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Accounting information as a strategic decision

1 –Introduction

1.1 Objectives and Research Questions

This thesis seeks to develop our understanding of the design and operation of management accounting information systems in supporting and implementing the strategy of the organization. Management accounting has been specified by the Institute of Management Accounting (1997) as a continuously approved process, which adds value to the organization, is used to plan, process and produce non-financial and financial information for steering managerial work, to motivate behaviour and maintain the cultural values in order to fulfil the strategic, tactical and operational targets. The elements in the management accounting are

1) the management information system, which has many dimensions and is a combination of many planning and control systems, 2) producing information for management decision making and assessments and 3) making the organization more effective than before. Management accounting controls are considered as part of the organizational controls: according to Watts & Zimmerman (1990, p. 134) the ways to organize finance politics and accounting methods are similar technology as the production technology. Systems, including also the accounting, can replace the market prices within the organization and can be used for allocating organizational power, measuring, rewarding and punishing management of their work (Meckling & Jensen, 1986). For example ERP (enterprise resource planning) systems are systems with a potential to change the management accounting (Chapman & Chua, 2003).

The question is how to produce information, that makes the organization more effective than before and what are the dimensions having an effect on that. The motivation for the thesis is the insufficient information in the literature concerning the elements of control systems (the system, producing the information and making the organization more effective).

The motivation for this research arises due to two deficiencies in existing literatures on organizational control systems. First, how management control systems are used as a combination in the organization? The aim is to develop a management control systems classification contributing to our theoretical understanding of the value management control systems can have in fulfilling the goals of an organization. Second, what elements should be used in the decision process to get value from the management control systems and is there a macro-level model for understanding the success factors associated with management accounting projects (Wixom & Watson, 2001)?

The motivation for the first research question “how management control systems are used as a combination in the organization” arises from the deficiencies in existing literatures on organizational control systems. Contingency-based research study of management control systems assumes that managers have an intention to adapt their organizations to changes in contingencies in order to attain fit and enhanced performance (Chenhall, 2003). Contingency-based research has focused on specific elements of accounting controls, generic information dimensions of management control systems, but with a limited number of studies examining broader elements of control or integrative mechanisms (Chapman 1998; Merchant 1985b; Otley 1980, 1994). A way of addressing the deficiencies is to identify a variety of control taxonomies and consider their relation to various aspects of management control systems (Chenhall, 2003). A new stream of literature has been related to the role of strategy as used in the traditional organizational model in ways that suggest important links between strategy, environment, technology, organizational structure and management control systems. A limited number of studies have investigated the potential of management control systems to aid managers in implementing and monitoring strategies, providing feedback for learning and information to be used interactively to formulate strategy. Simons, and a few others, have observed that top management use control systems differently on different decision contexts, e.g. selected control systems interactively and others diagnostically in order to give signals to the organization and concentrate organizational attention and

therefore direct plans and new strategic initiatives. The usage of an interactive control system is an element of the strategic choice according to the research and can e.g. be based on the ability to produce data of factors, which are experienced to be uncertain (Simons, 1991; Child, 1972, Lainema, 1996, p. 05). Simons used the 9-S frame of reference in 30 organizations and classified the interactive control systems to projects, revenue planning systems (ex. budgets), brand budgets, knowledge systems (collecting and analyzing data from the social, political and technological environment) and personnel development systems.

Accounting and controlling phenomena are connected to the elements of controlling, which include the controlling environment, targets and risk management, information and communication, controlling activities and monitoring (COSO, 1992, Gosselin, 2003, p. 208). The controlling environment consists of the management and the structure of the organization, culture and values. The controlling environment, target and risk management includes management systems, which are used to allocate resources (the logic of causality) and costs (the logic of valuing), to coordinate activities, e.g. by using budgets, to organize the functions needed to fulfil the targets and steer the activities towards the selected targets (the logic of piloting). As one system may not have all functionality needed in the steering, there is a need to combine the systems, for example the French Tableau de Bord does not have the functionality of organizing the functions (Lebas, 1996, p. 74-99). By combining the systems the organization may get value based on the resource theory as resources are complementary to each other and by combining them the organization may achieve sustainable performance advantage (Powell & Dent-Micallef, 1997).

Control mechanisms can include a target without considering the changing, not anticipated environmental circumstances, e.g. the formal diagnostic system using a cybernetic control model (ex. Volberga, 1996). In the cybernetic control model the level of target, macro or micro, or number of measures does not change the situation, for example the balanced scorecard having many measures is not basically different from the system with a one-dimensional target (Haartman & Vaassen, 2003). Other models have been developed in order to correct the shortages in the cybernetic control model. Both in the organizational theory and the agency theory the formal controlling and hence agreements and rewards can be based either on the result or on the knowledge of the input-output transformation process and possibilities to measure it (as in the model of Ouchi, 1979). The controlling object reference model (formal instruments and procedures) of Merchant (1982) has been influenced by the contingency reference model of Thomson (1967), behavioural and social views of Ouchi (1979) and the organizational culture model (1998) supporting trials and integration of the organization to the changing environment. The strategy implementation reference model of Simons (1995, 2000) includes some of these viewpoints.

Control mechanisms have been classified to formal and informal, based on social or personnel strategies (Hirsch, 1996).

Information and communication element of controlling exists in the knowledge management perspective of organizational systems. Knowledge management needs more research (Bogner et. al, 1999). Knowledge management consist of an integrated chain of information, communication and business part (Hartmann & Vaassen, 2003, Picture 1):

- information part includes the technology needed to produce information
- communication part includes the processes needed to communicate the information to the business processes (the ability to effectively communicate may itself be a source of competitive advantage: Tucker et al. 1996; Daft & Lewin 1993; Grant 1991; Schulze 1992; Amit & Shoemaker 1990)
- business part includes the business processes, for example purchase, sales, production, decision making and personnel management.

Feature	Business part	Communication part	Information part
Control...	...an effective way to produce and integrate knowledge	...effective processes to produce reliable and relevant information	...effective planning and use of information systems
Target of control	Business processes - purchase, sales, etc.	Communication - reporting economic, operative, internal and external situation	Information systems - IC applications
Complete control...	...enable a quick adjustment to the changes in the environment	...produce relevant and reliable information on time to users	...Dynamic and continuous optimization of IC systems
Examples of control	Business control - personnel, culture, results, believes (=routines, order, rules and instructions, problem solving in groups, decision making)	Communication control - control of activities and results (system controls), the target is quality of information, personnel and cultural controls to ensure know-how and motivation	Information control - controls to secure, that there are personnel and cultural controls for the know-how and motivation of IC usage

Picture 1 Control of knowledge management (Hartmann, Vaassen, 2003, p. 112-132).

Controlling activities and monitoring consist of the monitoring of the economical, institutional and internal environment of the organization and include also the evaluation of efficiency and effectiveness of the control systems used in the organization.

Institutional theory has been used to explain accounting phenomena (Berry, Capps, Cooper, Ferguson, Hopper and Lowe, 1985; Mezas, 1990; Carpenter and Feroz, 1992; Gibbins, Richardson and Waterhouse, 1992; Power, 1992; Covalski, Dirsmith and Michelman, 1993; Bealing, 1994; Abernethy & Chua, 1996). Institutional environment influences the control system design (DiMaggio & Powell 1983; Zucker 1988). Also strategic choices effect to the selection and development of management controlling systems and other controlling system, which may be alternatives for making changes in the management information system (Abernethy & Chua, 1996, p. 598-599). For example in a Swedish research (1992) those selections are based on the priorities and politics of the management (49,6 %), habits (27,8 %), not understanding well enough other than the management information systems (26,1 %) and not having enough knowledge (22,6 %) (Ask, Ax, Jönsson, 1996, p. 210). According to Abernethy & Chua (1996) new belief systems require except sponsors also technologies of control, that give material effect to abstract norms and rhetoric. There is the

question of a framework to study how context influences the control mix (Simons, 1995; Abernethy & Stoelwinder, 1995; McKinnon & Bruns, 1992). Tuomela & Partanen (2001) state also, that the competitiveness of accounting needs more research.

By using resource dependence and institutional theory the combination of management control systems is studied by seeking to answer to questions “does the combination of the control systems give value to the organization or not”, “are the management control systems and their parts aligned with the strategy or not; are they internally coherent”? The questions are divided further to the controlling element parts in the knowledge management perspective:

a) Information part

Recognizing accounting phenomena. According to the agency theory the controlling of an agreement can be based on the observation of input-output transformation activities, if the controlling party makes investments to the information systems allowing the actions of the agent to be observed and monitored (Kirsch, 1996).

Characteristics of information. The research results of Chenhall indicate that the strategic performance dimension integrated information is a tool, which helps the management to obtain positive strategic results (Chenhall, 2005). Performance measurement systems improve the strategic competitiveness of an organization, if they concentrate to the connection of strategies and operations and get understanding of the interdependencies in the value chain (including the chain from the supplier to the customer). Also according to Sorensen (2003) the missing integration between the strategy and tactics makes it more difficult to implement strategic goals. Haas & Kleingeld (1999) adds, that the effects of business elements to the hierarchy and to the process they belong to should be reflected in the measures (Scapens, 1998, p. 25).

Systems. The systems in an organization specify the integrations according to Davenport (1998): if the systems are fragmented, the business is fragmented. According to the resource based theory the development of know-how has two phases: first is needed the technology of management accounting and the tools connected to it to combine the organizational human capital and relational capital (customers, etc.) and secondly the adopting the technology and tools (Roberts, 2003). According to Robson (1997, 88) and Hunton (2003) the general characteristics of an information system are: decision orientation, data processing, data management, flexibility, return on capital and risk assessment and management.

Management information systems can have many formats based on the technical judgement, but they have a common capability to take the possession of all relevant data, internal and external (Fan, et al. 2000). Their purpose is to let the management to concentrate to the core business possibilities, plan the resource allocation and undertake improving actions. Management control systems are part of the resources needed in implementing the strategy (Preble, 1992).

Measures. Measures support the implementation of strategy and the controlling of strategy (Langfied-Smith, 1997, p. 221, 228). Measures in the management control system must cover resources, output and flexibility (Beamon 1998, 1999).

Alignment of strategies. Alignment of business strategies and ICT strategy.

b) Communication part

Effectiveness of the communication. The organizational communication will be effective if processes and messages are valid representations of the performance (Malina, Selto 2001, Goodman 1998, Tucker et al. 1996); it supports organizational culture and includes knowledge sharing. The characteristics of effective organizational communication

processes are that messages are understandable and trustworthy and communication processes are routine, predictable, reliable and complete (Barker & Camarata 1998, Goodman 1998, Tucker et al. 1996).

