrated information systems that contain both financial and non-financial information	20.7	21.9	15.4	10.1	13.0	14.2	4.7	169	3.3
Total								165	4.0

Budgeting processes and management

Table 4 shows the extent to which managers of large Finnish firms indicate budgetary processes being used in an enabling way in business unit management. Principal components analysis results have been used to structure the results according to the four design principles: repair, flexibility, internal transparency and global transparency.

Whilst there is sufficient variance in the results, the following tendencies can be identified on the basis of these results: First, on average, the *internal transparency* of budgeting in business unit management appears to be fairly high. The following four items reflecting the extent of internal transparency, receive relatively high mean scores (from 5.4 to 5.6):

- The budget process increases my understanding of what drives our revenue/cost levels.
- The budget process increases my knowledge of the operations of my business unit.
- The budget process helps to clarify the activities that make up my business unit.
- The budget process increases my knowledge of how my business unit works as a whole.

Table 4. Budgetary processes and management (1 = strongly disagree, 7 = strongly agree).

The responses as percentages:

	1	2	3	4	5	6	7	N	Avg.
It is easy for me to modify budget information and reports (or have them modified for me)	1.2	11.0	14.5	16.3	26.7	22.7	7.6	172	4.6
I easily get access to very detailed information in order to investigate budget deviations	2.9	12.1	10.4	12.7	16.8	27.2	17.9	173	4.8
It is imperative that we adhere strictly to the predetermined budgeting process	2.3	9.8	12.1	6.9	25.4	24.9	18.5	173	4.9
I can only make expenditures that have been built into the budget	12.2	26.2	27.9	9.9	10.5	9.3	4.1	172	3.2
Discussion during the budgeting process focuses on ensuring strict adherence to original assumptions and action plans	4.0	20.2	23.7	21.4	21.4	8.1	1.2	173	3.7
The budgeting process helps to clarify the activities that make up my business unit	1.2	1.2	6.9	8.1	27.5	39.3	15.6	173	5.4
The budget process increases my knowledge of the operations of my business unit	1.2	1.7	3.5	10.4	22.5	42.2	18.5	173	5.5
The budget process increases my understanding of what drives our revenue/cost levels	0.0	0.6	5.8	5.2	30.1	37.0	21.4	173	5.6
The budget process increases my knowledge of how my business unit works as a whole	1.2	2.3	4.1	8.2	29.2	37.4	17.5	171	5.4
The budget process helps to communicate business unit strategy	2.3	5.2	8.7	16.0	30.8	27.9	8.1	172	4.9
The budget process helps to signal areas in which we may need to change business unit strategy	1.7	5.8	18.6	16.3	29.7	19.8	8.1	172	4.6
The budgeting process helps personnel in my business unit to understand the overall context in which they are working	0.6	4.6	13.9	13.3	34.7	24.3	8.7	173	4.8

Table 4 (continued)

	1	2	3	4	5	6	7	N	Avg.
I analyze budget information in order to come up with ideas for improving operations under my control	0.6	6.4	15.0	16.2	29.5	26.0	6.4	173	4.7
I often think of new ways of doing things during the budgeting process	1.2	4.6	11.0	17.9	32.9	24.9	7.5	173	4.8
Our budgeting process aims to generate regular and frequent flows of strategic information between operational and senior management	2.3	12.1	12.1	19.7	27.2	20.8	5.8	173	4.4
Total								167	4.53 ⁴

On average, the extent of budgeting's perceived *global transparency* is also relatively high. This is reflected in relatively high, if not in complete, agreement on the following six statements (mean scores ranging from 4.4 to 4.9):

- The budget process helps to communicate business unit strategy.
- The budget process helps to signal areas in which we may need to change business unit strategy.
- The budgeting process helps personnel in my business unit to understand the overall context in which they are working.
- I analyze budget information in order to come up with ideas for improving operations under my control.
- I often think of new ways of doing things during the budgeting process.
- Our budgeting process aims to generate regular and frequent flows of strategic information between operational and senior management.

⁴ The three items were reversed to reflect flexibility, when calculating the average.

Likewise, the extent of budgeting's perceived ability to *repair*, is relatively high (mean scores ranging from 4.6 to 4.8). The following two items measure that insight:

- It is easy for me to modify budget information and reports (or have them modified for me).
- I easily get access to very detailed information in order to investigate budget deviations.

Finally, based on the results, the perceived *flexibility* of budgeting processes is, on average, above average, but only slightly so.⁵ Mostly low rating on the following two items reflect flexibility (mean scores ranging from 3.2 to 3.7):

- I can only make expenditures that have been built into the budget.
- Discussion during the budgeting process focuses on ensuring strict adherence to original assumptions

Mostly relatively high ratings on the following statement suggest a lack of flexibility:

- It is imperative that we adhere strictly to the predetermined budgeting process.

