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"The Effects of Management Control Systems on Organizational Performance: An Evaluation Based on the Example of Balanced Scorecard Implementation."

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Abstract

A multitude of business areas and -processes are nowadays based on Information Technology (IT). Therefore, Management Control Systems (MCS) play an important role for organizations. In order to attain organizational objectives, MCS do not only support the management in performing control functions, they also control the managers to be efficient and effective. The main sources for input are information systems with standardized and connected elements to obtain reliable, proper and true information about the situation of the organization. This information is usually expressed by key figures. Since the beginning of the 1990s, the Balanced Scorecard (BSC) is a controversially discussed technique to integrate, unify and structure these key figures and numerous corporations have implemented the BSC concept. Therefore, a multitude of authors tried to satisfy the demand for empirical research about this issue. This diploma thesis investigates the effects of MCS on organizational performance in context with BSC implementation. Furthermore, it compares different influential studies of the last two decades to discuss and criticize the various positive and negative performance effects.

Zusammenfassung in Deutsch

Eine Vielzahl der Geschäftsbereiche und –prozesse basieren heutzutage auf Informationstechnologie (IT). Aus diesem Grund spielen Management Kontrollsysteme eine wichtige Rolle für Organisationen. Um organisationale Ziele zu erreichen, unterstützen diese Systeme nicht nur das Management bei der Ausübung von Kontrollfunktionen, sondern steuern auch das Management selbst effektiv und effizient zu arbeiten. Die Hauptgrundlage für verlässliche, adäquate und wahrheitsgetreue Informationsgewinnung über die Situation der Organisation, sind die Informationssysteme und deren standardisierte und damit verbundenen Elemente. Diese Informationen werden vorwiegend durch Kennzahlen dargestellt. Seit dem Beginn der 90er Jahre ist die Balanced Scorecard (BSC) eine kontrovers diskutierte Technik um Kennzahlen zu integrieren, zu vereinheitlichen und zu strukturieren und unzählige Gesellschaften haben das Konzept implementiert. Aus diesem Grund versucht seither eine Vielzahl von Autoren die Nachfrage nach empirischer Forschungsarbeit zu diesem Thema zu decken. Diese Diplomarbeit beschäftigt sich mit den Auswirkungen von Management Kontrollsystemen auf die organisationale Entwicklung im Kontext der Balanced Scorecard Implementierung. Außerdem werden verschiedene einflussreiche Studien der letzten zwei Jahrzehnte miteinander verglichen, um verschiedene positive und negative Effekte zu diskutieren.

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1 Introduction

The purpose of this diploma thesis is to investigate the effects of Management Control Systems (MCS) on organizational performance in context with Balanced Scorecard (BSC) implementation. Furthermore, it should provide an overview of the development of empirical literature regarding this issue over the last two decades. This is a very interesting issue because of the increased demand for empirical research in context with the Balanced Scorecard. The main reason is the consideration of a multitude of managers in various business areas all over the world to adopt or implement a BSC. This is because of the need for the communication of strategy throughout the organization and the integration of non-financial performance measures in order to improve organizational performance. This diploma thesis starts with an explanation of the nature and the development of Management Control Systems over the last decades. The first part is concerned with the definition of different terms regarding MCS and the integrated processes, elements, levers and components. Additionally it provides an examination of links between MCS and the issue of organizational learning. After that the focus is expressed by the essential question of this work:

What happens to the performance of organizations when implementing and using new techniques of MCS?

In order to answer this question the thesis provides an introduction to the Balanced Scorecard concept and its components. Afterwards, this work concentrates on different influential papers of the last 2 decades which are controversially discussed and provides an overview of a multitude of papers with different conclusions. The last part provides a summary of findings and discusses possible positive and negative effects claimed by various authors.

2 MCS – Management Control Systems

For a clear definition of MCS it is primarily important to look at the theoretical view of the economic literature. There exist a huge number of sources concerning MCS or "Management Control" itself. The definition of these terms is crucial for the evaluation of performance effects achieved in context with the application of management control systems. When trying to provide a specification of MCS, a good way to start is splitting up the whole term into the three single words:

- **Management**
- **Control**
- **System**

2.1 Management

In general the "management" consists of several people who lead an organization and who also set the goals for the organization. Business organizations which are predominantly discussed in this work normally follow strategies or goals of profit maximization. The management has its own hierarchy according to size and complexity of the organization. This hierarchy can be displayed or illustrated in form of an organizational diagram. In English-speaking countries it is usual that a CEO (Chief Executive Officer) is on top of this ranking and belongs to the Top Management level. Subordinated to the Top Management there can be made a distinction between middle and lower management. The managers have individual responsibilities and duties in order to control their own organizational unit and their subordinates.

"Managers are concerned to influence the behavior of other organizational participants so that the organizational goals can be achieved" (Berry, Broadbent and Otley, 2005).

Therefore, managers should act only in the best interest of the organization. But on the other hand they are still individuals who try to maximize their own utility. However, measures to prevent opportunistic behavior need to be implemented. MCS do not only have the purpose to assist the managers in performing control functions it is also necessary that they control the managers in order to be efficient and effective. Incentive systems are able to direct managers toward acting in the interest of the organization. But if the system does not provide the right incentives, there is the danger of opportunistic behavior. Hence, it is important that managers are monitored by a control device that registers if the managers deviate from organizational goals. Management control systems seem to be such possible monitoring tools, provided that nobody can fool or circumvent the system.

2.2 Control

According to Kloot (1997) "control" is the most important word to concentrate on because MCS are in general designed to achieve organizational control and the definition of MCS therefore depends on defining control. *"Control is concerned with influencing the behavior of managers and employees in ways which lead to the attainment of organizational objectives"* (Kloot, 1997). According to Anthony and Govindarajan (2007) the main elements of the control process are:

- A detector or sensor which is a measuring device that identifies what is actually happening in the process being controlled. In the control process the sensor can be represented by key figures for example. So there is a need for implementing a planning process or budgeting because there are no standard key figures which are valid for all sorts of organizations.
- An assessor which is a device to determine the significance of what is happening. Usually significance is assessed by comparing the information of what is actually happening with some standard or expectation what should be happening, displayed in a target-performance comparison. A difficulty is that managers themselves must judge whether the difference between actual and standard performance is significant enough to act and then how to act.

- An effector which is a device that alters behavior if the assessor indicates the need for doing so. This device is often called feedback and is accomplished by those members of the organization who have the power to decide.
- A communication network which transmits information between the detector and the assessor and the assessor and effector. These elements in the control process are used by managers to achieve the goals of the organization.

From these elements Berry et al. (2005) derived four conditions for the existence of control:

- The existence of an organizational objective
- The output of the process is measured in terms of this objective
- The effect of suggested control actions needs to be predictable
- The ability to take action to reduce deviations from the objective

These requirements also show an expansion to the elements stated before. As displayed in figure 1 below, there is a predictive component which is also known as anticipatory control integrated in the model. In contrast, *"reactive control waits for the occurrence of an error and then takes action to counteract it, while anticipatory control predicts the likely occurrence of an error and takes action to prevent it occurring"* (Berry et al., 2005). This represents a link of the control process to the issue of "Organizational Learning" (OL), because the exact same differentiation exists between adaptive (single-loop) and generative (double-loop) learning. Argyris (1977a) invented the terms *"Single-Loop Learning"* and *"Double-Loop Learning"* while Senge (1990) calls them *"Adaptive Learning"* and *"Generative Learning."* Argyris and Schön (1978) use the term single-loop or adaptive learning for the detection and correction of errors whereby the organization maintains its present policies and objectives. In this case the error already happened while double-loop or generative learning targets the weaknesses of present policies, objectives and strategy (Argyris and Schön, 1978) in order to avoid potential errors.

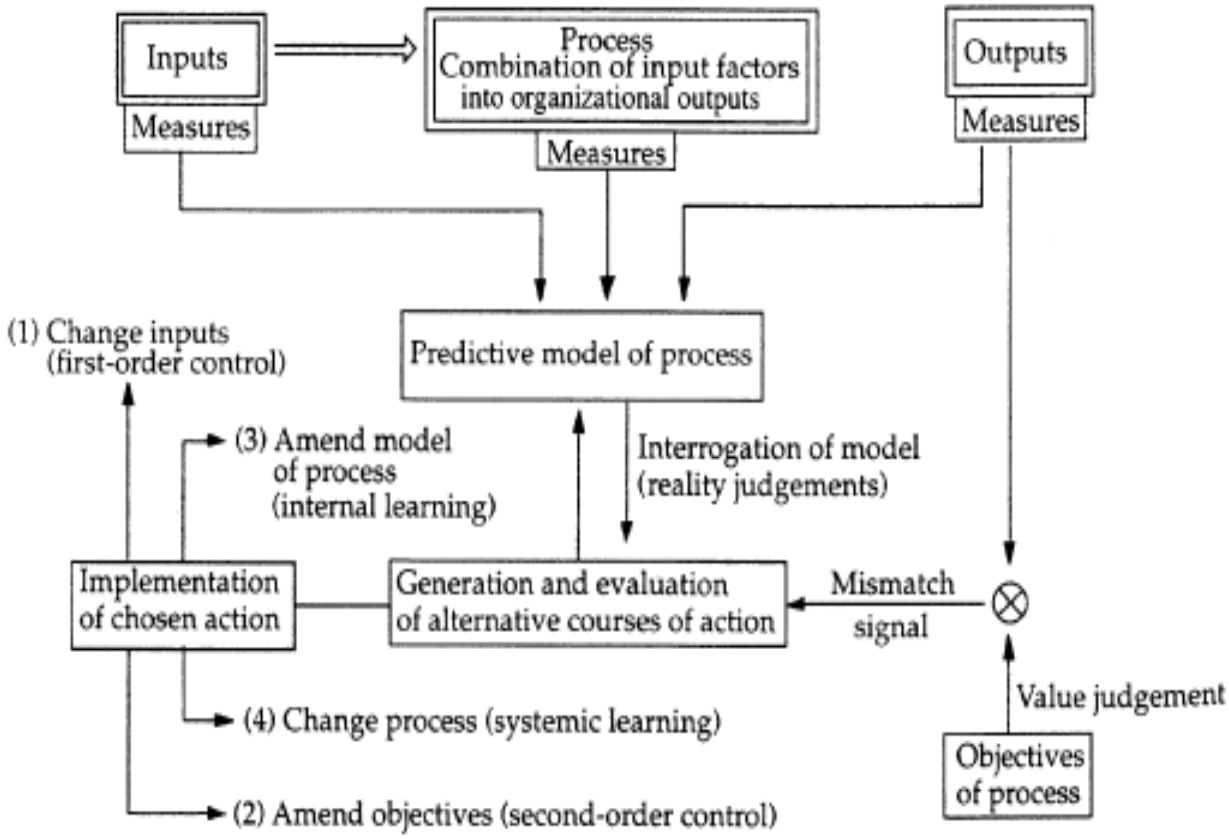


Fig. 1: Predictive Control Process Model

Source: Otley and Berry (1980)

In the further examination of management control systems the organizational environment plays a fundamental role. Environmental influences affect the possibilities and boundaries to exercise control.