Information. According to Lipe&Salterio (2002 in Maines et. al) the grouping of balanced scorecard measures to classes, in other words as a model, helps users to find out the overlapping in the performance measures and to adjust their performance estimates according to it.

The unified usage of non-financial and financial measures and reporting formats in different companies at different times suffers from the ability to compare (Maines et. al. 2002). According to American Accounting Association Financial Accounting Standards Committee the measures, non-financial and financial, should be evaluated with the same criteria that are relevance, reliability and comparableness.

Dimensions. According to the control model of Simons (1995) the scope of the management control includes four dimensions, which complement each other:

- the strategic direction of the business - key values can be used to control the direction
- a diagnostic control system – the basis for this is a cybernetic control model including the setting of a standard or a target, measuring the result and comparing it to the target and informing about the difference to the controlling entity (ex. Anthony, 1981)
- a restrictive system, risk management
- an interactive system – assumptions and activity plans are constantly questioned according to the external threats and possibilities.

c) Business part

Goals. Shank & Govindarajan include the value chain concept to the strategic cost management. The value chain concept includes activities from the supplier to the customer including the life cycle costs of a product. The strategic cost management is an essential part of the strategic management accounting, in which the target is to make a decision support system, which produces information to the decision makers (Malcolm Smith, 1995). The needs for the decision support system are to produce and analyze the cost behaviour by structural and activity drivers in order to be able to develop the strategy against the competitive advantage. The core of a business strategy is the customer value proposition, which is typically chosen from among three differentiators: operational excellence, customer intimacy and product leadership (Kaplan & Norton, 2000). Product and production costs are important to the cost leadership strategy, marketing costs for the differentiation strategy. Hunton (2002) has applied the value chain to the accounting value chain, where the accounting can add value in the business organization, especially in the internal activities, external connections and planning & controls etc. (certainty). For example flexibility, ability to make innovations and profitability are considered as the characteristic features of a modern organization, but they become real only when they are implemented and integrated to the management information systems (Mouritsen, 1999).

Adopting technology. According to the resource based theory the development of know-how has two phases: first is needed the technology of management accounting and the tools connected to it; secondly the adopting the technology and tools, which can be seen in the improvement of routines and in the organizational activities becoming more efficient (structural capital), for example as a better flexibility and shorter response times (Roberts, 2003).

Second, what elements should be used in the decision process to get value from the management control systems and is there a macro-level model for understanding the success factors associated with management

accounting projects (Wixom & Watson, 2001)? What are the factors, which get the controlling system to work and of the process of implementing the system (Sjöblom, 2003)?

Management accounting systems are considered to support the rational implementation of the strategy, but the research results concerning different strategies and supporting management accounting systems are fragmented and sometimes conflicting. A consistent classification between controls, contingency factors and the strategy is missing; there should also be more research of the applicability of different production controls and production strategies and the success of a strategy (Langfield-Smith, 1997, p. 221,228).

Chenhall (2005) has identified the strategic dimension integrative information to be an instrument, which helps the management to get positive strategic results. The empirical results indicate the importance of strategic measurement systems to concentrate on the integration of operations and goals and to the integration of elements in the value chain. Three information components of the strategic efficiency measurement elements were identified: 1) the ability to produce information, which links the activities to the targets and the strategy, 2) customer-orientation with ex-post measurements and post calculations and 3) supplier-orientation as links and measurements of the business processes and the innovativeness. The results of Chenhall support arguments, that measuring the performance may be a strategic management tool (Dixon, et. al, 1990, Kaplan & Norton, 2001, Lynch & Gross, 1995). The results indicate, that getting the integrative information did not depend on the system used: both organizations using and not using a balanced scorecard got integrative information from their systems; neither there was a significant dependence between the learning and the strategic target of low production costs: the reason may be in the according to the strategy applied production technology.

As the measures used by Chenhall were new, except the strategy, refining the measures has the possibility to complement the results, for example how the financial, customer-based, business process based and long term innovation measures depend on the information dimensions, e.g. integrative, completeness, future orientation and on time.

According to Otley (1999) the controlling systems must include the targets and plans of an organization. Strategic accounting has identified this need, but has concentrated more to new accounting techniques than to planning a total controlling system of financial as well as social, behavioural and cultural considerations.

The implementation of a management information system can be considered successful, if management can utilize effectively the produced information in the decision making and if the information has additional value compared to the information provided by the traditional systems. Contingency theory has been used to identify factors having an effect on the accounting information and its usage, examples of factors are differences in products, logistical and production processes and supporting activities, amount of periodical costs and increasing rate of indirect costs (Laitinen, 2003, p. 273-278). According to Williams & Seaman (2002) the changes to the accounting information systems contribute to the production of relevant information to the management, there are weak indirect positive effects to the performance of an entity with many abnormal tasks and less effects in case the tasks are difficult. The regression coefficients were

statistically significant, however the coefficient of determination in the model was low ($R^2 = 65, 5\%$).

Possible reasons for the low coefficient of determination in the model may be the circumstances at the point of the research; the research target group: accounting people; the accounting information system change as one combined variable; homogeneity process of accounting practices (ex. Granlund & Lukka, 1998) so, that economical and institutional pressures (DiMaggio & Powell, 1983) standardize accounting practices to hygienic and cosmetic changes without giving strategic or competitive advantage (Granlund & Lukka, 1998, p. 169) and contingency factors like the technology, uncertain environment, organization size (Child, 1981; Otley & Wilkinson, 1988; Fischer, 1995) and national culture (Granlund & Lukka, 1998; Chow et. al, 1999; Harrison & McKinnon, 1999).

The successful implementation of a management information system is the basis for a successful introduction of a measurement system (Laitinen, 2003, p. 273-278). Performance measures should reflect the contribution of business elements to the hierarchy they belong to and interactions with other business processes (Haas & Kleingeld, 1999; Scapens, 1998, p. 25). Chenhall (2005, p. 414) has approved, that the performance measurement system approves the organizational strategic competitiveness, if it concentrates to the combination of targets, strategies and operative actions and produces understanding of the dependence relations in the value chain.

The knowledge about changes to accounting information systems is minor according to Libby and Waterhouse (1996, p. 137) and the knowledge about the forces which cause or prevent changes is still smaller. According to Bromwich & Bhimani the process to get changes to accounting systems is hard to start and execute. A study in practice indicates that the change process stops to a partial solution for a long time, e.g. the SAP-ERP projects in 17 Finnish companies had reached 77 % of the level of business benefits possible with the system (a research made by Capgemini, SAP and IDC, Kauppalehti 20.4.2004, Sahiluoma, Veijo). According to Abernethy & Chua (1996, p. 598-599) the planning of accounting information systems did not either follow organized stages and more research is needed of this. Research results indicate the need to integrate management information with operative activities and make the operative activities more effective by measuring the quality, delivery effectiveness, customer satisfaction, etc. This means also, that the communication of accounting information must be understandable to the interest groups, pay there attention to matters, which need decisions (Bromwich & Bhimani, 1994, p. 5, p. 232).

The changes in an organization can be divided to two categories according to Levy. First category changes take place within the natural growth and development of the organization and cause only minor changes in the existing routines and practices (Scapens, 1998, p. 59). Second category changes take place in the core processes, goals and targets, culture and the organizational conception of the world and paradigm (Levy, 1995, p. 101-114). They may be meaningless changes to informal processes, but revolutionary while having an influence on established courses of action (Scapens, 1998, p. 59).

Preconditions for the second category changes are (according to Lundberg, 1984):

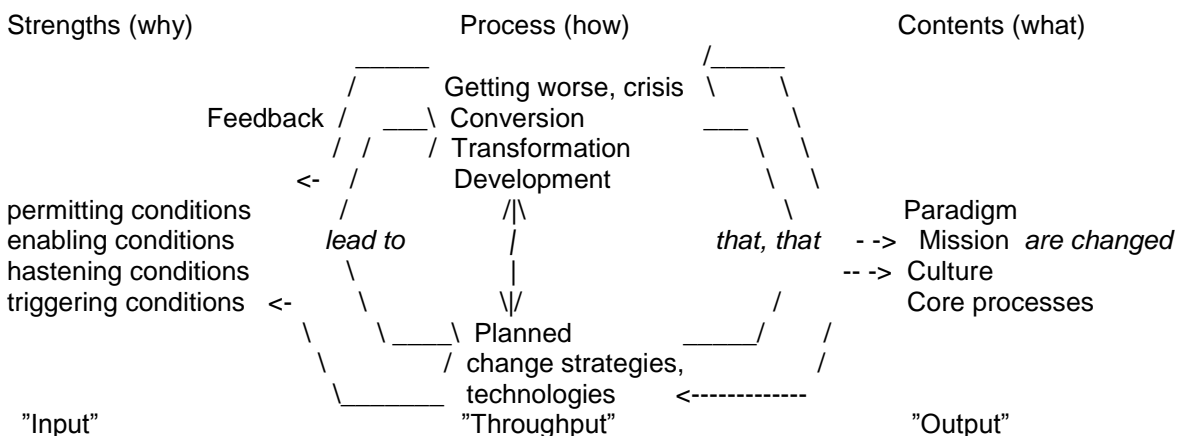
- 1) permitting conditions - the readiness of the organization to changes: resources, readiness and willingness of the steering group to tolerate uncertainty, management of the change
- 2) enabling conditions - external circumstances increasing the probability of change: economical threats for the existence of the organization, threats from competitors, customers, etc.
- 3) hastening conditions – growth of the organization, decrease of the organization, pressures from interest groups, new needs, organizational performance is not according to goals
- 4) triggering conditions – environmental events, which have effect on the competitiveness of the organization, ex. product innovation, accident, technological changes, new ideas from a new management member, legislation, organizational arrangements (ex. acquisitions).

A change includes phases: 1) getting worse, crisis: external and internal change needs cannot be properly fulfilled, warning signals are not noticed or they are not handled; 2) conversion: the need for change is recognized, the old way of doing things is abandoned; 3) transformation: this phase includes planned and coordinated efforts to transform ideas and visions to actions, programs, structures and processes. The focus is on finding solutions to transform from a state of instability to a new state of stability.4) establishment and development takes place, when changes have been converted to institutions. The change has effects to four perspectives (Picture 2).

Perspective	Changed elements	Changed dimensions	Visibility
Systems	"Input", "output", "throughput" processes	Organization structure, management, processes, rewarding, reporting	High
Management	Goals, targets, policy, strategy	Mission and purpose	Medium
Planned change	Norms, values, beliefs	Culture	Low
Evolution	Contents, model, meta-rules (rules of rules), view of the world	Paradigm	Not noticed

Picture 2 Change

According to Levy the second level change is a process, where the strengths causing the change are input, throughput and output. The process is based on an open system framework, which makes the process more dynamic and open. The model includes feedback loops, which influence on circumstances, processes and change strategies (Picture 3). According to Welti (1999, p. 92-93) the ability of accounting systems to make organizational activities more effective and efficient there are preconditions to adjust processes, the organization, methods and procedures and the information technology with each other ...