Success of budgetary control processes and information systems

Table 5 shows that, on average, the success of budgetary control and information systems is perceived to be above average (with a mean of 4.5 out of 7). But the results also show extensive variance in the scores of the responding managers.

The statement that “overall the benefits of our budgeting process outweigh the costs” gets a relatively high average value (5.0). The vast majority (69%) of participating managers either completely (11.0%) or fairly strongly (58.4%) agree with that statement indicating satisfaction with their processes. 17.9% of the participants respond in a neutral way. At the other extreme, only 0.6% of the respondents (i.e., one respondent) seem completely dissatisfied with the cost-effectiveness of their budgeting process.

Table 5. Success of budgetary control processes and information systems
(1 = completely agree, 7= completely disagree).

The responses as percentages:

	1	2	3	4	5	6	7	N	Avg.
Overall the benefits of our budgeting process outweigh the costs	0.6	3.5	8.7	17.9	33.5	24.9	11.0	173	5.0
Overall the benefits of the information systems that we use in our budgeting process outweigh the costs	0.6	5.8	11.0	23.1	28.9	21.4	9.2	173	4.8
I am convinced that our budgeting process is the right tool for managing this business unit	3.5	8.1	17.9	26.0	23.7	17.3	3.5	173	4.2
I am convinced that the information systems that we use in our budgeting process are the right tools for managing this business unit	2.9	9.2	23.1	24.3	24.3	14.5	1.7	173	4.1
Total								173	4.5

A mean score of 4.8 is obtained for the statement that “overall the benefits of the information system that we use in our budgeting process outweigh the costs”. Most respondents (59.5%) agree either completely (9.2%) or fairly strongly (50.3%). Here the share of neutral responses is a bit higher than above (i.e., 23.1%). The share of respondents not finding their information system that cost-efficient is 17.4%, although only one respondent (i.e., 0.6% of participants) seems completely unsatisfied with the cost-effectiveness of their current budgetary information system.

The final two statements concern the issue of whether the existing budgeting process and information systems are the right tools for managing the business unit. On average, both statements obtain only slightly above average scores (i.e., 4.2 and 4.1, respectively). For both questions, there are substantially more responses around the center of the scale. About one third of the respondents (29.5% and 35.2%, respectively) disagree with the statements to various degrees, about one fourth expresses neutral viewpoints, and quite many agree with the statements to various degrees (44.5% and 40.5%, respectively).

6. Summary and conclusions

This study has examined the use and success of budgetary control processes of 86 large Finnish firms. The empirical evidence reported in this study has been collected from a mail survey. A total of 174 responses were received from about 89 business units and 75 firms. Therefore, most of the respondents participated in the survey (58% of the respondents and 87% of the firms).

The main findings of the study indicate that, overall, all the investigated types of budgets are used in the investigated business units. Furthermore, many business units use more than one type of budget simultaneously. In essence, the results indicate that fixed budgets are the most popular, followed by revised budgets, rolling budgets, hybrid budgets, and flexible budgets, in that rank order.

Second, a wide range of information system software packages appear to be used in budgeting by the investigated business units. The results also suggest that standalone systems are perceived to be most popular in budgeting, followed by integrated corporate information systems and a combined use of both types of systems.

Third, on average, managers perceive to use budgeting processes in a relatively enabling manner. On average, budgeting's perceived *local transparency* seems fairly high, *global transparency* and *repair* relatively high, and *flexibility* lower, but still slightly above average. These results suggest budgetary processes are relatively enabling manner according to most managers.

Fourth, on average, the vast majority of respondents appear to take a positive standpoint towards their existing budgetary control and information systems (cf. Ekholm & Wallin, 2000). Most respondents now agree fairly strongly or completely with the thought that the benefits of their budgetary control and information systems outweigh the costs. Moreover, most respondents strongly or fairly strongly agree with the thought that their budgetary process and information systems are the right tools for managing their business unit.

These results extend available research information on the budgetary control and information systems of large Finnish industrial firms in at least the following ways: First, the sample was larger than in prior studies. Second, the study described and analyzed both the use of budgets and budgetary information systems in a systematic way. Third, the study described and analyzed the extent to which managers perceive to use budgetary processes in an enabling way. Fourth, the success of such systems was also assessed based on managers' perceptions. Whilst this empirical research has been conducted in Finnish firms, it should have relevance in increasing understanding of budgeting in general.

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