Context and Boundaries of Control

Generally, the context of control concerns the intersections and boundaries between the organization and the environment. The extent of separation between these two fields notifies the possibility of differentiation between the environment and the organization which is a key factor to create competitive advantages. Thus, the environment is shaping the organization, but other participants or parts of the environment as other organizations, competitors, interest groups or authorities can also influence the own organization (Berry et al., 2005). This fact indicates support for the view that the relation between organizational learning and management control systems is

recursive and not a one-way relation because environmental change is assumed if participants or parts of the environment modify (see chapter 2.7).

External regulation, legislative systems or government legislation represent an often mentioned boundary between organizations and its environment. Therefore, many authors who deal with the relation between organizational learning and management control systems use practical examples concerning changes of these determinants for their examination (Kloot, 1997; Batac and Carassus, 2009). The reason might be the concreteness and exact framework for the modification, contrary to changes in culture or values which is more abstract and in general not exactly formulated in form of rules and thus allows for more individual interpretation.

After defining possible boundaries of control, another contributive issue is the structure of the organization that supports the exercise of control.

Structures of Control

The structure of the organization plays a decisive role in the control process. But on the other hand it is also the social structure of people within the organization who determine whether control is exercised and at which extent this happens.

Organizational structure, in the broadest sense, can determine the complexity of an organization. High complexity means that adjustment to environmental changes might be more difficult. That leads to the assumption that these complex organizations are more likely to show more interest in learning. Therefore, it can be assumed that higher complexity increases the demand for a balanced scorecard because of the focus on learning. Another explanation could be that the size of an organization also affects the complexity of the structure. Since the size of the organization is positively associated with BSC usage (Hoque and James, 2000; Speckbacher, Bischof and Pfeiffer, 2003), it is possible that the reason is a more complex organizational structure.

Another classification of control was established by Burlaud (1990). He suggested a distinction between “hard” and “soft” control. “Hard” control because of the use of “hard” facts from accounting systems, thus, the focus lies on the calculation of figures like costs and expenses. In

contrast “soft” control concerns the behavior of members of the organization and suggests only indirect use of cost controls. This differentiation does not mean that a firm has to choose between hard and soft control or just needs to focus on organizational and social structure. Management control systems should help to integrate all of these approaches. The tools which are embedded in the system, like a balanced scorecard concept, spread the focus on different parts of the organization and try to optimize all sorts of business processes which include formal control processes for numerous business units.

The Control Process

According to Anthony (1965) *“management control is the process through which managers make sure that resources are obtained and used effectively and efficiently towards the achievement of objectives.”* As displayed in figure 2 below a formal control process principally involves underlying rules, strategies and goals controlled by feedback loops to assure performance and initiate corrective action when necessary.

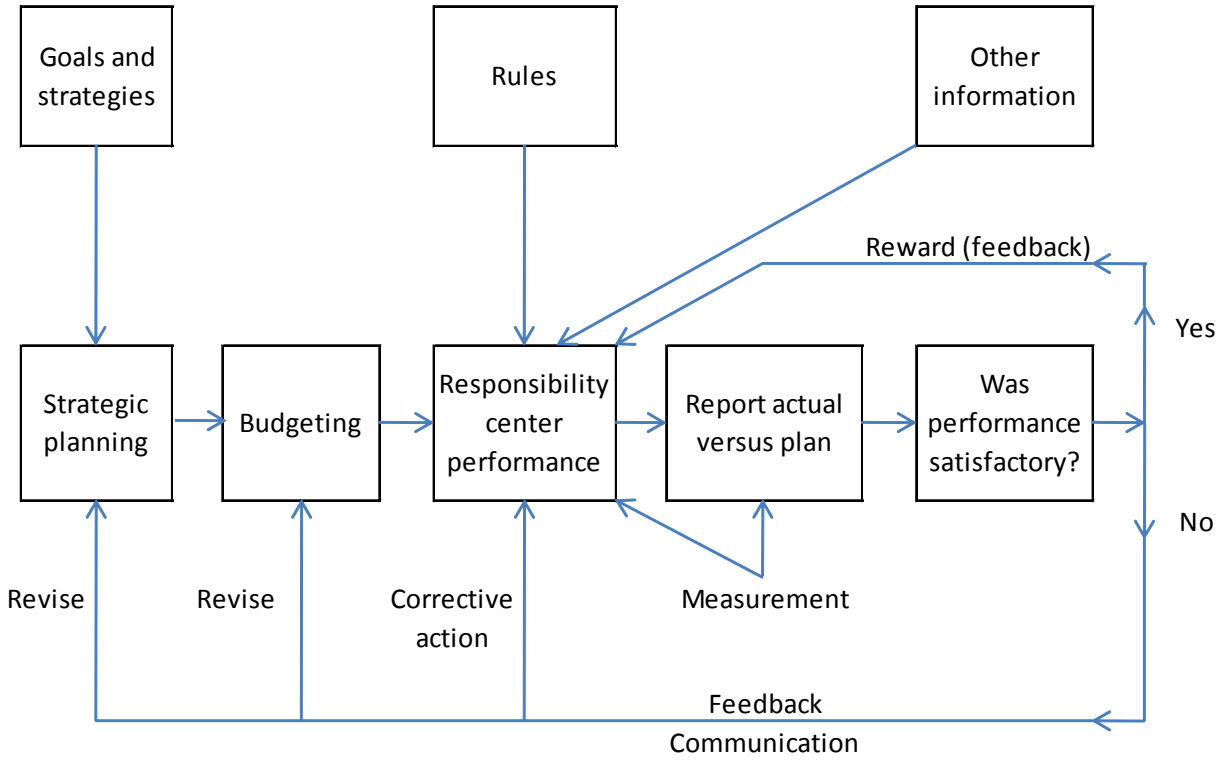


Fig. 2: Formal Control Process

Source: adapted from Anthony et al. (2007)

More intensive concentration on the process and a comparable look at figure 3 below which displays the different learning loops, leads to the conclusion that this cycle already integrates the issue of organizational learning. This is provides another indication for the serious importance of learning processes for management control systems.

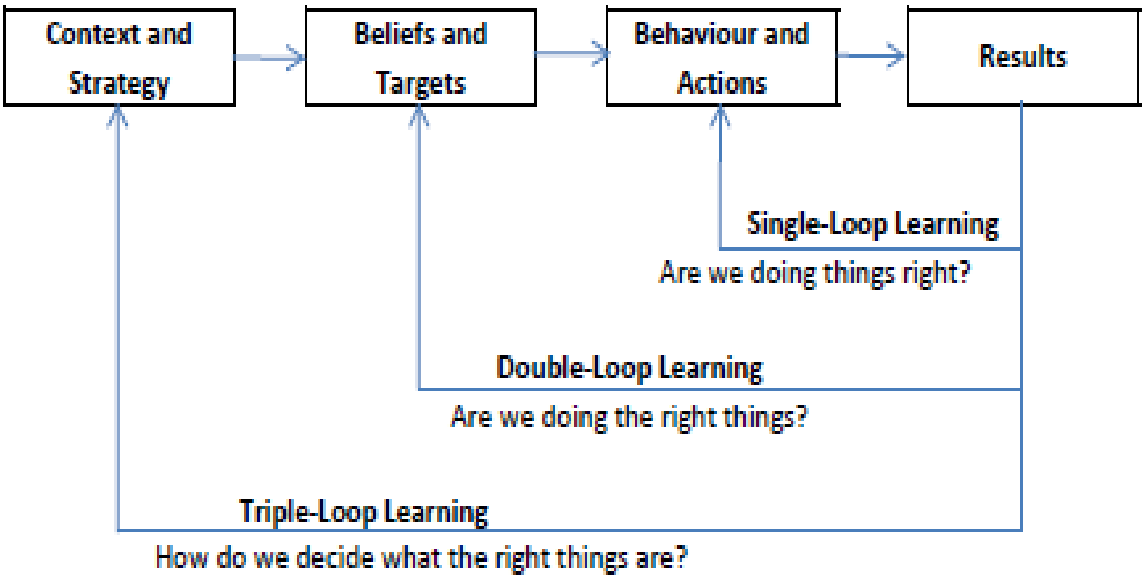


Fig. 3: Learning Loops

Source: adapted from Argyris and Schoen (1978)

Anthony et al. (2007) furthermore distinguishes management control from strategy formulation and task control. He describes the purpose of management control as the implementation of the strategy and defines different management control activities:

- Planning what the organization should do
- Coordinating the activities of several parts of the organization
- Communicating information
- Evaluating information
- Deciding if and what action should be taken
- Influencing people to change their behavior

After the definition of different aspects of control the next part is dedicated to the term system.

2.3 System

According to Anthony (2007) *"a system is a prescribed and usually repetitious way of carrying out an activity or a set of activities."* Therefore, the control processes discussed in the previous chapter are already displayed in a systematic way either using open or closed loop models. Because of the high complexity of management control, managers are usually far away from acting in a systematic manner. Systems are created to support but cannot replace human decisions. Therefore responsibility cannot be delegated to a system. It is still the manager's duty to assume responsibility.

A distinction of Checkland (1972) between "hard" and "soft" systems is consistent with the mentioned approach of Burlaud (1990) between "hard" and "soft" control. Again, hard systems contain clear objectives and quantitative measures of performance while soft systems are described by imprecise objectives and qualitative measures. The result is a mixture of both sorts of controls and systems. This can be seen in the further chapters concerning the balanced scorecard which unifies the two approaches by incorporating hard and soft elements.

2.4 Elements of Management Control Systems

According to Anthony (2007) the mixture of "hard" and "soft" elements of management control systems include:

- Strategic planning
- Budgeting
- Resource allocation
- Performance measurement
- Evaluation and reward
- Responsibility center allocation
- Transfer pricing

Furthermore, the main concepts which are applied belong to the fields of strategy, organizational behavior, human resources and managerial accounting. Because of this variety of organizational areas, literature shows a distinction of different control system types or levers of control.

2.5 Levers of Control

Simons (1994, 1995b) differentiates between four levers of control. As displayed in figure 4 and table 1 below, these are:

- **Beliefs systems:** formal systems to define and communicate basic values, purpose and direction for the organization in form of mission statements or credos.
- **Boundary systems:** formal systems to establish limits and rules in form of codes of business conduct of operating directives.
- **Diagnostic control systems:** formal feedback systems used to monitor and detect deviations from critical performance variables in form of business plans or budgets.
- **Interactive control systems:** formal systems to force dialogue and learning throughout the organization by analyzing strategic uncertainties interactively.

While beliefs systems and interactive control systems create positive and inspirational forces to motivate, boundary systems and diagnostic control systems ensure compliance with orders and create constraints and restrictions (Simons, 1995b; Batac and Carassus, 2009).