Picture 3 Second level change

1.2 Motivation

The argumentation for the role of accounting information in supporting the implementation of a strategy has been insufficient. Accounting researchers have not been able to explain the many dimensions of the strategy and only a few researchers have considered the multi-dimensional characteristics of strategy (Nyamori, Perera & Lawrence, 2001; Langfield-Smith, 1997).

Due to the missing consistent frame of reference between the strategy and management information systems, it has been difficult to accumulate knowledge.

The research of the role of accounting information from the strategic viewpoint has been mostly investigating the accounting techniques. Instead of focusing on techniques and whether they have been adopted or not, there is a need to engage strategy and accounting information, for example how different accounting techniques and practices are mixed and how the way of using them diagnostically or interactively effects on the organizational learning and through it to improving performance and observing the needs for strategic change. The contents of the strategy is not critical from the understanding of relationships between the controls and the strategy as the management can use different viewpoints of the controlling systems to consider important dimensions from the implementation of the strategy: key values, interactive controls, restrictive systems and diagnostic controls (Simons, 1995). Accounting information systems can encourage or prevent the acquiring of information, delivering of information, interpreting information and the usage of organizational memory. Management information system should function as a self-guiding systems theory: control the activities by being reflective and by following beforehand agreed on processes without discouraging the initiatives in the organization with measuring formats (Seal, 1999). Besides systems also accounting methods and variables have effects to the organizational performance (Chenhall & Langfield-Smith, 1998). Following properties of the management information system have been identified as factors effecting on competitiveness (Seal, 2001; the effect on competitiveness is in parenthesis):

- registration (-0,25), negative effect to competitiveness; the development of the registration may not have got attention as the registration has always been there;
- improving the understanding of an individual (0,17);
- paying organizational attention to the improvement of strategy and tactics and learning (0,45),
- legalizing decisions (0, 30).

Many theoretical perspectives have been used in management accounting research (Marginson, 1999): management controlling with focusing on goals and adapting the activities within the strategy in order to fulfil the goals; cybernetic control within systems and by systems for fixing the activities and for questioning and re-evaluating the goals; focusing of organizational behaviour to get more objective explanations for the observed phenomena and contingency theory with ideas to adjust the controlling system with the conditions under which it is planned to work, with other words the conditions have an effect on the way of controlling.

The contingency theory approach has been used when trying to demonstrate the adjustments between the performance in the organization and the environment, strategy, internal structures, systems and controls (Govindarajan & Gupta, 1985; Govindarajan, 1988; Rockness & Shields, 1984), the needs of information processing, the know-how connected to it and their influence on the internal processes (Chapman, 1997), the factors having an effect on combining management information and other functions and the phases in the coordination (Roslander & Hart, 2003).

The contingency theory results have been inadequate due to incomplete variant selection, way of measuring, sample, insufficient organizational functions and environmental factors (Ouchi, 1977, 1979; Ouchi & Maguine, 1975). Institutional theory has been considered to suffer from same kind of weaknesses as the contingency theory – an inadequate consideration of the relationships between environmental/institutional determinism and the strategic intentions of dominant coalitions (Abernethy & Chua, 1996).

Case studies have been used to find out how management control systems support and have influence on the strategic processes in the organization (Langfield-Smith, 1997). The target has been to find out, how management control systems and the strategy interact with each other, not necessarily to find out the best fit between the control system, strategy and other variables. Research results give support to the fact, that the strategy can be supported by using formal and informal controls as a combination, as complements and replacements to each other (Marginson, 1999); also management meetings and observations can be a combining factor between management information systems and the implementation of the strategy (Archer & Otley, 1991).

The aim of this research is to fulfil the gap between the strategy and management information by considering the strategy as a comprehensive total frame of reference serving the goals of the organization and as a way to get competitive advantage (Nyamori, Perera & Lawrence, 2001) by using the management accounting as a resource in achieving those goals. The characteristics of the control system and a special strategy (accounting information) are examined (Langfield-Smith, 1997). In order to avoid the complexity of the innumerable variables and their relationships (Marginson, 1999), this research uses the accounting value chain of Hunton (2002) as a frame of reference. Accounting value chain classifies accounting information based on its value to the organization from the less valuable to the most valuable: 1) recognizing accounting phenomena, measuring and saving data; 1) planning, integrating and innovating business/information processes and 3) creating, managing and integrating business knowledge. According to the classification of Hidding the accounting value chain of Hunton belongs to the static methods in the strategy theories (a value chain, which analyzes internal, special activities which create value and also enlarges the sphere of activities with other organizations by using agreements or cooperation). The implementation of this kind of systems includes also social phenomena (Castello, 1996, Sotto, 1997). The elements in the accounting value chain are related to the resource based dynamic theory of an organization, where the company (or a strategic business unit) is a bundle of resources, which include tangible and intangible resources, capabilities of development and skills, also resources which complete each other in a synergetic way. According to the resource based theory the

development of know-how has two phases: first is needed the technology of management accounting and the tools connected to it to combine the organizational human capital and relational capital (customers, etc.) and secondly the adopting the technology and tools, which can be seen in the improvement of routines and in the organizational activities becoming more efficient (structural capital), for example as a better flexibility and shorter response times (Roberts, 2003). The aim of this research is also to add the understanding of the factors, which get the controlling system to work and of the process of implementing the system (Sjöblom, 2003).

1.3 Contribution

The aim of the research is to contribute to the literature in two primary ways. First the controls and combinations of controls are classified from the management accounting viewpoint by using as basis their ability to deliver value to the organization and secondly the action-profit model is applied to make the value production operative.

Accounting is an information system, which has the target to help decision making and control (Demski, et al, 2002). The decision of an information system is connected to the question of the scope of the system and the integration of the system. Anthony & Scott Morton (1975) did not support a planning concept of fully integrated management system, because in general the problems on the operational level are more structured, but not on higher levels. In the structural area the problem of implementing an information system is in principle to implement a general model in a certain organizational context. On the other hand, work in the unstructured areas is more involved with the development of a model to support identified critical decisions. In a fully structured problem the data, alternatives and the choice of a best alternative are fully structured. ERP (enterprise resource planning) systems, becoming more, common have had an effect on the sphere of activities of accounting (Chapman & Chua, 2003). According to some researches the ERP system is a total system to the information needs of an organization (Brown & Vessey, 2000). ERP systems make it possible to integrate data throughout the organization, but their standards have effects to the functionality of an organization (Davenport, 1998). The research of Chenhall (2005) support measurement systems of the organizational strategic competitiveness, with which it is possible to recognize the connection between goals, strategies and operations and learn about the connections in a value chain. Results were got with different measurement systems both organizations using the balanced scorecard and organizations not using it got integrated information from their performance measures. Hunton (2002) has extended the value chain idea to the accounting value chain and has specified areas, where accounting can add value in the business organization. According to Hunton accounting can produce value to an organization in the internal activities, in the external connections and by means of planning, etc. verification (reliability). With planning etc. verification it is possible to make sure, that the accounting information system is coherent with other controlling systems and fulfils the requirements of controllability, validity, completeness, cost-effective measurability, specificity, relevance and comprehensibility (de Haas, Kleingeld, 1999, Van Tuijl et al., 1995). By classifying accounting controls techniques the target is to fill the gap, that there is not a universal

adopting and understanding of accounting techniques (Nyamori, Perera & Lawrence, 2001). This question is approached from the accounting information value perspective.

Accounting information as a strategic decision targets to fill the gap, where only 30 percent of the implementations of systems resembling information resources management systems (such as management information system, decision support system) have been successful according to Standish-group (www.standishgroup). The reasons for low success percent has been considered as the lacking understanding between the requirements of a task and the characteristics of the system (Shultze&Boland, 2000; Mauldin&Ruchala, 1999); the minor commitment of the management (comments are needed on the political level, not on the technical or detail level); minor commitment of users (too optimistic plans and too complicated systems); data system (knowledge of the new tools and technological changes and guidance in participation) (Brookes, Grouse, Jeffery & Lawrence, 1982, in Robson, 1997, 90); not using the full potential and the inadequate examinations of the capital budgeting literature concerning of the real investment decisions in practice (Miller & O'Leary, 1997).

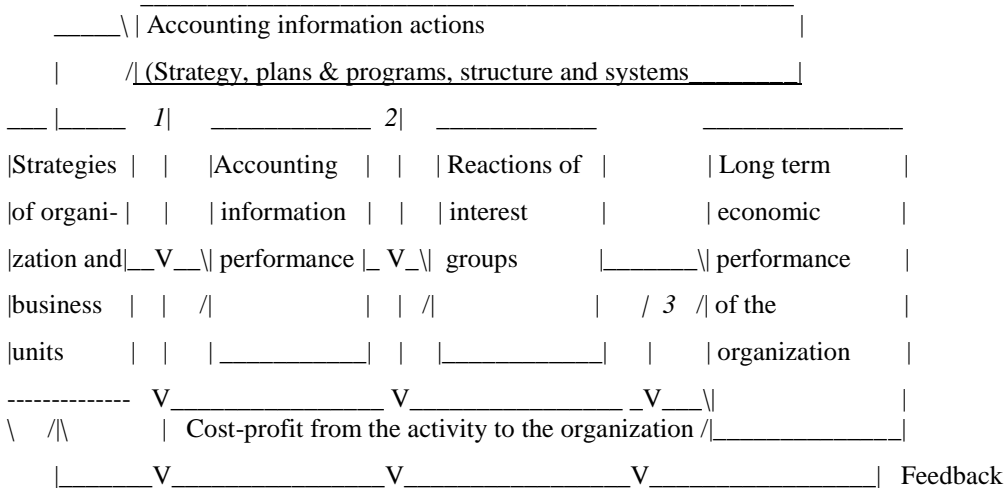
Realizing, that management accounting is organizational rules and routines should give prerequisites to develop management accounting ideas, constructs, techniques, systems, etc., which are useful in practice rather than so called optimal techniques planned for an abstract, rational decision (Scapens, 1998, p. 66). The research of Miller & O'Leary (1997) gives support to the influence of processes and mechanisms instead of results and implementation. The action-profit linkage model of Epstein&Westbrook (2001) is based on the idea, that any activity in any action of an organization has effects to the total profitability. This research applies action-profit linkage model first as a conceptual frame of reference and then applied to the practice.