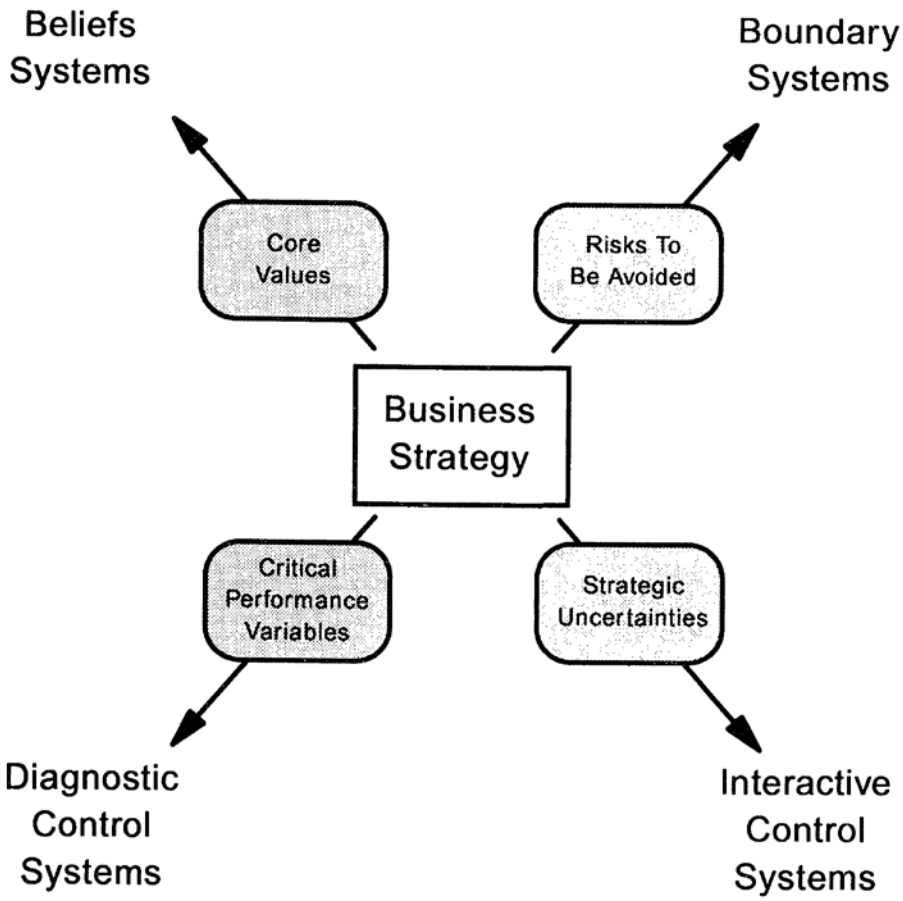


Fig. 4: Levers of Control

Source: Simons (1994)

	Beliefs systems	Boundary systems	Diagnostic control systems	Interactive control systems
Nature of system:	Explicit set of shared beliefs that define basic values, purpose, and direction	Formally stated limits and rules that must be respected	Feedback systems used to monitor organizational outcomes and correct deviations from preset standards of performance	Control systems that managers use to regularly and personally involve themselves in the decision activities of subordinates
Purpose:	Provide momentum and guidance to opportunity-seeking behaviors	Allow individual creativity within defined limits of freedom	Provide motivation, resources, and information to ensure important organizational strategies and goals will be achieved	Focus organizational attention on strategic uncertainties and thereby provoke the emergence of new initiatives and strategies
Key design variables:	Core value	Risks to be avoided	Critical performance variables	Strategic uncertainties
Examples:	— Mission statements — Vision statements — Credos — Statements of purpose	Clear rules, limits, and proscriptions in: — codes of business conduct — strategic planning systems — capital budgeting systems	— Profit plans and budgets — Goals and objectives systems — Project monitoring systems — Brand revenue monitoring systems	Top managers can make any control system interactive by: (1) ensuring that system is an important and recurring agenda to discuss with subordinates (2) ensuring that system is a regular focus of attention by operating managers throughout the organization (3) participating in face-to-face meetings with subordinates (4) continually challenging and debating data, assumptions, and action plans

Table 1: Levers of Control

Source: Simons (1994)

The findings of Simons (1994), who based his study on data collected over a period of approximately 18 months following the appointment of a new manager, provide evidence for the extensive usage of the different levers of control to trigger organizational changes. As in another study of Gabarro (1987) control system changes were initiated in nearly every case. The sample of 10 newly appointed managers actively used MCS to promote and support strategic change. The 10 managers were split into two groups:

- **Strategic turnaround cluster:** 4 managers were hired because of failure of the past strategy.
- **Strategic evolution cluster:** 6 of the managers were hired to maintain success and momentum of the business.

The turnaround cluster obviously had to overcome short term problems quickly. So the 4 managers in this group all reacted by replacing direct subordinates in several key jobs. Another approach used by all 4 managers was to establish new beliefs systems and boundary systems as mission statements to break organizational inertia. Also diagnostic control systems were used mainly to structure and communicate their agenda to superiors. Regarding the evolution cluster the 6 managers were taking over generally successful businesses. Each manager defined new financial control targets at a more demanding level and bonuses were linked to a longer time horizon. All 6 managers changed diagnostic control systems to test subordinates and their implemented strategies. Testing involved a high degree of learning for the organization. So in both clusters regardless of their mandate for change the managers used control systems to (Simons, 1994):

- Overcome organizational inertia
- Communicate the substance of their new agenda
- Structure implementation timetables and targets
- Ensure continuing attention through incentives
- Focus organizational learning on the strategic uncertainties associated with their vision for the future

The conclusion is a high probability of MCS adaption in case of a management change.

After a theoretical definition of the term “Management Control System” it is necessary to provide a short overview regarding important components which represent the fundament for integrated Management Control Systems like the Balanced Scorecard (BSC).

2.6 Fundamental Components of Management Control Systems

To achieve managerial control in form of a Management Control System (MCS), it is necessary to obtain reliable, proper and true information about the situation of the organization. This kind of information is generally represented by key figures, which are basically displayed within financial orientated Systems such as the “DU-PONT-System” or the “ZVEI System” which split up common key figures like ROI (Return on Investment) or ROE (Return on Equity) into their calculation components in order to analyze influences of different key figures. So the main sources for input in the MCS are information systems with standardized and connected elements to satisfy the need for information.

The main purposes are the collection, storage, preparation and display of data to convert it into information. The process of filtering information out of the collected data depends principally on the interpretation of the human component such as the managers. Considering the pure technical side in the literature, there is a differentiation of independent information systems which can be seen as elements of MCS. According to Schermann (2008) information systems include Decision Support Systems (DSS), Executive Information Systems (EIS), Management Information Systems (MIS), Customer Information Systems (CIS) and Enterprise Resource Planning Systems (ERP-Systems).

DSS − Decision Support Systems

The roots of DSS reach back to the middle of the 20th century. The influence of new media and electronic data storage strongly increased the demand for automatic evaluation of data to provide information to executives or managers. Obviously the aim was to use the generated information directly for planning, control and adaption of strategies. In comparison with the targets in the 21st century it seems that there is almost no difference because DSS, as the name already indicates, are just to support but cannot replace human decisions. Therefore responsibility cannot be delegated

to a system. It is still the manager's duty to assume responsibility. But there are fields where DSS are implemented to find the right decision (Schermann, 2008):

- ABC analysis of existing range of products
- Make or Buy Decisions
- Cost – Utility Analysis
- Complex Financing Structures

So DSS use tools to help managers finding the right decision but as Chamoni and Gluchowski (2006) point out DSS show weaknesses regarding the recognition of problems or the interpretation of bad signals which is better treated by Executive Information Systems (EIS).

EIS − Executive Information Systems

EIS generally concentrate on the needs of information for managers or executives. This concept involves principally minimizing the time to get an overview about the actual status of the organization which is equivalent with the focus on more or less intuitive ways to design the user interface (user guidance on the desktop) and also the importance of facilitating the preparation of presentations.

According to Schermann (2008) the typical standards of an EIS are:

- Generation of pre-designed reports including "Drill-Down-possibilities" to numerous subordinated steps or details e.g. sales quantity, marginal return per assortment, product group or article
- Detailed analysis supported by graphical illustration and text comments
- Automatic access to linked data bases
- Multi-dimensional analysis like sales and marginal return per customer group, sales region or product
- Direct access to general documents like business policy or strategy documentation
- Access of connection to electronic services like internet or stock exchange services

Consequently, the main purpose of an EIS is the presentation of results. If specified goals are not met, the organization has to change and take corrective action. The term “corrective action” indicates the start of new learning processes which represents a direct link to the issue of organizational learning (see chapter 2.7). The reason why EIS are well known is the EIS which is embedded in SAP (Kemper et al., 2006). Therefore it is no surprise that the existing differentiation of DSS – EIS and Management Information Systems (MIS) is basically valid in the German speaking countries.

MIS − Management Information Systems

According to Laudon and Laudon (2005) the Anglo-American countries use the term MIS as a whole for the most part of IT Systems supporting management. An explanation could be the overlapping definitions of the various segments. For the German classification it is observable that MIS include EIS and DSS and additionally support planning and analyzing methods.

Therefore the main features of MIS can be summarized as follows (Schermann, 2008):

- Periodic availability of standardized reports
- Ad-hoc information retrieval
- Compressed, concentrated and centralized information about all business activities
- Highest possible up-to-dateness and correctness
- Dynamic evaluation possibilities
- Graphical display
- Combination of figures and comments
- Consideration of hard (quantitative) and soft (qualitative) components
- Support of the planning process and the target performance comparison e.g. variance analysis
- Intuitive handling of the system

Two important preconditions to comply with these features are that the data on which the MIS is based is complete and correct. Therefore it is usual to create the data base in form of a so called Data Warehouse.

Data Warehouse

The “Controlling Dictionary” (Koslowski and Jannert, 2008) provides a specific definition of a Data Warehouse:

“A Data Warehouse is a concept for an issue-focused, integrated, time-related and durable collection of information to support decision-making of the management. It is a data base isolated from the operative data processing system and represents an organization-wide base for all planning- and analyzing systems of the entity.”

This guarantees a consistent data set and so it seems to be the ideal fundament for MIS because data which is aggregated and stored in separate business units can be subsumed and concentrated in one system. But on the other side it is necessary to have correct and complete data due to the fact that the quality of analysis depends on the quality of the underlying data.

CIS − Customer Information System

The term “Customer Information System” (CIS) is used for a software tool to support “Customer Relationship Management” (CRM). More precisely the CIS is organization-wide software which assists the management of customer relations. The intention is to improve customer satisfaction and enhance customer retention. Generally, all relevant customer information is collected from the different departments of the organization and unified in a data base. Since customer relations are very important regarding the success of an organization, it is obvious that the CIS and the customer data base should be integrated into the whole Management Control System.

ERP System − Enterprise Resource Planning System

Enterprise Resource Planning Systems are predominantly based on standard software and support business processes to facilitate the coordination between separate business units. The origin of ERP Systems lies in the area of material management and over the years from 1970 to 1990 these systems were supplemented by the fields of production planning, financial engineering, sales and marketing and human resource management. Like MIS they rely on a common data base or data warehouse which means that consistent and complete data is necessary.