1.4 Structure of Proposal

First the strategic position of management accounting information is outlined (the strategic frame of reference, how accounting information can be strategic and the accounting value chain). The research question is specified by using the interpretive concept research. The elements of accounting information are specified and itemized to decision making, management accounting system and performance. Models used in studying conditions between actions and profit are checked out to select a model, which is used to investigate the effects of accounting information actions to the economical performance of the organization. The elements of the action-profit linkage model are specified by using the interpretive concept research. The action-profit linkage model has as basis the strategies of the organization and business units. The actions and action decisions follow the strategies. Action decisions are the basis for building linkages from actions to performance, to reactions of interest groups and to the economical performance of the organization. The performance component gives feedback for the changes in the strategy. The phases of the model instead of the strategy phase include measuring and selecting proper measures (Picture 4).

The accounting value chain (Hunton, 2002) is used to locate from its external connections, internal activities and planning & controls the objects of accounting information connected to the strategy, which need

development or are barriers for the development and action research and the positivistic model based empirical testing in case organizations is used to prove the applicability of the action-profit linkage model to the strategic framework of accounting information. Financial management is interviewed in order to get reliable research results.



1 and 2 indicate different places/time, when the action can take place
3 indicates, that the reaction can have an influence on the economic performance of the organization and as feedback to the change in the strategy of the organization

Picture 4 The effect of accounting information actions to the economic performance

Conclusions are made on grounds of the research, based on which the model can be defined more.

2 – Management controls as a combination in the organization

2.1 Introduction

Section 2 outlines the first research question: how management controls are used as a combination in the organization. Section 2.2 provides an overview of previous literature and empirical research concerning the controlling and control systems including management accounting controlling systems. The conceptual and empirical research concerning control systems gives a basis for the research question by highlighting a number of key issues and highlighting the limited understanding of control systems. Chapter 2.3 provides a theoretical justification to research management accounting systems as a part of the value chain. Chapter 2.4 outlines the accounting value chain, which is the basis for the both questions in this proposal. The framework of management control systems is more holistic than in the previous literature. Since there is little research concerning a holistic view of the accounting, an exploratory approach is taken without setting apriority hypotheses.

2.2 The strategic position of accounting information in the organization

The framework of strategy... Strategy theories provide basis for methods, which Hidding (2001) has classified as static or dynamic in regard to change and competitive interactions. Static methods include the

value chain, which analyzes internal, specific value adding activities and also extends the sphere of activities with other companies based on agreements or cooperation. The implementation of systems for a virtual organization or a network brings social phenomena to the cooperation (Castello, 1996, Sotto, 1997). ...

How accounting information can be strategic? ... The use of information can be divided to three groups: 1) to solve well structured problems, management accounting information being an instrumental answering machine, 2) information is used to develop a management database, the function of accounting is to be an internal model or as a language, a shared way of communication for management and employees, this kind of information usage is called conceptual and 3) “symbolic” information in case employees have difficulties to understand the real data or the data is classified (Weber, 2001). The best information system fits very comprehensively into the management decision making. According to Weber 73 % of the CEOs in Germany use the conceptual model of information usage, because they have learned to this. The precondition for using a certain information usage model is that the management and users know the vocabulary/terminology and grammar used in the information usage model. According to Amigono et al. (2003) the common accounting language to parties acts as a frame, as an integrated structure providing a shared interpretation of transactions, sharing the meaning and unifying it (Boland 1993; Boland and Tenkasi, 1995). The accounting information production can be classified as a commodity (which can be outsourced) or an activity adding value (Schultze & Boland, 2000). ...

Accounting information and the strategic perspective in the empirical research

According to Hopwood (1978) and Otley (1980) management accounting information systems are only one way of controls used in the organization. Ouchi has developed a framework of organizational control based on contingency theory (1977, 1979; Ouchi & Maguire, 1975). The framework consists of three parts: the characteristics of tasks as independent variables, the organizational control as dependent variables and the intermediate variables between them. According to Ouchi and others the controlling depends on the task characteristics, in the first place on the know-how of the input-output process and measurability of the output and in the second place on the complexity of tasks and on the dependency of tasks on each other. The organizational controls can be classified according to Ouchi to input controls including for example social controls and cost budgets; behavioural controls and output controls. Behavioural controls include formal rules and task instructions. According to Ouchi the output control is the external market. The output control is the most efficient and cheapest form of control, if the output of a task is measurable. Behavioural control is most efficient for tasks requiring a high know-how in the input-output process without a possibility to measure the output efficiently in time or at all. Social control is most important for tasks with low know-how of the input-output process and without a possibility to measure the output efficiently in time or at all. Rockness & Shields (1984) applied the framework of Ouchi to R&D (research and development). Their research supports most the dependence of know-how and input-output process, but only little the assumption, that the importance of the control is effected by the characteristics of the task, measurability of the output, task dependency on other tasks and the complexity of tasks. The minor support to the Ouchi’s control framework may depend on the selected variables, way of measurement or sample, but also on the insufficient

consideration of different organizational and environmental factors. Rockness & Shields propose a wider perspective for studying the organizational control and the relationship of different organizational connections, structures and affectivity and efficiency controls. Chapman (1997) states in his contingency view, that the need of information processing in the company is predetermined by the need to process uncertainty. The cause of uncertainty is not only the external factors, but also the internal factors in the organization, such as know-how and the factors having effects to the internal processes. The role of accounting can differ based on the level of uncertainty. When the consequences can be anticipated there is a possibility to plan accounting activities beforehand and reduce the communication need during the activities. In the reverse case there is a need to collect data and to communicate it, in which case the processing of information may function as a learning machine. From the viewpoint of uncertainty increasing uncertainty requires additional investments to the vertical information systems. In addition to making decisions on sole numbers there is also a need to consider the operative viewpoints.

Roslender&Hart (2003) research identifies strategic management accounting as a generic approach to accounting for strategic positioning. The strategic management framework is a basis, where management accounting is combined with other areas, especially marketing. The work of Bromwich (1988) and before that Simmonds (1981, 1982), was argued to exemplify this conceptualization of strategic management accounting. The target is to decrease costs from the strategic perspective by means of costing the product attributes against the customer demands and by means of costing the functions in the value chain providing value to the customer (Bromwich&Bhimani 1994, p. 128). Attribute costing gives an action model to the management as it necessitates a high degree of cooperation between management accounting and marketing management practitioners. Target costing, life-cycle costing and strategic cost analysis are examples of strategic management accounting techniques. This cooperation viewpoint as action model in operationalizing the strategy is different for example from the viewpoint of Kaplan&Norton (1996, 2001), where the strategy theory elements are integrated into the management accounting, as an example the balanced scorecard. Roslender&Hart conclude based on the field study in UK in common with the earlier conclusion of Guilding et al. (2000), that the strategic management accounting has a very limited significance for a great majority of practitioners: the cooperation between management accounting and marketing was routine. Based on the field study Roslender&Hart state, that there was a good deal of enthusiasm for developing the cooperation between management accounting and marketing and there was a need to measure brand performance. The companies in the field study were divided to three classes based on the relationship between management accounting and marketing management: the relationship of traditional nature (controlling, responsibility accounting), relationship of transitional nature (searching for new tools, traditional accounting functions well) and relationship of synergistic nature (more cooperation between functions and success in it). According to the study of Roslender&Hart (2003) the usage of strategic accounting techniques in the companies was very minor compared to their importance in the research circles and there is a need to get more research results in this area. The relationships between management accounting and other functions is a

potential research target: is it possible to identify a process, with which management accounting can be enlarged to different areas in the organization?

Hunton (2002) has stated a value chain for producing value of accounting. In the value chain the value of recognizing, measuring and saving accounting phenomena has been classified minor, more value is in the planning, integrating and innovating of business/information processes and the highest value is in the creation, managing and integrating of business information. This research applies the value chain stated by Hunton to classify the elements of accounting information. Hidding classifies the accounting value chain as a static method belonging to the strategy theories (a value chain, which analyzes internal, special value adding activities and also the enlargement of the company's sphere of activities with other companies based on agreements and cooperation).

2.3 The elements of an accounting and control system

How to conceptualize the phenomena researched

Management accounting consists of three elements according to Williams & Seaman (2002):

1) management information system, which has many dimensions and consists of many planning and control systems, 2) producing information for management decision making and assessments and 3) improving the organizational performance. The elements are considered by using the decision making perspective, accounting information system perspective and the performance perspective.

Decision making perspective From the information processing and cybernetic perspectives the decision making and information processing are considered as a function of the limited ability of a human to process information (Mackintosh, 1994, 58-61). This perspective tends to improve the decision making by enhancing the data collection and data retrieval activities, by making data bases, data base models and using real time data in decision making. ... From the information resource perspective the information can have value based on the speciality of the information or based on the timeliness of the information. Speciality of the information is highest when the acquisition and usage of information needs special knowledge, when the information speciality is low, data can be coded and moved, the knowledge can be converted to rules. Time speciality means, that there is a limited period of time for the acquisition and usage of the information (Sampler, 1998). The base idea in the decision making perspective is to get the right amount of information at the right time (Mackintosh, 1994, 58-61). ...