The most important suppliers of ERP Systems are:

- Oracle (PeopleSoft, Siebel)
- Microsoft Business Solutions (Navision)
- SAP

SAP is the leader in this market especially for organizations with over 1000 employees. The areas which are basically covered by SAP to fulfill the needs of various kinds of businesses are:

- **Analytics:** strategic enterprise management, financial analytics, operations analytics, workforce analytics
- **Financials:** financial supply chain management, financial accounting, management accounting, corporate governance
- **Human capital management:** talent management, work process management, workforce deployment
- **Procurement and logistics execution:** procurement, supplier collaboration, inventory and warehouse management, inbound and outbound logistics, transportation management
- **Product development and manufacturing:** production planning, manufacturing execution, enterprise asset management, product development, life-cycle data management
- **Sales and services:** sales order management, aftermarket sales and service, professional services delivery, global trade service, incentive and commission management
- **Corporate services:** real estate management, project portfolio management, travel management, environment health and safety, quality management

Furthermore, there exists a multitude of other suppliers and also “Open Source” products which are interesting especially for small companies because of the free use.

According to Gadatsch (2005) there are costs but also potentials of ERP Systems:

Costs:

- Acquisition of the license and maintenance costs
- Purchase of necessary hardware
- Costs for external consultant with specific know how
- In-house training for employees

Potentials:

- Efficient planning and control of business processes
- Complete and consistent data base
- Increase of flexibility in case of adjustment of the system to new standards
- Improvement of business processes

These potentials and costs result in advantages and disadvantages of ERP Systems. An advantage is that there is a multitude of process variants to cover actual and future requirements and these processes contain experiences of many users. Additionally horizontal and vertical integration are warranted and higher quality of software as well as the know-how in software development is involved. Another good aspect is the fact that the software is ready for implementation and prices are fixed as well as maintenance is guaranteed by the provider. Not to forget that there exist training opportunities for employees, handbooks and hotlines and business to business transfer of data is facilitated due to standardization. To specify some of the disadvantages it has to be stated that core processes may have to be adjusted and there can be a huge number of unused functions which requires an excessive amount of hardware resources. Another factor is the high degree of dependency on the supplier and the problem of establishing interfaces to old software of the company.

After the specification of these systems it is necessary to explain that these overlapping segments, as shown in figure 5 below, all belong to the superior category of Management Control Systems (MCS) concerning this work and all these elements are related to the balanced scorecard concept.

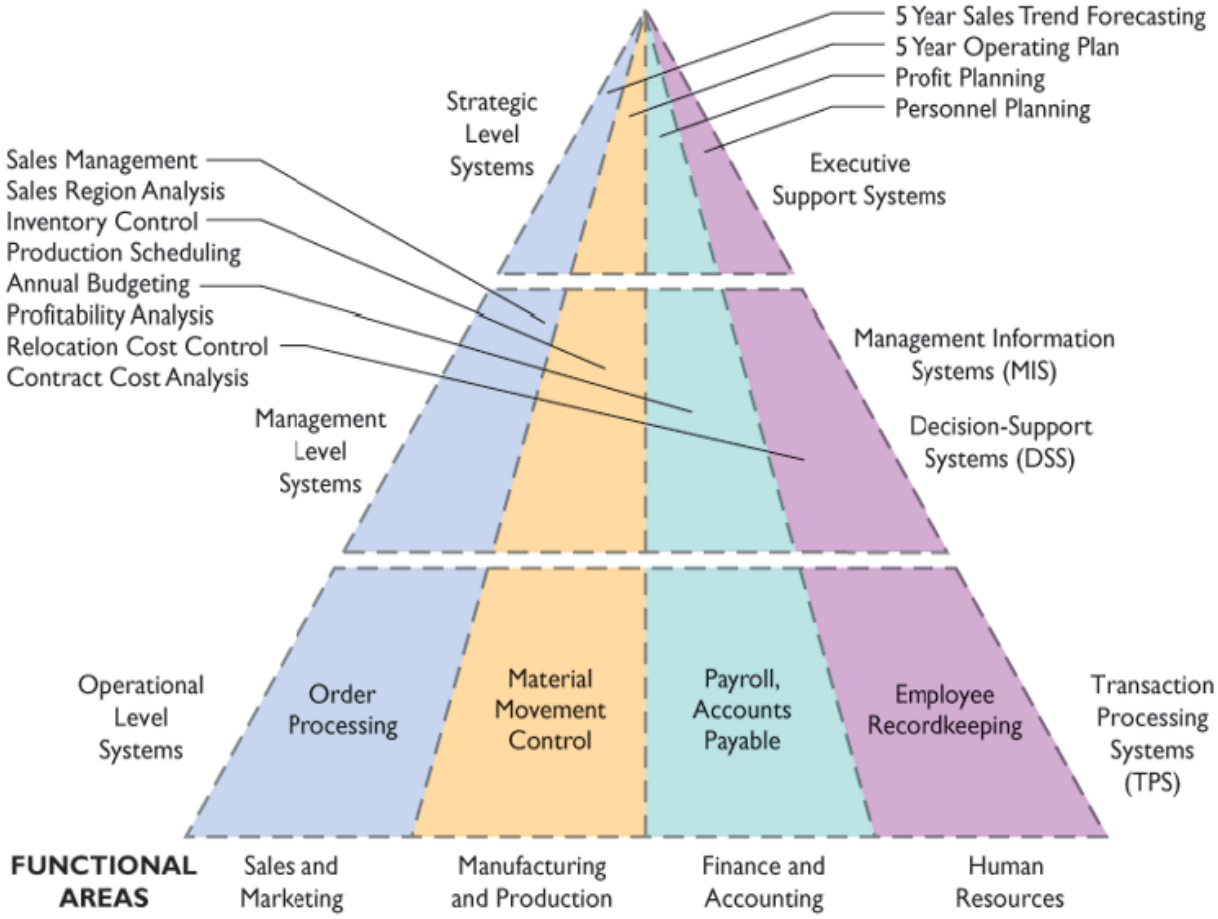


Fig. 5: Dimensions of Management Control Systems

Source: Laudon et al. (2005)

After discussion of management control systems more or less separately from a theoretical viewpoint, the next chapter concentrates on another central element of MCS especially in context with the balanced scorecard: Organizational Learning (OL).

2.7 Management Control Systems and Organizational Learning

A widely adopted definition of organizational learning in the literature was provided by Argyris and Schön (1978):

"Organizational learning is the process whereby members of the organization respond to changes in the internal and external environment of the organization by detecting errors which they then correct so as to maintain the central features of the organization."

Another important contribution is the aspect that, separately discussed, *"learning is a process of change in cognition and behavior, and it does not necessarily follow that these changes will directly enhance performance"* (Crossan, Djurfeldt, Lane and White, 1995). This is valid for the theoretical approach when looking at organizational learning separately because the adaption to environmental change is also affected by decision making and there are decisions which affect organizations in the "right" way or the "wrong" way. Therefore, it should be the case that it indirectly enhances performance especially in context with management control systems. The generated information of management control systems supports the learning process of making the "right" decision in case of environmental change which implies a more positive effect on performance than decisions based on no information. This is because generated information should affect quality and quickness of decisions.

According to Kloot (1997) *"the definitions of management control systems and organizational learning display the commonality of purpose: both are concerned with changing or adapting an organization to ensure its fit with its environment."* Furthermore, many authors provide their explanation of the connection between the two fields. One part suggests a reactive change of control systems after environmental change accompanied by strategic adaption (Argyris, 1990; Den Hertog, 1978; Simons, 1990). The other part tends to describe the role of control systems as proactive for the adaption to environmental changes (Dent, 1990; Hopwood, 1987; Cobb, Helliar and Innes, 1995; Simons, 1990). A closer look into Simons´ papers and books (1990, 1991, 1992, 1994, 1995a, 1995b) provides support for both explanation approaches. His definition of different types of control systems or levers of control (chapter 2.5) distinguishes restricting and motivating system components. Therefore, if both explanations show validity which is approved by many different studies and authors the relation between organizational learning and management control systems can only be described as recursive. This opinion received support from Gray (1990), Otley and Berry (1994) as well as Simons (1990, 1991, 1992, 1994, 1995a, 1995b). Additionally Kober, Ng and Paul (2007) conclude a two-way relationship concerning MCS and change of strategy.

After reading the important literature there has to follow the conclusion of a recursive relation which means there are numerous cases where MCS affect and are affected by OL and MCS shape

the strategy and are shaped by strategy. The best evidence that MCS have an influence on OL is already embedded in the theoretical definition of both fields. This can be concluded because the generated information of management control systems supports the learning process of decision making in case of environmental change, which should lead to a positive effect on performance in comparison to decisions without underlying information. Therefore MCS affect OL. Vice versa, the best evidence for OL affecting MCS is the change of MCS during the last 30 years. Enhancement of MCS to fulfill the requirements of a more and more complex environment provides evidence for fundamental adaptions. From calculation of financial key figures over involvement of customers and quality, up to the implementation of balanced scorecards, all those changes have one source named organizational learning.

The interactions between various MCS characteristics and the different learning stages are displayed in table 2 below.

Management control system characteristics and organizational learning constructs

Management control system characteristic	Organizational learning construct
Strong planning systems	Knowledge acquisition
Strong internal control: routines, procedures, reports	Knowledge acquisition, information distribution and interpretation, organizational memory
Environmental scanning and reporting: e.g. competitive position, product and service reviews	Knowledge acquisition, organizational memory
Participation in decision-making	Knowledge acquisition, information distribution and interpretation
Financial performance measurement and evaluation: accounting and budgetary control reports, financial ratios	Knowledge acquisition, information distribution and interpretation, organizational memory
Non-financial performance measurement (e.g. Balanced scorecard)	Knowledge acquisition
Horizontal and bottom-up vertical information flows	Information distribution
Training and development programmes	Information distribution and interpretation, organizational memory
Teamwork	Information interpretation
Broad set of values and stakeholders, respect for creativity	Information interpretation

Table 2: MCS Characteristics and Organizational Learning Constructs

Source: Kloot (1997)

MCS can play a major role for knowledge transfer and distribution. Concerning knowledge of individuals MCS can transfer knowledge but only in case of available explicit knowledge. When individuals use their tacit knowledge to perform better than others MCS cannot execute a direct change. But MCS can help indirectly. The calculation of key figures and deviations leads to a higher possibility to discover the reason why one group performs better than another and initiates concentration on critical tasks of processes. So it seems that MCS are not directly linked to the stage of knowledge transfer but can discover weaknesses and detect problems which are consequently examined further. The focus on these problems triggers new learning processes which represents an indirect link to organizational learning. Furthermore, Kloot (1997) derived the features and characteristics of MCS which *"enhance the organization´s ability to acquire knowledge, distribute and interpret information, and to increase its memory, all essential elements of organizational learning."* These are displayed in table 3 below.

The learning organization's features and management control system characteristics

Learning organization feature	Management control system characteristics				
	Internal information	External information	Performance measurement	Participation in decisions	Personnel controls
Appropriate structures	Reflects organization structure. Future focus	Competitors. Customers. Future focus	Financial and non-financial	Collect and use information from employees operating externally and internally	
Corporate learning culture			Encourage risk-taking and creativity. Identify areas in which failure does not adversely affect manager's future		Training and development: broad based to enhance creativity
Empowerment	Reduced standarization: fit employees' needs			Active. Real power-sharing. Strengthen accountability	Training and development for clarity of purpose, values and direction
Environmental scanning	Financial. Budgetary	Competitors. Customers. Governments		Critical to gain information and multiple interpretations	
Knowledge creation and transfer	Bureaucratic rules can impede knowledge transfer		Responsibility systems can inhibit transfer of knowledge		
Learning technology (information gathering systems)	Collection of data, analysis and distribution	Collection of data, analysis and distribution	Financial and non-financial	Gather information from employees	
Quality and continuous improvement	Measure and record costs of quality	Possibilities for innovation	Balanced score-card approach includes continuous improvement		Training in (i) quality and (ii) to encourage innovation
Strategy		Uncertainty requires contingency planning to respond flexibly to sudden environmental changes		Organization should not be locked into a future based on assumptions held by a few senior managers	Train managers to take a strategic focus in all decision-making
Supportive atmosphere			Traditional responsibility systems can deskill and alienate employees		Emphasis on broad training and development supports employees
Teamwork and networking	Horizontal information linkages more important than vertical linkages		Mutual accountability within teams		
Vision	Horizontal contacts to forge a common vision			Participation encourages a shared vision	Training to increase understanding of the organization and its environment

Table 3: Learning Organization´s Features and MCS Characteristics

Source: Kloot (1997)

Table 3 above shows the similarities of learning organization features and basic conditions to apply a balanced scorecard which indicates the importance of learning in context with the BSC. Because of the qualitative approach chosen in the study of Kloot (1997), which does not provide an outcome what happened to crucial performance measures after the specific environmental change, there is a need to find also a quantitative approach for this work. Therefore, it is important to answer the central question:

What happens to the performance of organizations when implementing and using new techniques of MCS?

To answer this question this work concentrates on the concept of the Balanced Scorecard. This is the best way to explain performance effects of MCS because the scope is a better adaption to external environmental changes in order to improve certain non-financial and financial performance measures.

2.8 Techniques of Management Control Systems

In this work the basic approach to show performance changes in context with MCS is to go into detail of a controversially discussed technique integrated within a MCS. There exists plenty of research concerning the Balanced Scorecard concept and it seems that its application can have strong effects on performance. This might be either financial or non-financial performance. It also contains a collection of elements and techniques which can influence performance like accounting and budgeting techniques, quality management, customer focus, business process management and training of employees. Therefore, the BSC is the perfect example to use for the analysis of performance effects in context with MCS.

3 BSC – The Balanced Scorecard

The Balanced Scorecard (BSC) has been introduced in the early 1990´s by Kaplan and Norton. It can be seen as an extension of previous concepts like the DU-PONT-System or ZVEI System. These concepts traditionally concentrated on financial measures in form of key figures. The extension is represented by an inclusion of non-financial measures to adapt the whole MCS and include indicators for an estimation of future performance. According to Rick (2004) the BSC consists of many classical influences that are integrated in the different perspectives. The core influences are strategic positioning, value drivers, learning and interdependencies respectively cause-and-effect relationships. A crucial factor before defining cause-and-effect relationships is to identify the most important measures of performance, corresponding to the corporate strategy, in order to guarantee long-term financial success.

The basic BSC can be interpreted as a technique of MCS regarding performance measurement, but also as an integrated management control system itself (Rick, 2004). It is built mainly on perspectives which consist of different performance measures to support the implementation and control of the corporate strategy. Since the BSC combines the attainment of short term goals with long term value creation, it also helps to recognize weaknesses of the strategy and so has an influence on the formulation of new strategies. Performance measures should correspond to strategic objectives (Kaplan and Norton, 2001a).

3.1 Measures of Performance

As stated above, performance measures should be chosen corresponding to the strategic organizational objectives. Furthermore, it is important that some measures require cross-departmental support. Therefore managers have to consider that performance measures are assigned to the responsible departments to avoid members which question the value of the BSC and resist the operation (Cheng, Chang and Fu, 2008). In order to achieve those goals and for the formulation of cause-effect-relationships it is necessary to break down the measures into different parts (Rick, 2004):

- **Critical success factors:** Critical success factors represent *"the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization"* (Dietrich, 1990). Usual examples are the qualification of employees as well as customer demand. From these critical success factors businesses can derive key performance indicators.
- **Key performance indicators:** Their purpose is the definition and communication of targets as well as the evaluation of performance. According to Coenenberg and Salfeld (2003) they need to be fast and easy to measure if they are defined clearly and consistently throughout the organization. Examples are customer satisfaction or efficiency of employees though it is not so sure that measurement is fast and easy. However, there should be a strong dependency between the success of the organization, the strategy and the key performance indicators.
- **Performance drivers:** Performance drivers are indicators for the financial success of the corporation and help to achieve budgetary objectives. So there is a causality or dependency between the performance drivers and the achievement of targets. A feature of performance drivers is the occurrence before the projected outcome so many authors define them as **leading indicators** (Niven, 2002). A representative example is training for the staff which should have an ex-post effect. Moreover performance drivers play a fundamental role in the value creation process and aim for enhancement of financial results.
- **Outcome measures:** In contrast to performance drivers or leading indicators, outcome measures occur as the result of previously taken actions and can be defined as **lagging indicators**. Common examples are financial performance measures and accounting based figures but also market share, customer satisfaction or customer loyalty (Niven, 2002). So there exists an obvious interrelation because lagging indicators might be results of the implementation of leading indicators.

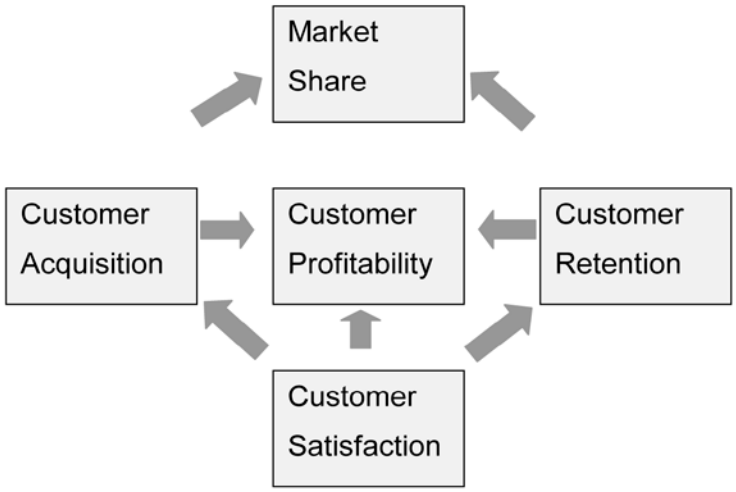
All kinds of performance measures can be integrated into the different perspectives of the balanced scorecard.

3.2 The Perspectives of a Balanced Scorecard

The original balanced scorecard concept of Kaplan and Norton (1992) consists of four perspectives which include important performance measures for the attainment of organizational goals in each perspective. These traditional perspectives are:

- **Financial (shareholders, investors):** As the name indicates, the financial perspective concerns financial measures. This is the main element of the balanced scorecard because the desired outcome for the organization is financial performance enhancement. This cannot be seen as a contradiction to the concept of including non-financial measures in the other perspectives. It only shows the importance of the definition of cause-and-effect relationships because all non-financial measures and objectives should be connected to one or more goals of the financial perspective. The performance measures which are usually included in this part are return on investment (ROI), return on capital employed (ROCE) or the economic value added (EVA). These financial measures are considered as lagging indicators and focusing exclusively on them leads to short term performance while disregarding long term value creation (Chavan, 2009).
- **Customers:** The customer perspective defines the important and relevant segments of markets and customers for the organization. These segments represent the source of revenue for the corporation. In order to compete in the chosen market and customer segments, it is necessary that managers define specific goals for their department and evaluate the customer and market demanded characteristics concerning price, quality, functionality, service and image for their product. These attributes can be identified as performance drivers which should lead to an increase of the following outcome measures and assist in the creation of competitive advantage. As displayed in figure 6 below, the performance measures which are usually integrated into the customer perspective are market share, customer loyalty or retention, customer satisfaction, customer profitability or the number of recently acquired customers. These are lagging

indicators for financial performance because the outcome can only be evaluated ex post.



Market Share	Reflects the proportion of business in a given market (in terms of numbers of customers, dollars spent, or unit volume sold) that a business unit sells.
Customer Acquisition	Measures, in absolute or relative terms, the rate at which a business unit attracts or wins new customers or businesses.
Customer Retention	Tracks, in absolute or relative terms, the rate at which a business unit retains or maintains ongoing relationships with its customers.
Customer Satisfaction	Assesses the satisfaction level of customer along specific performance criteria within the value proposition.
Customer Profitability	Measures the net profit of a customer, or a segment after allowing for the unique expenses required to support that customer.

Fig. 6: Customer Perspective of the Balanced Scorecard

Source: Kaplan and Norton (1996b)

- **Internal processes:** After the formulation of objectives regarding the financial and customer perspective, organizations should focus on those internal processes which are crucial for the attainment of the defined objectives for customers and shareholders. As displayed in figure 7 below, Kaplan and Norton´s recommendation is that managers specify a complete value creation chain of

internal processes including the innovation process, operational process and customer service.

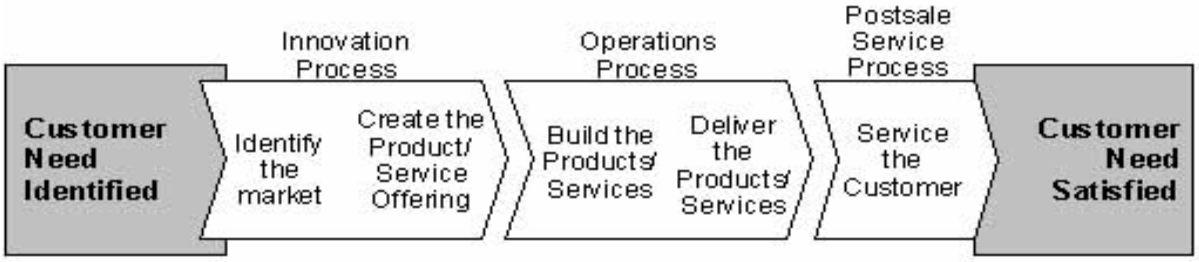


Fig. 7: Internal Processes Perspective Value Chain

Source: adapted from Kaplan and Norton (1996b)

For those processes it is important to measure performance in terms of cycle times, productivity, inventory turnover or deficiency rates. As in every production process there is an obvious tradeoff between time, quality and cost.

- **Learning, growth and innovation:** The fourth perspective of the BSC is directly linked to the issue of organizational learning. The objective should be the creation of an infrastructure which leads to the attainment of goals of the other perspectives. The learning perspective concerns the employees of the organization with all their skills and their explicit and tacit knowledge. Kaplan and Norton (1996a) defined the main categories for improvement in this perspective: potential of employees, information systems and motivation. From these categories it is possible to measure employees´ output and productivity as well as satisfaction, loyalty and fluctuation. Regarding the innovation part of the perspective, key figures could be productivity growth rates or revenues of new products. Hence, a fundamental issue for the learning perspective is the training of employees. Another approach to measure learning and innovation was suggested by Harlow (2008) using a *"Tacit Knowledge Index (TKI)"* which contains the drivers of employee satisfaction, retention and productivity. In this study, the conclusion indicated a positive association of the "TKI" and innovation outcomes.