Accounting information system perspective ... Strategy theories refer also to systems as special factors explaining or forecasting the competitiveness (Hidding, 2001). Needs at different organizational levels, integration between levels ... Based on the research results of Van deer Veeken & Wouters (2002) and others the accounting system should give more support to the management in dealing with uncertainty, in learning and in activity based skills and make the communication between different management levels and different information needs easier. The information system could specify not only the plan, but also highlight the uncertain elements in the plan, describe reasons for the potential uncertainty and recommend solutions. Information systems could collect data from projects concerning the problems occurred and the

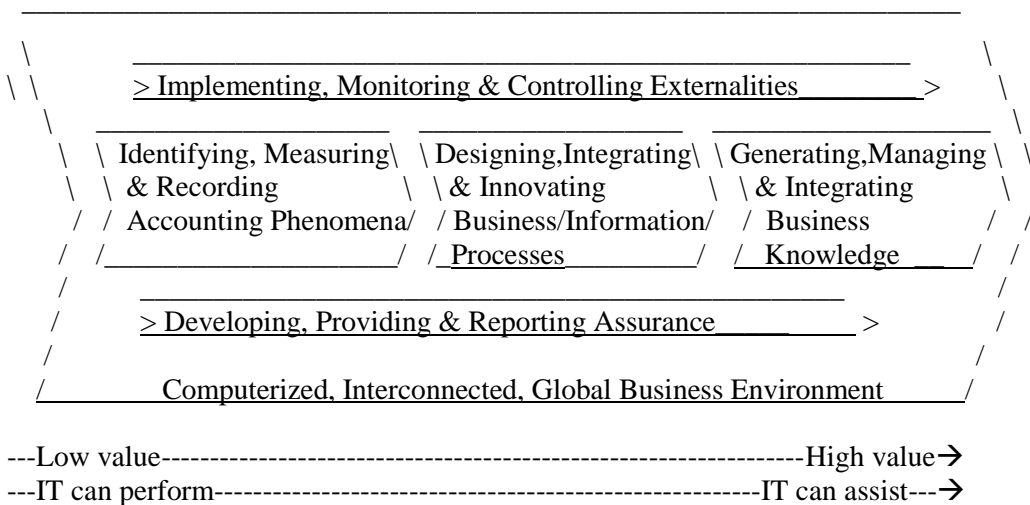
environments in which the problems occurred and the information could help management to anticipate possible problems beforehand. Institutional theory, strategic responses... There are the isomorphic forces, which push the organizations to get operative efficiency via accounting systems (Granlund&Lukka,1998), e.g. ERP(enterprise resource planning) systems have influenced the area of accounting and some researches have considered them to be a total solution to the information system needs of a company (Chapman & Chua, 2003; Brown & Wessey, 2000). But there are also the strategic responses of organizations to the isomorphic forces, where organizational choices effect to the acceptance, resistance and customizing of accounting practices (Oliver, 1991), e.g. to the fact that though ERP systems give a possibility to integrate the data throughout the organization, the standards included in them have effects to the operations (Davenport, 1998). The prerequisites for strategic changes are the ability to integrate the changes, the consistency and coherence of changes, implement ability of the changes and the desired effect from them (Vollmann, 1997). **Integration** means a clear link between the market requirements to strategic targets and further to special activities and realignment of processes. Coordination is a way to align the business possibilities and business needs in order to fulfil the information needs of the business (Bromwich & Bhimani, 1994, p. 126, 148-149). The primary strategic goal of integrated information systems is connected to the possibilities to find new integrated business models, to apply process thinking and to develop the operative effectiveness and competitive advantage (Davenport, 1998). ... In order to align IS goals and strategies with organizational goals and strategies Ragu-Nathan et al. (2001) have developed a six dimensional measure called STROIM (Strategic Orientation Of Information Management), which can be used to assess the extent to which IS management can facilitate the alignment between information systems and organizational strategies. ... **Consistency, coherence** is a prerequisite, that all actions are taken to the same direction and support each other. The prerequisite for information production is the infrastructure, which can be specified as a group of common ICT assets providing a basis for present and future business applications (Duncan, 1995). The infrastructure has been considered to give value to the business in the extent it can (or can not) support important business processes (Ross et al., 1996). Another prerequisite is to provide the data needed in the business processes by creating and maintaining data; by searching, organizing and distributing data contents and enable the combining of data by using technology and people (Papavassiliou, Mentzas, 2003, has specified data objects as components to provide data, Elliott, 2001 has identified inquiry languages, data warehouses, etc.). **Implementation** has a prerequisite, that the strategic accounting information has effects to the activities in practice that is the accounting information can be made operational. Operationalization can take time, especially to get innovative systems to work right takes time, needs objective evidence and careful analysis (Malina & Selto, 2001). The implementation of accounting information systems includes risks, which can be kept in control by limiting the scope of the system (Pant, Shethi, Bhandari, 2003). ...

Performance perspective ... Accounting information activities should according to the static strategic theory increase the value in the accounting value chain, internal activities, external connections and verification. According to the dynamic strategic theory resources, including the elements of management

accounting system (accounting system, producing data for decision making and increasing the performance of the organization), should support the previous target. Accounting information should include the processing of value creating components from the company strategy's standpoint (Ballou, Burgman, Molnar, 2004, 25-34). ...

2.4 Accounting value chain

Accounting value chain (Hunton, 2002, Picture 5) consists of areas, where accounting can add value in the business organization. The areas are internal activities, externalities and developing, providing & reporting assurance.



Picture 5. The Accounting Value Chain (Hunton, 2002)

In internal activities the possibility of accounting to add value is minor in the identifying, measuring and recording accounting phenomena, since these have often been automated. The value of accounting may come from the designing, integrating and innovating business/information processes or from generating, managing and integrating business knowledge. According to Elliot (2001) the producing of business knowledge with help of query languages, data warehouses, etc. may be the most important area from the value creating perspective.

a) The relationship of accounting information to the strategy. According to Simons (1991, 1995) it is not important to identify controls aligned with a specific strategy, but it is important to share management attention between controls. ... b) The relationship of accounting information to other systems and the usage of accounting information. ... The successful implementation and use of the system is a prerequisite to get profit from the system. Reasons for the minor use of the accounting information could be explained by the factors of information use: factual value of accounting information and the dominance of activity based skills (Van der Veecken and Wouters, 2002)... According to Johnsson and Grönlund (1988) information systems should support learning on lower organizational levels and be integrated at the higher organizational levels. Information systems should be flexible to give key indicators and diagrams for solving the problem in hand.

Information systems could collect information of completed projects including the problems occurred in them as well as the circumstances, in which the problems turned out. The information could be used to forecast risk factors in projects and in case of a problem search solution from an earlier similar case; the problem-solution database could be used also for evaluating the performance. (Ball, 1989; Watts & Zimmerman, 1990).

Externalities include the processing of input-output processes with an external partner.

The prerequisite for synergy advantages is the coordination of factors, which complete each other (Martinsons, Davison, Tse, 1999)... Accounting information actions are connected to the need to control non-integrated activities in an integrated way (Amigoni, 2003). The accounting information network consists of the integration of consecutive activities in the process (consecutive integration), preparing the resources and know-how needed in the operating of processes (integration between companies) and homogenization of the interpretations systems used in the decision process (cognitive integration) (Galbraith, 1972; Lawrence&Lorsch 1967; Weick, 1979). In the supply chain environment the target of measuring resources, outputs and flexibility is to get information in order to be able to improve the process. According to the literature there are three levels of analysis: transaction level, the relationship between companies' level and a network level, which is formed on the basis of a common target for many companies (Anderson & Sedatole, 2003, s. 39-40). ...The efforts used in selecting a good partner are supposed to decrease the need of formal control of the relationship; the need for coordination and formal control are also supposed to decrease with a sufficient level of trust, which belongs to informal control mechanisms (Dekker, 2004). ...

The value of developing, providing and reporting assurance includes the assurance of the quality and reliability of firm's business and information processes, assurance of knowledge management tools and techniques assuring the links between organizations... The desirable or normative characteristics of the information pronounced by an accounting information system can be categorized as informational, operational and formational in nature (Collins, Pasewark, Strawser, 2002). Informational characteristics relate to the ability to generate data relevant in decision making; operational to the implementation of the information pronouncing requirements and formational to the development of and continuous considering of the usefulness of the pronounced information. ...

2.5 Concluding Comments

Part 2 of the proposal outlined the background literature for the first research question: "how management control systems are used as a combination in the organization. The first section provided an overview of the literature on organizational and management control systems. From this discussion, it is evident, that little research has been conducted on management control system as a combination and especially from the knowledge management and value chain perspective. The second section outlined accounting information elements from the strategy perspective, which provides theoretical support for analyzing accounting

information as multi-dimensional phenomena. The final section outlined accounting information from the accounting value chain perspective. Part 3 considers, whether the accounting value chain can be made operational.

3 – Operationalizing the accounting value chain

3.1 Introduction

Part 3 of this proposal outlines the second research question: how to get benefit from the control system and which factors have an effect to the benefit? ...

3.2 Action-Profit Linkage model – introduction

To improve performance, management frameworks like Balance scorecard with strategy maps and value-based management (including shareholder value analysis and economic value added) concentrate on a better understanding of the drivers of value in order to help managers to make decisions to improve corporate value creation. Epstein and Westbrook have developed an Action-Profit Linkage model that focuses on better understanding the causal relationships and linkages within organizations which can be used to improve the profitability and increase the performance. The Action-Profit Linkage model has been used for example to focus on quantifying the link between sustainability actions, sustainability performance and financial gain (Epstein, Roy, 2001). The strategy of a company is the collection of activities or actions, which the company chooses to perform or not to perform. The main domains of action are operations, information technology (IT), human resources, marketing and sales, finance and accounting and external relations (Epstein, Westbrook, 2001). The framework has been applied except to sustainability actions also for example to the increasing of customer satisfaction level. Could the Action-Profit Linkage model be used as a framework to manage management accounting information as a strategic resource for the company? ... The goal in the Action-Profit Linkage model is not limited to the intermediate goals like customer satisfaction, loyalty or quality, but it is to concentrate to company's specific actions and their effects to employees, customers and finally to the profitability. ... Miller & O'Leary in their research raised a question of the discovery according to which capital budgeting literature includes only a few systematic studies about making investment decisions in practice. ... Milgrom & Roberts (1990, 1995) have studied earlier the effect of the coordination of integrated investments to the competitive advantage of the company. The results of Miller & O'Leary (1997) support the research results of Miller & Roberts, but the perspective of influences is more complex and is concentrated on the effects of the impacts on processes and mechanisms instead of the results and implementation. ... According to Miller & O'Leary new budgeting mechanisms are needed to obtain synergy advantages from the modern production technology investments:

- 1) new frames of reference in making proposals of investments, which can achieve savings by combining each other ...
- 2) new strategic control and approval mechanisms in order to increase the understanding of the fact, how assets can be complementary to each other ...
- 3) instead of conventional financial post-control new more advanced ways to control investments using appropriate financial and non-financial goals ...

According to the resource-based theory (Barney 1996) companies develop unique internal competencies to achieve competitive advantage. In the study of Caldeira & Ward (2003) the resource-based theory was able to explain, how unique factors in the company were able to get sustainable competitive advantage. The most successful companies in implementing information systems did not seek to get unique programs, but their target was to be ahead their competitors by using the know-how IS/IT. The study of Kirsh (1996) gives evidence, that management know-how is important and that the behavioural control of a complex activity is limited to the controller knowledge of the special activity. ...

3.3 Action Profit Linkage model

3.3.1 Action Profit Linkage model and external connections

The target of Action Profit Linkage model in the external connections is to control the profitability of strategic actions planned for the external connections and use feedback information in order to notice the needs for change. The external connection can be an integrated value chain ... (Anderson & Sedatole, s. 53; Pant, Sethi, Bhandari, 2003; Bromwich & Bhimani, 1994, p. 126, 148-149) or it can be a strategic value chain (Anderson & Sedatole, p. 40). ...