According to Morganski (2003) it is also possible to adapt the scorecard corresponding to the features of the organization and to include other perspectives like creditors, shareholders, suppliers, communication, organization, mergers, environmental protection, public perspectives or technologies. This is theoretically possible but finds lack of application in practice according to Speckbacher et al. (2003) who found out that only 17% of BSC users include other perspectives than the traditional ones.

As shown in figure 8 below, the perspectives are normally displayed in a circular model for the visibility of the cause-and-effect relationships which are crucial for the achievement of organizational objectives.

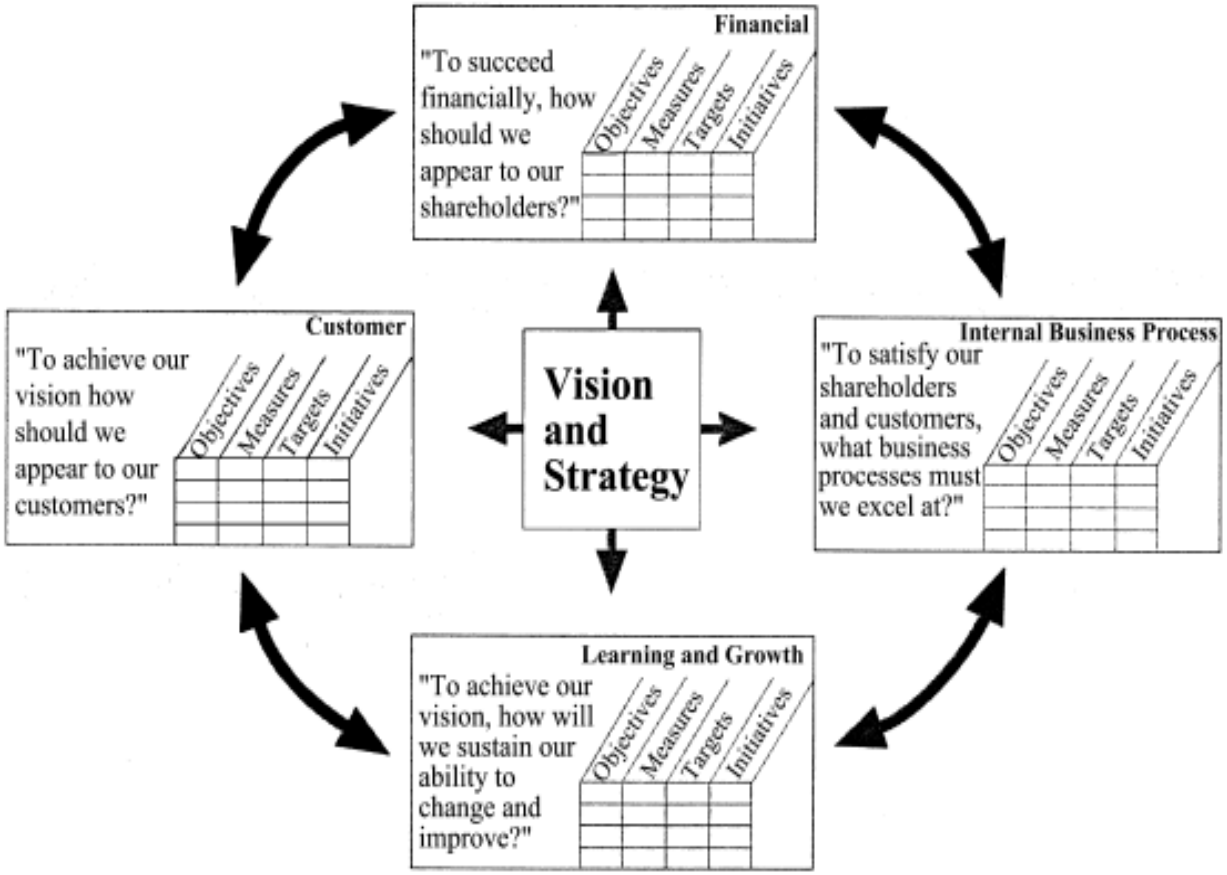


Fig. 8: Circular Model of Balanced Scorecard Perspectives

Source: Kaplan and Norton (1996b)

Every single perspective provides an overview of the connected goals. Additionally the performance measures which have an influence on the objectives are defined, and finally the initiatives which should lead to the increase of performance are inserted.

"If strategic business units wish to achieve high performance on a particular dimension it will be beneficial to give emphasis to that dimension in the performance reporting system" (Iselin, Lokman and Sands, 2008).

According to this theoretical framework, the BSC requires cause-and-effect relationships in order to explain the strategy, as well as objectives which are directly linked to the strategy. On the other hand empirical work suggests a classification of three different types of the BSC according to the extent of utilization.

3.3 Balanced Scorecard Classification

According to the work of Speckbacher, Bischof and Pfeiffer (2003) the different types of BSC application are:

- **Type I BSC:** a specific multidimensional framework for strategic performance measurement that combines financial and non-financial strategic measures.
- **Type II BSC:** a Type I BSC that additionally describes strategy by using cause-and-effect relationships.
- **Type III BSC:** a Type II BSC that also implements strategy by defining objectives, action plans, results and connecting incentives with BSC.

A substantial part of the recent literature does not explicitly differentiate between the first and the second type of BSC. The reason is that the integration of non-financial strategic measures implies an assumed existence of cause-and-effect relations. Profit maximizing corporations concentrate on the non-financial aspects because they expect a positive effect on financial performance. This is also explained through the reasons for the usage of the BSC. According to Speckbacher et al. (2003) two of the main reasons for BSC implementation are improved company results in the long

term and stronger consideration of drivers of performance. Since there is no guarantee for such positive financial effects, the decisive point for financial performance is connected to the choice of the right non-financial performance measures and the execution of the implementation. There should be no additional effects just because of drawing cause-and-effect relationship models which describe the strategy. Strategy maps and the definition of crucial non-financial strategic measures already guarantee for the description of strategy. Furthermore, it emerged some empirical evidence that the four perspectives of the BSC can be displayed as a closed loop model with additional interrelations between single perspectives (see chapter 4.2: Fig. 10).

Therefore, this work is in accordance with the theory of Malmi (2001) which stresses that the cause-and-effect logic is not necessary for measurement systems to qualify as a BSC. However, the cause-and-effect relationships can be crucial after implementation because of the possibility to execute adaptions in the course of time. Since the adoption of a BSC is a continuous process, cause-and-effect relationships gain in significance with the clarification of the complex interrelations which might be unique for different companies in different branches.

After the definition of the balanced scorecard concept the next step of this work is to discuss some empirical work of different authors in order to verify if the implementation of this concept really creates value or other forms of financial and non-financial performance.

4 The Balanced Scorecard and its Impact on Performance

This part of the diploma thesis is dedicated to the discussion of different papers which explicitly concentrate on the effect of the BSC on performance. Therefore, the first part of this chapter provides an overview to compare the findings of various important studies published in the last two decades and afterwards the most influential papers for the conclusion of this work are presented in detail. According to Rigby (2007), 66% of international executives out of a sample of 1221 organizations, use the balanced scorecard as a management tool. The wide dispersion of the concept has already been investigated by Norreklit (2003), who concluded that the main reason for the extensive use of the BSC is the theoretical argumentation of Kaplan and Norton and their rhetorical presentation and promotion of the concept. Consequentially, there is a high demand for empirical evidence regarding the effects of the BSC on organizational performance.

4.1 Development of Empirical Literature

Table 4 shown on the next 3 pages, presents a broad overview of basic literature for this work and provides an intention of the development of the different studies for the last 20 years, performance implications and limitations or shortcomings.

Table 4 (Part 1): Evolution of Research

Title	Authors	Publication Year	Type of empirical study	Industry (Location)	Time Horizon	BSC Type (chapter 3.3)	Perspectives	Performance Implications	Limitations
Is the Balanced Scorecard Really Helpful for Improving Performance? Evidence from Software Companies in China and Taiwan	Chi and Hung	2011	quantitative (untreated control group design with pretest and posttest)	Software (Taiwan)	2003 - 2006	Type 3	financial, customer, internal processes, learning & growth	improvement of performance measures in every perspective	reasonableness and adequancy
Multidimensional Evaluation of Performance with Experimental Application of Balanced Scorecard: A Two Year Experience	Lupi, Verzola, Carandina, Salani, Antonioli and Gregorio	2011	quantitative (one group pretest-posttest design)	Health Care (Italy)	2008 - 2009	Type 3	financial, community (stakeholders), internal processes, learning & growth	improvement of performance measures in every perspective	short time horizon
Does the Balanced Scorecard Add Value? Empirical Evidence on its Effect on Performance	De Geuser, Mooraj and Oyon	2009	quantitative (questionnaires)	mixed industries (Switzerland, UK, Germany, Austria)	survey data year 2000	mainly type 1 (data of 2000)	no data	BSC positively associated with organizational performance	survey data of year 2000
Perceptions of Firms Learning and Growth under Knowledge Management Approach with Linkage to Balanced Scorecard (BSC): Evidence from a Multinational Corporation of Bangladesh	Khan and Halabi	2009	quantitative (questionnaires)	multinational corporation producing mobile phones (Bangladesh)	no data	no data	financial, customer, internal processes, learning & growth	proper knowledge management leads to satifactory results of BSC indicators	data of one multinational corporation (problem of generalizability)
The Balanced Scorecard: A New Challenge	Chavan	2009	qualitative (case study)	discount retailer, non-profit information provider (Australia)	1993 - 2009	no data	no data	cultural change; new goals and measures established	generalizability of the cases
The Effects of the Balanced Scorecard on Performance - The Impact of the Alignment of the Strategic Goals and Performance Reporting	Iselin, Lokman and Sands	2008	quantitative (interviews and questionnaires)	manufacturing corporations (Australia)	no data	no data	financial, customer, internal processes, learning & growth	alignment of strategic goals and performance reporting measures is positively associated with organizational performance	small sample size, only manufacturing firms
Does the Balanced Scorecard Work? An Empirical Investigation	Neely	2008	quantitative (untreated control group design with pretest and posttest)	wholesalers of electrical components (United Kingdom)	2000 - 2002	Type 3	no data	in this case BSC does not have a positive effect on performance	short time horizon (BSC only implemented for 12 months)