Picture 6 provides a conceptual framework of the Action Profit Linkage model in the external connections. The element of verification has been added to the original model as a new mechanism in the strategic control and approval of accounting information investments (the request for new mechanisms has been stated by Miller & O'Leary, 1997). The meaning of cost-benefit element is seen as a way to bring new ways to control the investments (Miller & O'Leary, 1997).

Corporate and business unit strategy			Measure	
Measure	Measure	Measure	Measure	
Accounting information actions (Strategy, 1)-> plans&programs, 2)-- structure&systems) 3)--	Accounting information performance ----->	Reactions of interest groups (stakeholders) ----->	Verification	Cost-Benefit
before establishing connections fit the targets and decrease the need for coordination with control mechanisms (designing, integrating & innovating business / information processes)	agreements - targets and risk management - control actions and monitoring		information producing requirements: clear, coherent; plan is practicable; benefits exceed costs; flexibility; verifiable results; ability to integrate strategic change and system; strategic change is desired; is effective; other characteristic	Decreasing the need for coordination during the relationship (2004); when results can be anticipated, the action can be planned in advance and decrease communication need during the action (Chapman, 1997)

<p>information of transactions (identifying, measuring & recording accounting phenomena)</p> <p>development of project like accounting</p>	<p>standards: in use/plans to use technology-based frames of reference (e.g. XBRL, eXtensible Business Reporting Language) and in them classifications, which enable the transfer of financial and non-financial data between different applications and companies?</p>		<p>Data usable in decision making</p> <ul style="list-style-type: none"> -data about economic reality - conceptual framework -solves a problem, supports decision making -increases comparability -favours current value - proper income recognition -confirms to standards -quality -reliability -influence on critical success factors -gives an "alarm" -other characteristic 	<p>Customer orientation: advance measures and post calculations; supplier orientation: links and measures of business processes and innovativeness (Chenhall, 2005). Information dimensions: integration; complete; future oriented; timeline</p> <p>-Veeken&Wouters (2002): indicate the unsure elements in plans, describe reasons of them and recommend solutions</p>
<p>planning a network and developing control systems (producing forecast and control data throughout the network, integrating management information) (designing, integrating & innovating business / information processes)</p> <p>investment management (designing, integrating & innovating business / information processes) (identifying, measuring & recording accounting phenomena)</p>	<p>the dimensions of the STROIM instrument: aggressiveness, defence; analysis; future orientation; proactiveness; conservativeness. Other measures. In the network:</p> <ul style="list-style-type: none"> -consecutive integration -integration between companies -homogenizing the interpretation systems in the decision process (Galbraith, 1972; Lawrence&Lorsch, 1967; Weick, 1979) <p>needs of the supply chain. What are the grounds used in realizing external connections and how have the grounds been used in realizing external connections? Does the realizing have phases? Coordination of changes? Implementation error risk (Miller& O'Leary, 1997). The preconditions for a second level change (Levy, 1995; Lundberg, 1984)</p>	<p>communication of accounting information so, that management realizes to pay attention to matters needing decisions (Bromwich & Bhimani, 1994)</p> <p>management of information and communication</p> <ul style="list-style-type: none"> -controls concerning employees and culture to secure know-how and motivation 	<p>Formational characteristics are connected to development and assessment of information production</p> <ul style="list-style-type: none"> -uses external input (research data, experts) -timely -revision/correction of standards -other characteristic <p>Accounting information as a means to achieve competitive advantage; a resource, which has characteristics of developing, providing and reporting assurance</p> <p>Capability to produce data usable in decision making</p> <p>A) Data processing (the system takes care of verification, certificates e.g. by using integrated verification modules, reliability, usability, right time and the effective usage if resources and there are technological frames or reference to transfer data between applications);</p> <p>B) Data control (the system maintains the base principles of data saving integrity/harmony, independence and integration)</p>	<p>Cost savings with the integrated delivery chain, adopting management accounting to operative actions and improvements in them, e.g. capital tied to warehouses, delays, value creation for the customer and the company (Anderson & Sedatole, Pant, Sethi, Bhandari, 2003; Bromwich & Bhimani, 1994). The ability of the value chain itself to handle uncertainty. Customer orientation: advance measures and post calculations; supplier orientation: links and measures of business processes and innovativeness (Chenhall, 2005). Information dimensions: integrative; complete; future oriented; timeline</p> <p>-Veeken&Wouters (2002): indicate the unsure elements in plans, describe reasons& recommend solutions; strategic business&operative risks (Elliott Committee, 1997)</p>

<p>creating a common performance measurement and agreement system (the responsibilities of partners to each other)</p> <p>Formal control strategies:</p> <ul style="list-style-type: none"> -action based control -output based control; <p>according to Ouchi (1977, 1979) output based control is the cheapest form of control, if the output of a task is measurable</p>	<p>Formal control mechanisms (setting output target, measuring, rewarding of the achievement of the target).</p> <p>Investment to information systems to be able to discover and monitor the actions of an agent (Kirsch, 1996).</p> <p>The need of information processing based on the need to handle uncertainty (Chapman, 1997).</p>	<p>Behaviour control, which consists of means such as programs, rules, standard procedures and solution procedures to controversial subjects</p>	<p>Managing a strategic network: managing the partnership relationship; controlling the partnership relationship (also the risk and confidence); assessment of the performance (Anderson&Sedatole). Ability to explain cost behaviour with structural factors and activity (Shank & Govindarajan, 1993).</p>
<p>forms of work between organizations and building confidence (designing, integrating & innovating business/information processes)</p>		<p>informal control, social control, confidence</p> <p>1) goodwill trust (counterpart acts according to the common advantage); 2) capability trust (counterpart has competence to perform the action properly). Communication.</p>	
<p>decision tools for setting strategic targets and measures</p>		<p>effectiveness of the management system</p>	<p>-effectiveness of the controlling and performance</p> <p>- comprehensiveness of the business risk profile of the company (Elliott Committee, 1997)</p>
<p>The complexity of targets and means</p>		<ul style="list-style-type: none"> - do stakeholders accept the new measures? - the controlling of a complex issues is limited to the know-how of the controller (Kirsch, 1996) 	

<p>*Simultaneous use of strategic initiatives (such as JIT, TQM) and an accounting information system brings positive synergy advantage. Joint projects of accounting information systems and other areas bring synergy advantage. (generating, managing & integrating business knowledge)</p>	<p>*Business areas should synchronize their strategies with the plans of information technology management to prevent information technology (IT) conflict with the strategy of the company and decrease organizational performance (Floyd & Woolbridge, 1990; Robson, 1997) *Favourable circumstances have an effect to the advantage got from the accounting system</p>	<p>* Van der Veeken and Wouters, 2002,: on the lower management levels the factual value of accounting information to the management is based on its value compared to other information for dealing with base management questions: achieving the goal, reasons for the deviation from the goal and proposals for achieving the goal.</p>		<p>Synergy</p>
<p>*According to Ballou, Burgman and Molnar (2004) value creation depends on the understanding of the framework of value creating assets, material and immaterial components of assets (monetary, physical, based on interest group relationships, organizational assets and human capital). Accounting information should deal the components from the company's strategy viewpoint. (generating, managing & integrating business knowledge)</p> <p>Considering the strategic characteristics of information: -speciality of the information -time speciality (Sampler, 1998). (identifying, measuring & recording accounting phenomena)</p>	<p>How the infrastructure supports or does not support business processes (and how it has been organized).</p> <p>How knowledge objects (data needed in business processes) are created and maintained, are used to search, organize and delivery knowledge content, are catalysts (enabling the combining of knowledge flows of people through technology) and makes it easier to transfer knowledge from person to person or from information to person (Papavassiliou&Menzas, 2003).</p>	<p>How well are fulfilled requirements: use of information, problem solving and learning</p>	<p>Formational characteristics are connected to development and evaluation of information production -uses external input (research data, experts) -timely -revision/correction of standards -other characteristic</p> <p>Capability to produce data useful in decision making A) Data processing (the system takes care of verification, certificates e.g. by using integrated verification modules, reliability, usability, right time and the effective usage if resources and there are technological frames or reference to transfer data between applications); B) Data control (the system maintains the base principles of data saving integrity/harmony, independence and integration)</p>	<p>How to increase the understanding of the fact, how assets can be complementary to each other (Miller & O'Leary, 1997)</p>

What are/were the planned and real implementation processes (Veeken&Wouters, 2002, Hunton, 2002)? (generating, managing & integrating business knowledge)	Requirements: real time information, removing uncertainty, sharing information, knowledge objects (data needed in business processes), the measures of the STROIM instrument (IM strategy) dimensions: aggressiveness, defensiveness; analysis; future orientation; proactiveness; conservativeness (questions of STROIM instrument in a attachment)		information producing requirements -clear, coherent -plan is practicable -benefits exceed costs -flexibility -verifiable results -ability to integrate strategic change and system -strategic change is desired -is effective -other characteristic	
Problematic factors: decision tools for setting strategic goals and measures	*It is not important to identify controls, which fit to a certain type of strategy, but it is important to share managerial attention between controls. Management selects to monitor interactive controls. Simons (1995) identified control systems, which the management can use interactively: programmed management systems, revenue planning systems, brand budgets, knowledge systems (collecting and analyzing data from the social, political and technological environment) and personnel systems.	*Van der Veeken and Wouters, 2002: on the lower management levels the factual value of accounting information to the management is based on its value compared to other information for dealing with base questions in management: achieving the goal, reasons for the deviation from the goal and proposals for achieving the goal. Problematic factors: communication.		Controlling strategic costs. Ensuring the comprehensiveness of the business risk profile of the company (Elliott Committee)
Problematic factors: complexity of goals and means		How well are fulfilled requirements: use of information, problem solving and learning		
Problematic factors: definition of measures	do the measures fulfil the performance measurement principles (Maskell)	Do the stakeholders accept the new measures?		Bromwich & Bhimani (1994): adopting management accounting to operative actions and improvements in them, e.g. quality, delivery, customer satisfaction
Problematic factors: setting intermediate and final targets for measures	What level of performance does the organization need to achieve in the area of goals and strategy and how does it set appropriate performance measures for them?	Rewards of achieving the performance targets (or penalties of failing to achieve them)? Use of information, problem solving and learning		

F e e d b a c k	<p>What are the needed information flows (feedback and feed-forward chains) that the organization would learn from its experiences and would adjust the present activity based on the experience?</p> <p>Do information systems collect data of problems which have occurred in realized projects and about the circumstances, where the problems occurred and is the information used in forecasting the risky characteristics in projects and in case the problem occur is there a way to search for a solution used earlier in a similar problem; is the problem solution database included to the evaluation of assessment?</p> <p>*What expectations different users and developers had about the accounting information?</p> <p>What information is produced by the systems, how managers are using and appreciating it, what effects does the information have to the performance of managers?</p> <p>To what extent do the enterprise resource planning (ERP) systems or corresponding systems improve the timeliness, reliability and relevance of the information used in decisions throughout the firm?</p> <p>Do the systems provide a realistic frame to create data warehouses, etc. to create value?</p> <p>To what extent the increase of quality in critical success factors, such as services, products, processes, morale, is based on the merits of the systems in the company?</p> <p>*Management accounting system can have proactive effects to strategy planning, implementing and changes</p> <p>*Diagnostic controls (measure strategic performance factors) are used in the implementation of strategies</p> <p>*Management meetings were an important intermediate mechanism between the control system and strategy.</p> <p>Effectiveness of management system (attachment).</p> <p>Understanding threats and opportunities</p> <p>* Success factors of an accounting innovation: adopting and real usage of the accounting innovation; changes in course of action; benefits, which can be measured and assessed in concrete and learning novel innovations (Järvenpää, Partanen, Tuomela, 2001, 287).</p> <p>How have you got over problematic factors:</p> <ul style="list-style-type: none"> * time and work effort required to collect the needed data * decreasing the number of measures / using measures diagnostically
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Arrows 1, 2 and 3 show different places/times that actions can occur
 Reactions can have impacts on corporate financial performance and as feedback to revise corporate strategy

Picture 7. A conceptual framework of the Action Profit Linkage model from the internal activities perspective (with questions and assumptions *)

3.3.3 Action Profit Linkage model - developing, providing and reporting assurance

The evaluation of the information production development consists of evaluation of risks, business performance measures and reliability of the information systems (Higson, 2003, 209-210). ... According to the Elliott Committee the decision makers need a performance measurement system (both financial and non-financial) covering all main activities in the value chain of the company (p. 3) to be able to evaluate the activities of a business unit. ... The empirical part includes the research of the best and worst characteristics of accounting systems. ...

3.4 Concluding Comments

Part 3 of the proposal outlined the second research question: how to get benefit from the control system and which factors have an effect to the benefit? The first section pointed to researches, which support the idea of accounting information systems to support the rational implementation of strategy, but the results concerning different strategies and the effectiveness of accounting information systems supporting them to be fragmented and sometimes conflicting (Langfied-Smith, 1997, p. 221, 228). Chenhall has concentrated to

the connections of goals, strategies and operations and tried to accomplish understanding about the dependencies in the value chain (2005).

Epstein & Westbrook (2001) have developed an Action-Profit Linkage model, which leads managers to be more cross-functional and focus on profitability; it lets managers see just how any action within any corporate function affects overall profitability. Epstein & Roy (2001) have applied the model to putting a sustainability strategy into action. In the third section the Action Profit Linkage model was connected to the elements of accounting value chain (Hunton, 2002).

4 – Research Method

4.1 Introduction

The typical feature for postmodernism is the process way of thinking, which is connected to uncertainty, variation, continuous change and where things are always caused by a historical process. The specifying of things by using a language gives them a meaning. The contextual experiences, knowledge and cultural traditions define the interpretation and activities. The social phenomenon, such as individuals and organizations, can be seen as temporarily stable clusters of events rather than intentionally built concrete systems and units (Chia, 2002, s. 15-16). The positivistic researchers do not help in the selection of a model for decision making, but can help the decision maker to understand how the relevant variables interact with each other. In the research process the boundary of the theoretical and empirical research is not always clear, because the phases of the process interact with each other (Ryan, Scapens, Theopold, 1992, p. 102). Management accounting has been affected by the market base customer service due to the tightened competition, development in the information technology and organizing the core knowledge and the activities not belonging to the core activities (Scapens, 1998, p. 18-19). The precondition for researching the changes in new accounting practices has been the conceptualization of accounting practice development (Nelson & Winter, 1982), the understanding of organizational micro processes and the consideration of institutional contexts in the organization (rules, routines and institutions typical for the organization) and outside the organization (the profession and social, economical and political institutions) (Scapens, 1998, p. 64-65).

4.2 General Method

I seek to combine researches on the subject matter from different theoretical starting points (Lukka & Mouritsen, 2002, p. 808). In studying the applicability of the Action-Profit Linkage model as the means to provide profit from the accounting information I use interpretative research method to specify the elements of the model and action research in the case companies (Kasanen et al. 1991, 317; Takala & Lämsä, 2001, p. 371-390).

4.3 Method – Research Question 1

How management control systems are used as a combination in the organization? The research problem is defined by using the interpretative research method and the elements of the accounting and control system are specified. The models used to study the interconnection between the actions and profit is investigated and of the model is selected to research the effects of accounting information actions to the economical performance. The elements of the model are specified by using interpretative research method.

4.4 Method – Research Question 2

What elements should be used in the decision process to get value from the management control systems? The elements of management accounting information are located from the accounting value chain (Hunton, 2002) parts, external connections, internal activity and planning and controls. Action research and the positivistic model based empirical testing in case organizations is used to prove the applicability of the action-profit linkage model to the strategic framework of accounting information. Financial management is interviewed in order to get reliable research results. Two cases have been documented here. Conclusions are made based on the research results. The conclusions are a starting point to define the model more closely.

4.5 Concluding Comments

Part 4 of the proposal outlined the research method used in this study. The first part of this section justified the method. The remainder of the section detailed the research process.

5. Accounting information as a strategic decision in the case companies

How management control systems are used as a combination in the case organizations?

Introduction

The base question of accounting is what is measured and how the measuring function is organized. There are two schools of measuring: the value school concentrates to the measuring of balance and resource flow values trying to explain numerically the event caused by an action; the information school concentrates to information, which might be usable in different activities as in specifying a value to a business unit or evaluating the activities of the management. ...

The main difficulty in describing the value of intangible assets is that the value depends on their organizational context and a company's strategy (Kaplan & Norton, 2000). A frame of the strategies in an organization can be found from Quayle (2002): the strategy of an organization consists of a business and product strategy. The business strategy has interconnections with the company strategy, marketing and finance functions. The product strategy has interconnections with quality, planning, purchase and procurement, production and human resource management.

Methods

Accounting methods, the way of organizing the company and financial politics have been considered to be similar technology as the technology used for making products in the company (Watts & Zimmerman, 1990, p. 135). According to Chapman & Chua (2003) especially the ERP (enterprise resource planning) systems have effects to the sphere of activities of the accounting - this is true also in the case companies. In addition to the accounting systems also the significance of other control systems has been identified, for example the production technology can implement the strategy. Other controlling elements can be alternatives to the accounting systems and the controlling can be a combination of accounting systems and other controlling (Abernethy&Chua, 1996). ... The danger of many control systems is that they direct the controlling to matters, which are not consistent with the strategic goals. For example the original goal of non-financial measures has been to enlarge the picture got by the traditional financial control, but according to Ittner & Larcker (2003) they seem to have turned worn surrogates of the economic performance. ... In one of the case companies the numbers seen do not have any immediate actions, since they are not financial numbers. ... According to Beamon (1998, 1999) the measures in the management control system must cover resources, output and flexibility. ...

Results of combining different systems compared to the value added perspective

According to Goold et al (2004) the model used by the parent company has effects to the value created in the organization, since the parenting style has effects to the planning and implementation of the strategy. The prerequisite for selecting a parenting style is that the management understands deeply the critical success factors of the business unit in the selected sphere of activities. Goold et al. have recognized eight parenting styles, three of which have been recognized to be especially successful:

1. economic controlling is based on the development of activities of an individual business unit, when the synergy potential is low. The strategic planning has been left to the business unit. The budget control per year is very important and deviations from it are allowed only in special circumstances (tight economical control).
2. strategic planning is based on the effects of activities being tied with others that are to a great synergy potential. Group management participates to the strategic planning of the business unit. The main target is to gain different operative synergy between the business units. Controlling is based mainly on non-financial data (flexible control).
3. strategic control tries to combine the effects of tying and individual development. Some of the business units may have high synergy potential and others with low synergy potential. Decision making is centralized (reasonable planning effect) and general control takes place by different controlling systems (tight strategic control).

The research of Nilsson (2000) in four Swedish company groups supports the control philosophy, where management control systems besides that they were coordinated to each other were also aligned to the situation. A partial explanation to this may be the culture in the researched companies.

The case company A had become part of a Nordic concern at the end of the previous year. The concern had strengthened its position in the industry sector sphere of activities, where the Finnish company had been working, and considers getting a bridge to possibilities to enlarge the business to the east. The organization of the concern is decentralized and the business model is profit oriented. In addition to the economic control model (budget) case company A uses a balanced scorecard as a tool for implementing the strategy.

The information usage model parts (Weber, 2001) are supported in the following ways:

- 1) the information is mostly used in an instrumental way in solving well described problems (budget control)
- 2) the information is to some extent used to develop a management data base, especially concerning the information of projects. However, though the value of the accounting as an internal model and language as a communication media between the management and personnel has been acknowledged, the conceptual usage of information suffers from the fact, that the measured values may not lead to actions or soft values are not understood as a steering media. According to Amigo et al (2003) the common language of accounting is a frame, an integrated structure, which gives a common interpretation to the events by having a role in sharing the meaning and as a combining mechanism (Boland 1993; Boland and Tenkasi, 1995) and
- 3) the “symbolic” information suffers also from the fact, that the measured values may not lead to actions or soft values are not understood as a steering media.

Case company C had earlier been a part of a Finnish industrial company, but is now owned by an American concern. The strategy of the company is differentiation with a high quality product. Strategic planning is based on synergy potentials. Concern reporting has been changed within a year; the organization has become complicated due to the requirements of the new owner, the structures of the new owner. The measuring of the performance has not been totally clear. In addition to the budget goals there are also non-financial goals. The strategic controlling tries to combine the effects of connecting and individual development. This business unit has considered having a high synergy potential. A change process has been started to adapt the company to the new situation with new reporting needs and organizing needs for the accounting function.

The information usage model parts (Weber, 2001) are supported in the following ways:

- 1) the information is mostly used in an instrumental way in solving well described problems; there are also efforts to make the lean organization leaner by using measures, which are suitable for the industrial process. Here the individual development strategy works.
- 2) using the information as an internal model and common language is in a process of changing and meets resistance. Reasons to the resistance are an incomplete capability (know-how and experience) to meet with changes and a sticking to the established ways of thinking and acting, which is based on the existing routines and institutions (Burns, Scapens, 2000).