Title	Authors	Publication Year	Type of empirical study	Industry (Location)	Time Horizon	BSC Type (chapter 3.3)	Perspectives	Performance Implications	Limitations
Performance Improvement after Implementing the Balanced Scorecard: A Large Hospital's Experience in Taiwan	Chang, Tung, Huang and Yang	2008	quantitative (case study)	Hospital (Taiwan)	2001 - 2005	Type 3	financial, customer, social commitment, internal processes, learning & growth	improvement of performance measures in every perspective	generalizability of the case
Evaluating the Effectiveness of a Balanced Scorecard System Implemented in a Functional Organization	Cheng, Chang and Fu	2008	quantitative (case study)	machine tool manufacturer (Taiwan)	no data	no data	financial, customer, internal processes, learning & growth	inappropriate performance measure design at departmental level	cooperation of functional divisions; generalizability of the case
Lessons from Implementing the Balanced Scorecard in a Small and Medium Size Manufacturing Organization	Fernandes, Raja and Whalley	2006	qualitative (case study)	climate control manufacturer (United Kingdom)	2004	Type 3	financial, customer, internal processes, learning & growth	positive income effects; improvement of several key performance indicators	just a descriptive example of an implementation process
Balanced Scorecard in Indian Companies	Anand, Sahay and Saha	2005	quantitative (questionnaires)	mixed industries (India)	survey data year 2002	no data	financial, customer, shareholder, internal processes, learning	identification of cost reduction opportunities	Problems: weightage of measures; cause-and-effect relations
An Investigation of the Effect of Balanced Scorecard Implementation on Financial Performance	Davis and Albright	2004	quantitative (untreated control group design with pretest and posttest)	Banking (United States)	1998 - 2001	Type 3	financial, customer, internal processes, learning & growth	positive effect of BSC implementation associated with introduction of non-financial measures on financial performance	only one combined measure for comparison; generalizability of study
Performance Effects of Using the BSC: A Note on the Dutch Experience	Braam and Nijssen	2004	quantitative (questionnaires)	mixed business-to-business companies (Netherlands)	1999 - 2002	Type 3	no data	negative effects for measurement-focused BSC use but positive effects for strategy-focused BSC use	possible response bias because of mixture of subjective and objective performance measures
Implementing the BSC in Greece: A Software Firm´s Experience	Papalexandris, Ioannou and Prastacos	2004	quantitative (case study)	Software (Greece)	1 year	Type 3	financial, customer, internal processes, learning & growth	mixed results	short time horizon, generalizability

Table 4 (Part 2): Evolution of Research

Table 4 (Part 3): Evolution of Research

Title	Authors	Publication Year	Type of empirical study	Industry (Location)	Time Horizon	BSC Type (chapter 3.3)	Perspectives	Performance Implications	Limitations
A Descriptive Analysis on the Implementation of Balanced Scorecards in German-Speaking Countries	Speckbacher, Bischof and Pfeiffer	2003	quantitative (questionnaires)	mixed industries (Austria, Germany, Switzerland)	2000-2001	all Types	all Perspectives	significant association of company size and BSC usage; expected benefits greater than costs of BSC	only descriptive analysis and no focus on performance measures
Performance Implications of Strategic Performance Measurement in Financial Services Firms	Ittner, Larcker and Randall	2003	quantitative (questionnaires)	Financial Services (United States)	no data	no data	no data	use of broad set of financial and non-financial measures positively associated with stock returns	various potential bias, generalizability because only one industry analyzed
The Balanced Scorecard, Competitive Strategy, and Performance.	Olson and Slater	2002	quantitative (questionnaires)	Services and manufacturing firms (United States)	no data	Type 3	financial, customer, internal processes, learning & growth	strategy alignment with BSC measures improves performance	generalizability
Communicating and Controlling Strategy: An Empirical Study of the Effectiveness of the Balanced Scorecard	Malina and Selto	2001	qualitative (case study)	manufacturing firm (United States)	interview data year 1999	no data	financial, customer, internal processes, learning & growth	alignment of actions and strategic objectives; improved information quality for decision making	time frame not representative for financial analysis
Linking BSC Measures to Size and Market Factors: Impact on Organizational Performance.	Hoque and James	2000	quantitative (questionnaires)	manufacturing corporations (Australia)	survey data year 1997	mainly Type 1 (data of 1997)	no data	size positively associated with BSC usage; greater BSC usage is associated with improved performance	small sample size; only manufacturing firms
An Empirical Investigation of an Incentive Plan that Includes Nonfinancial Performance Measures	Banker, Potter and Srinivasan	2000	quantitative (case study)	Hotel Industry (United States)	1991 - 1998	Type 1	financial, customer	customer satisfaction significantly associated with future financial performance	generalizability; firm-specific study; comparability of measures
The Balanced Scorecard: Judgmental Effects of Common and Unique Performance Measures	Lipe and Salterio	2000	quantitative (experiments)	women´s apparel retailer (United States)	no data	no data	no data	BSC reduces focus on financial measures	external experimental participants; wide variation of results

As table 4 shows, MCS adaption represented by the example of BSC implementation leads to mixed results. These findings are summarized and discussed in the last chapter of this work as a fundament for the conclusive remarks. The next part of this chapter provides a collection of different studies, which analyzed the effects of BSC implementation empirically. The first work that needs to be mentioned is a paper of Stan Davis and Tom Albright, which was published in 2004 in the Management Accounting Research 15, with the title *"An investigation of the effect of Balanced Scorecard implementation on financial performance."*

4.2 Davis and Albright (2004): An Investigation of the Effect of Balanced Scorecard Implementation on Financial Performance

This study investigates whether bank branches implementing the balanced scorecard outperform bank branches within the same banking organization on key financial measures. Therefore, the work provides not only empirical evidence for changes of performance regarding an important and, nowadays, frequently integrated part of a management control system, namely the balanced scorecard. Furthermore the aspect of an implementation process represents an internal environmental change which triggers learning processes and simultaneously supports organizational learning.

Another aspect is the investigation if the balanced scorecard is an effective tool regarding the improvement of financial as well as non-financial performance. Although the balanced scorecard became more and more important and is nowadays a substantial part of management control systems, there is a lack of empirical evidence in context with performance. Eventually the reason could be that it is hard to find examples that are easy to compare before and after implementation without any bias. This explains why Davis and Albright chose the approach of one banking organization which introduced the balanced scorecard in one part of its branches and maintained the former management control system without balanced scorecard in another part of its branches. It provides the possibility to compare the data of the balanced scorecard experimental group with the group which does not implement this concept as control group. On the one hand, the experimental group focused on key non-financial measures, representing an integral part of

the balanced scorecard, which has an impact on financial performance. On the other hand, the control group used the traditional performance measurement system which only included financial measures. This method eliminates different sources of bias because the possibility of comparison between the two groups is much more conclusive than the analysis of just one group with pre- and post-implementation tests.

Davis and Albright (2004) emphasize the uniqueness of their study and data set regarding four fundamental differences to comparable approaches:

- The relation between several non-financial measures and their effect on financial performance has already been documented but not in context with a balanced scorecard implementation.
- The utilization of a quasi-experimental approach differs from other studies which used survey and archival research methods to obtain information about the usage of performance measurement tools and organizational performance.
- Other studies concentrated on self-reported organizational performance that was classified according to the comparison with industry averages, as well as company-wide financial performance measures. In contrast, this paper focuses on actual financial performance data for individual business units of the organization to indicate changes in financial performance.
- Additionally, this study provides a longitudinal approach for the implementation period, contrary to cross-sectional analysis of other studies which compare non-financial measures and performance at a specific point in time.

Therefore, these distinctive features provide significant empirical evidence for the effects of the balanced scorecard implementation on financial performance of an organization in context with a practical example. Davis and Albright (2004) discovered those unique features of the study in comparison with other studies they mentioned. They focused on three of them to explain the mixed findings of previous approaches:

- Hoque and James (2000): *Linking BSC Measures to Size and Market Factors: Impact on Organizational Performance.*
- Ittner, Larcker and Randall (2003): *Performance Implications of Strategic Performance Measurement in Financial Services Firms.*
- Banker, Potter and Srinivasan (2000): *An Empirical Investigation of an Incentive Plan that Includes Nonfinancial Performance Measures.*

Concerning the approach of Davis and Albright (2004), the application of theory is involved regarding the translation of goals, which are defined in corporate mission statements, into a strategic roadmap for employees. Furthermore, cause-and-effect relationships were established for clarification of long-term objectives and the implemented initiatives for their achievement. Additionally, the combination of non-financial measures and financial measures of the four different perspectives within these cause-and-effect relationships is another fundamental feature of the study.

Specification of Field Site and Methodology

For their research Davis and Albright (2004) chose a banking organization operating in the southeastern United States. It consists of 30 locations which are grouped into 14 reporting units or branches. From these 14 branches, 7 belong to the northern division and the other 7 to the southern division. In the course of the study, 5 branches were excluded from the analyses to avoid possible bias. So there were 4 branches left for analyses of the southern division and 5 branches of the northern division.

Table 5 below, illustrates the five common quasi-experimental designs according to Cook and Campbell (1979). The study method of Davis and Albright (2004) fits perfectly with design number 4.

Quasi-Experimental Designs
(from Cook and Campbell, 1979)

Design Description	Notation*	Comments
(1) One-Group Posttest-Only Design	(T) X O	Major weaknesses include the lack of pretest comparison data and the lack of a control group.
(2) Posttest-Only Design with Nonequivalent Groups	(T) X O (C) O	Addition of a comparison group strengthens the design, yet the absense of pretest data causes significant interpretation problems.
(3) One-Group Pretest-Posttest Design	(T) O_1 X O_2	Absence of a control group lessens interpretability. Observed differences may be attributable to many causes. Strong causal inferences are difficult to make.
(4) Untreated Control Group Design with Pretest and Posttest	(T) O_1 X O_2 (C) O_1 O_2	A stronger design offering pretest and posttest observations. Results are usually interpretable, given a thorough investigation for confounding events and alternative explanations.
(5) Untreated Control Group Designs with Pretest Measures at More Than One Time Interval.	(T) O_1 O_2 X O_3 (C) O_1 O_2 O_3	A stronger design than others listed because the additional pretest data offers insights into data behavior prior to the treatment.

* T and C stand for Treatment and Control groups, respectively. O_i stands for an observation in time period t.
X designates an intervention (or treatment) taking place during the time interval between two observations.

Table 5: Quasi Experimental Designs

Source: Davis and Albright (2004)

The observed time frame reached from the balanced scorecard introduction in 1998 to the year 2001. The researchers gained insight through an acquaintance, which was also employee of the organization, but had nothing to do with the introduction of the balanced scorecard in the bank. He only introduced them to the responsible person. To avoid any bias, the actions of the authors were limited to assistance in the process of preparation of individual scorecards for employees and the determination of cause-and-effect relationships. The balanced scorecard was implemented in the southern division because *"the need for better communication of bank goals was evident after the southern division president conducted a series of interviews with front-line employees and discovered a lack of knowledge of the bank´s mission and goals and a lack of understanding about how specific jobs contributed to the success of the bank"* (Davis and Albright, 2004). Therefore, the seven branch presidents of the southern division had to read the book of Kaplan and Norton (1996a) before the introduction of the balanced scorecard concept.

Afterwards the model was adopted as exactly as possible. Consequently, objectives were defined for each of the four perspectives: financial, customer, internal processes, learning and growth.

Financial Perspective Objectives

The determination of financial perspective objectives was the first step for the introduction of the balanced scorecard concept in the southern division branches. According to the bank´s bonus payout program nine key financial measures (KFM) were chosen as indicators for success listed in table 6 below.

Key Financial Measures and Bank Bonus System Description

Loan Volume -- The outstanding loan balance for the bank (in dollars).

Non-Interest Deposit Volume -- The balance of all deposits (in dollars) by customers upon which the bank pays no interest to the depositor. This cateogry primarily consists of non-interest bearing checking accounts.

Loan Yield (%) -- The portfolio interest rate earned by the branch for outstanding loans. This measure is closely (and inversely) related to the loan volume KFM since the cost of borrowing money affects the number of loans made by branches.