3) a sticking to the established ways of thinking and acting, which is based on the existing routines and institutions (Burns, Scapens, 2000) can be seen in the need of discussions, using the “symbolic” information, when the other ways of information are not based on a solid argumentation

Conclusion

The combination of controls in the case companies is based on the idea to divide the strategic goals to different organizational levels, to the usage of ERP (enterprise resource planning) system implemented within a long period of time and to the social controls. The logic of causality (why resources are used) is controlled by dividing the strategic goals to different organizational levels; the valuing logic (connecting costs to cost objects) can be seen as a targets to decrease procurement costs and as a process of following up projects, but does not exist as any special systems; the coordination of activities is carried out with budgets and standards, organizational arrangements are the subcontracting and a plan to use shared services for accounting activities (selecting activities needed to achieve the goals); the logic of piloting (steering activities against the targeted performance) cannot be seen as strategic milestones, but exists for example by starting lean production by product lines (Lebas, 1996, p. 74-99) and as a continuous improving of targeted things.

The first form of controls used in the case companies is the economical control consisting of the budget control, parts of the balanced scorecard and the project control. The second form of controls is the controlling of work and work processes by using standards (Waterhouse & Tiessen, 1978, p. 72; Minzberg, 1983, p. 77) – in the planning and production, including also quality standards. Work activities have been separated to well-defined tasks, roles, rules and procedures, which regulate most of the work in manufacturing and in the office (Mentzas, Halaris, Kavadias, 2001).

The results of this research support the results of Gerdin (2005) where the management applies company level management information system, in which the economic structure has a central role against the contingency factors effecting the company as a whole (that is the insecurity in the environment, size of the company and business strategy) rather than to the special questions in individual subunits. The controlling of individual subunits is guided by standards and a continuous improvement of the course of action, but also on a more general control. The parent company steering model (Goold et al., 2004) can effect to the controlling so, that economic controlling is extended to a wider area than before: this can be seen in one case organization, where organizational structures and accounting reporting replaces the earlier way of personal discussions.

The controls are based more to the information school way of using information, where the value of information is the possibility to use it in different actions to answer to questions “why was the action taken” and “what are the effects of the information got from the action”. The numeric value of a balance item or a resource flow measured according to the value school can be seen in measures of the processes in case C. According to the accounting information value model of Hunton the recognizing accounting phenomena,

measuring and saving data should be the basis for more valuable parts of the model. Demski, Fellingham, Ijiri and Sunder (2002) support this idea pointing to, that the transaction is the beginning point in the activity. However, Demski & co say also, that to understand what to convey about a transaction requires a knowledge about the details of the cause of the transaction, thus the things measured are exogenous in the value school, but endogenous in the information school. The issues are what is tried to measure and how the measurement activity is managed. In the case companies the measuring phase has shortages as the information school lacks the clarity of, what to convey about a transaction, for example the instructions concerning numbers to be reported are unclear. The recognizing accounting phenomena, measuring and saving data should have a target: what is the information used for is the environment of the management accounting information.

This research supports Chenhall (2005) in, that the strategic performance measurement dimension integrated information is used in dividing the measures supporting the strategy to different organizational levels, but the support from systems (as in Davenport, 1998) is inadequate. The business system anatomy of Davenport should suggest certain integrations between the systems. The central database data does not interact with the project control in the customer interface; there are no human resource applications in the personnel interface. There are interactions with the supplier interface and warehouse and procurement applications and with the interface of management and stakeholders and the reporting applications, but the competence to integrate external partners to the systems of the organization is low. Instead of integration the control mechanisms in controlling customer and supplier connections are based on agreements, standards and social interactions.

What elements should be used in the decision process to get value from the management control systems and is there a macro-level model for understanding the success factors associated with management accounting projects (Wixom & Watson, 2001)?

Introduction

... According to the resource-based theory (Barney, 1991) a resource provides sustained competitive advantage to the company, if it is valuable, rare, imperfectly imitable and there are no substitutes for that resource. In valuating a resource the environmental models of competitive advantage and the resource-based model complement each other. The environmental competitive models help to isolate the attributes of the company, which may be considered as resources. The resource-based model indicates the extra characteristics these resources must have if they are to generate sustained competitive advantage.

... According to Grath et al. (1995) and further Lambert & Bytheway (1998, p. 3) to get competitive advantage the company must be able to deliver a product or service to the market and it must have an ability to develop, control and use the resources needed in the deliver competence. According to Hamel & Prahalad (1996, p. 236) the competence is a combination of different talents, technology and know-how flows and has a precondition, that the management recognizes the existing core competencies, establishes a development program for them, constructs and uses them and protects and defends them. The infrastructure, technology and tools used to control the company are the performance resources of accounting information

(Roberts, 2003). According to Ciborra & Andreun (1998, p. 89) the competence abilities are developed by combining and using resources (and other talents) by using organizational routines. By understanding the management accounting as organizational rules and routines should give prerequisites for developing management accounting ideas, concepts, techniques, systems, etc., which are usable in practice rather than so called optimal techniques planned for an abstract, rational decision maker (Scapens, 1998, p. 66). The technology and tools must be adopted, which can be seen as the improvement of routines and effectiveness of the company (structural capital), for example as flexibility and shortened response times (Roberts, 2003).

... The identified risk factors of a MIS investment are: the minor commitment of the board of directors (there is need to get comments on the political level, not on the technical or detail level); minor commitment of the users (too optimistic plans and too complicated systems) and the information and communication system (knowledge about new tools and technical changes and the steering of the involvement in new tools and technical changes) (Brookes, Grouse, Jeffery & Lawrence, 1982, in Robson, 1997, 90).

Accounting information as a strategic decision seeks to increase the understanding of the decision process concerning the accounting information system and the factors effecting to this process.

Agency theory (e.g. Baiman, 1990) and transaction cost economics (e.g. Walker, 1998) concentrate to a stability state and to optimal solutions (Burns & Scapens, 2000). Resource-based theory considers also other kinds of states and is therefore more comprehensive. According to the contingency theory accounting information as a strategic decision consists of many factors, which have effects to the benefits got from the accounting information.

...

Verification

The element of verification has been added to the original Action-Profit Linkage model as a new mechanism in the strategic control and approval of accounting information investments (the request for new mechanisms has been stated by Miller & O'Leary, 1997). The organizational and the agency theory point to the usability of information in agreements and rewards (Ouchi, 1979). Measuring schools divide the measuring to the usability of information but also to giving a value to an event. According to the resource-based strategy theory the strategic characteristics of information are data and time speciality (Sampler, 1998).

The data speciality can be seen in the case companies in the request for information to support the fact based management, recognizing the economic reality. In the case companies the most valued information characteristics are reliability and compatibility. The reliability includes the risks concerning the information (using bad quality information in operative, financial and strategic decision making pointed to by the Elliott Committee (1997) and the implementation error risk of information systems pointed to by Miller & O'Leary (1997). The measuring schools division of information measurement to providing value to an event or usability of the information brings in the integrated investments (Miller & O'Leary, 1997) and the question,

what does the information system support, e.g. automation. According to the framework based on the black box thinking in the systems theory the process variables can have a predictive value in order to achieve targets (Haas & Kleingeld, 1999). The meaning of a transaction is important: Demski, Fellingham, Ijiri and Sunder (2002) point to the transaction as the beginning point in the activity and say, that to understand what to convey about a transaction requires a knowledge about the details of the cause of the transaction, thus the things measured are exogenous in the measuring value school, but endogenous in the measuring information school. The repetitiveness of transactions is one factor for the administrative needs to handle the information. The compatibility in the accounting information network is integration of consecutive activities in the process, integration between companies and homogenization of the interpretations systems used in the decision process (Calbraith, 1972; Lawrence & Lorsch, 1967; Weick, 1979).

The characteristics of comparability of information is needed in agreements and rewards used by the organizational and the agency theory (Maines et al., 2002; Ouchi, 1979).

The time speciality can be seen in the case companies in the request for a system providing information to get the routines done. ERP (enterprise resource planning) was considered to be a necessary system for this purpose. The length of the information chain prevents the usage of information fast enough in a case company. The need to forecast developments in the market before the changes are reflected in the strategic performance measures “alarm systems” could be used to utilize the data produced by internal information systems and data collected / identified from external sources. Accounting data is one alternative for specifying the contents and producing the contents of alarm systems (Järvenpää, Partanen, Tuomela, 2001, 281), but there are no plans for that in the case companies. In the non-financial measures time is needed to get time series of the measures. The case company using the balance scorecard has kept same measures for many years, which supports this argument.

Conclusion

To adapt the Action Profit Linkage model to the needs of management accounting information actions the base for the actions is the strategy of the company/business unit, needed resources must be identified and used to develop the competences needed to implement the strategy. In the case companies the meaning of the accounting information frame (a frame; documented models, courses of action) is highlighted (frame in Lipe&Salterio, 2002, in Maines et. al). The frame helps users to notice the overlapping in performance measures and fit the performance evaluation in accordance with it. Using same measures in different units and measuring same things on different organizational levels helps in the control of the strategy implementation.

The reactions of the stakeholders suffer from the shortage of common culture and grammar (the management and users know the vocabulary and grammar used in the information usage model): “though sees the number, actions are not taken fast enough”, “the measuring of soft values is not experienced as a control action”. On

the other hand the behaviour of individuals can be explained with the reliability of the source of the non-financial information, because the audited information is considered to be more reliable than the not audited information (Libby, 1979; Pany & Smith, 1982; Johnson et. al, 1983, in Maines et. al, 2002).

The long term performance targets of the companies, growth, profitability, decreasing warehouse, are reflected in the accounting systems.

The feedback information highlights the reliability viewpoint of the accounting value chain parts of Hunton (internal, external and reliability viewpoint), because the correctness of the data, economical production of data and verifiable results are important. Of the factors having effects to strategic costs the learning possibilities are realized, but the systems for example to collect project data are inadequate and the users must be able to ask for the analysis data. Factors having effects to unit costs via different ways of capacity usage are limited to the shared planning and the cost structure of products with the supplier in the production company. The information sharing between organizational units has difficulties due to the complicated organizational structures and due to the complex calculation method. The measures of the planning, integrating and innovating of business/information processes are used in the form of lean production.

The case studies made in companies brought out accounting information factors, which could be made more effective or applied and so to have an effect on the strategy of the company, next time make still more effective, etc. The Action Profit Linkage model provides a frame to control the accounting information as a strategic resource of the company.

The Action Profit Linkage model together with the competence factors identified in the Hunton's accounting information value chain (registering the information, creating information processes and creating business information in the company and with its external stakeholders) helps the company to identify and develop accounting information resources according to the resource based theory so, that the resources have strategic value to the company, they are unique, not imitable and substitutable with other resources. The overall view of the Action Profit Linkage model includes except the accounting information also stakeholders connected to it. Picture 9 includes the from the literature and cases applied Action-Profit Linkage model.

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