Non-Interest Income -- Income unrelated to interest revenue on outstanding loans. This category includes service charges on deposits, credit insurance income, and annuity sales commissions.

Net Charge-Offs -- The dollar amount of loans determined non-collectible and written off by the bank (net of collateral recoveries).

Cost of Funds (%) -- The average interest rate the bank pays on customer deposits.

Non-Interest Expense -- Expenses unrelated to interest paid on customer deposits in demand and savings accounts. These expenses include salaries and benefits, occupancy expense, equipment and data processing expense, and other miscellenaous operating expenses.

Document Exceptions -- The percentage of outstanding loans with covenant violations (dollar value of loans with covenant violations divided by total dollar value of loans outstanding).

Revenue / Salary Expense -- Total revenues ofr a branch divided by the total salary expenses, including benefits.

The bank pays yearly bonuses based on a particular branch's performance on these nine measures. To determine an overall performance level for a branch (and to compare performance across branches), each measure is placed on a scale that is adjusted for a given branch's size, market, and other factors that may affects its ability to perform.

Table 6: Key Financial Measures and Bank Bonus System Description

Source: Davis and Albright (2004)

The combination of these nine KFM leads to a transformation into a composite key financial measure (CKFM) for the purpose of a comparative overall financial performance level of each branch. Hence, the CKFM represents the dependent variable of the statistical analyses because the objective of all branches in the northern and southern division is the maximization of this measure. Comparison is possible due to the adjustment of branches for different size, market, potential and other influential factors for particular performance. Consequently, the main financial perspective objective of the balanced scorecard was the improvement of each branch´s CKFM. The second step for the introduction of the balanced scorecard concept in the southern division branches was the definition of the customer perspective objectives.

Customer Perspective Objectives

For the customer perspective the bank focused on customer service as well as customer satisfaction. Due to the fact that a survey of 1997 showed that 65% of new customers heard of the bank from either a relative or friend, the bank concentrated on building relationships with its existing customers to support word-of-mouth advertising. Additionally, periodic customer service surveys and secret-shopper programs were introduced and outcomes were measured. The third step for the introduction of the balanced scorecard concept in the southern division branches was the definition of the internal business processes perspective objectives.

Internal Business Processes Perspective Objectives

Regarding the internal business processes perspective, the main goal was the improvement of the cross-sell process as well as the referral process. Therefore, the southern division branches measured the number of successful cross-sells and the number of successful referrals for indication of improvement in this field. Finally, the fourth step for the introduction of the balanced scorecard concept in the southern division branches was the definition of the learning and growth perspective objectives.

Learning and Growth Perspective Objectives

As explained in chapter 3.2, the learning and growth perspective is directly linked to the issue of organizational learning and primarily concerns the development of employees. Therefore, the

fundamental feature of the balanced scorecard in the study of Davis and Albright (2004) is *"a training program designed to educate and ultimately empower employees to achieve the objectives of the other three perspectives."* This program included customer service, product offerings, sales techniques and office technology efficiency. Furthermore, the bank focused on employee satisfaction and retention. The resulting measures included training hours received per month, scores on in-house tests, employee satisfaction and employee turnover ratings. After the determination of targets for each of the four perspectives, the next step was the linkage of measures through cause-and-effect relationships.

Cause-and-Effect Relationships

The crucial relationships were illustrated in a diagram for a better understanding of the coherence. Figure 9 below presents an applied example of a causal chain diagram:

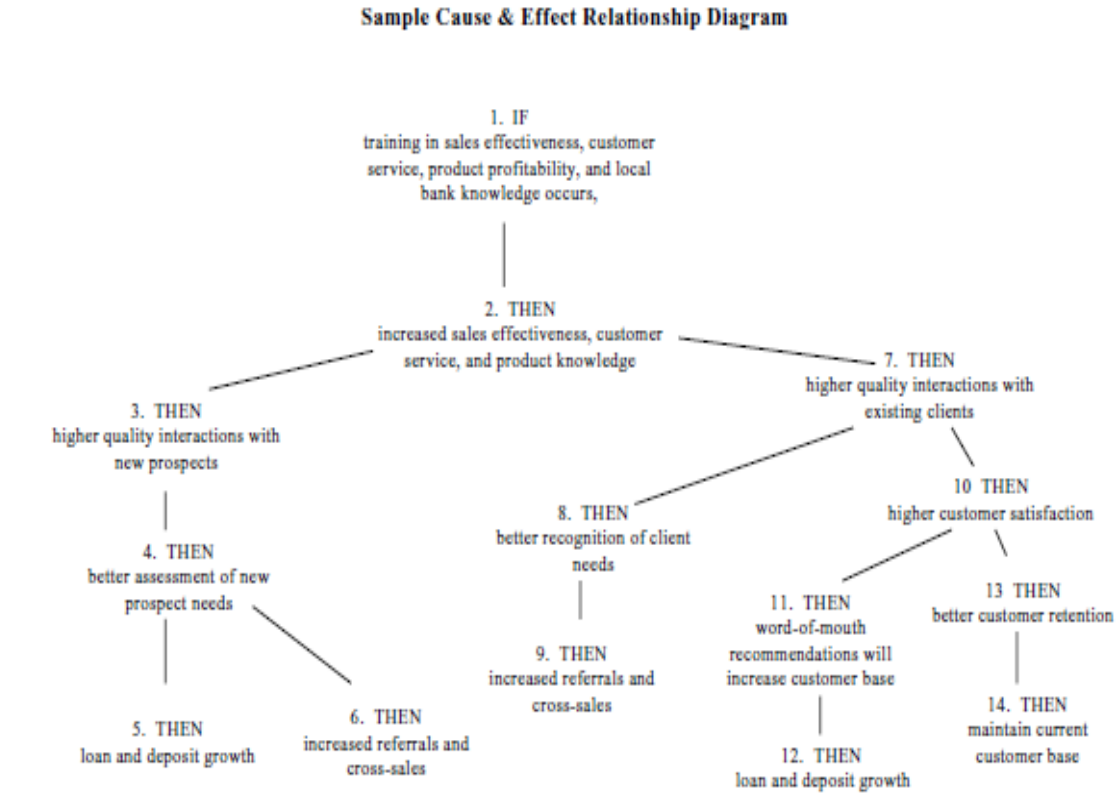


Fig. 9: Sample Cause and Effect Relationship Diagram

Source: Davis and Albright (2004)

The different chains are separately linked to measures which are included in the BSC. The observation of these measures shows if the effects are the same as expected and to which extent the expectation is met. Additionally, the use of cause-and-effect relationships shows that the organization attempted to establish the BSC according to the theory. Furthermore, the link between the CKFM and the bank´s bonus payout program implies that incentives for employees are directly connected to the BSC. Therefore, it is obvious that the BSC corresponds perfectly to a "*Type III BSC*" (chapter 3.3) according to the classification of Speckbacher et al. (2003). A closer look at the sample cause-and-effect relationship diagram above (figure 9) raises several questions. Since the formulation of cause-and-effect relationships is one of the main features of the BSC approach according to Kaplan and Norton (1996a, 2001a, 2001b) and the BSC literature

(Hoque and James, 2000; Malmi, 2001; Norreklit, 2000), the display of only one sample chain, can be considered as a very limited basis to comprehend the value and advantages of the utilization. It seems that the authors only wanted to provide an overview how such a chain could be designed and how these relationships can be established not only within, but also between the different perspectives.

More detailed examination of this sample cause-and-effect relationship (figure 9), leads to further recognition of one finding. It could be a coincidence that a sample was chosen which has a training program as starting point. But in general a major share of the cause-and-effect relationships has the starting point in the area of the learning and growth perspective and therefore this fact cannot be interpreted as coincidence. It is rather supportive for the conclusions of Wallenburg and Weber (2006) who concentrated on empirical evidence for the existence of cause-and-effect relationships. Based on an analysis of 245 German organizations in different branches, they provided evidence for a circular closed loop model of the four perspectives of the BSC, displayed in figure 10 below.

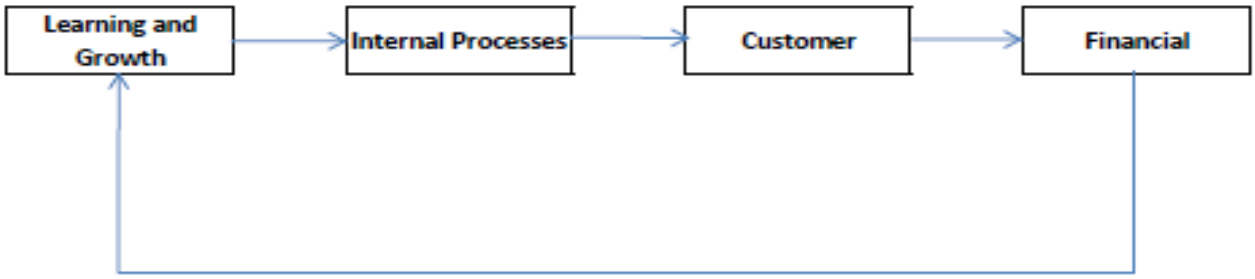


Fig. 10: Closed Loop Model of the Balanced Scorecard Perspectives

Source: adapted from Wallenburg and Weber (2006)

This closed loop starts with the learning and growth perspective which affects internal processes and the customers and results in financial impacts before going back to the starting point. But this closed loop approach explicitly does not reject interdependencies of all perspectives. The particular relation between customer satisfaction measures and subsequent financial performance improvement was also stressed by Banker et al. (2000), who analyzed the implementation of a new performance measurement system with focus on non-financial measures in a hotel chain.

This case can be considered as too specific regarding the branch because it is obvious that customer services and satisfaction play a fundamental role in the hotel business. On the other hand it is also clear that customers are important for most organizations regardless of the business sector and therefore a generalization of the finding is possible and supported by the conclusions of Wallenburg and Weber (2006).

Focusing on the training program (figure 9) launched in the southern division branches might be the crucial point in the work of Davis and Albright (2004). There is no indication that northern division branches, which did not implement the BSC, launched any kind of training program which could lead to the conclusion that all performance effects of the southern division branches can be attributed to the training of employees. In general it is not possible to reduce the theory of the BSC to the issue of staff training but all these facts prove the major role of training and therefore organizational learning in context with management control systems and their effect on financial performance. As stated before, the work of Davis and Albright (2004) used a composite key financial measure (CKFM) to assess financial performance. The comparable CKFM of each branch is fundamental for the statistical analysis and the interpretation of the results.

Results of the Statistical Analysis

The statistical analyses were elaborated to show if there was a significant change of CKFM for experimental (southern) division branches. For this purpose the data of June 1999 and June 2001 was compared to analyze the effect of the balanced scorecard implementation. An additional aspect is the comparison with the CKFM of the control (northern) division branches. The changes of CKFM from June 1999 to June 2001 in control branches were also analyzed separately. Finally, the results of these two divisions were compared to find out if the change in the experimental division is significantly greater than the change experienced in the control division. Because of the small number of observations in the sample, a nonparametric Wilcoxon signed rank test was used for the two separate branch analyses as well as the comparative analysis.

The development of the CKFM for the experimental and control group between June 1999 and June 2001 is displayed in figure 11 below:

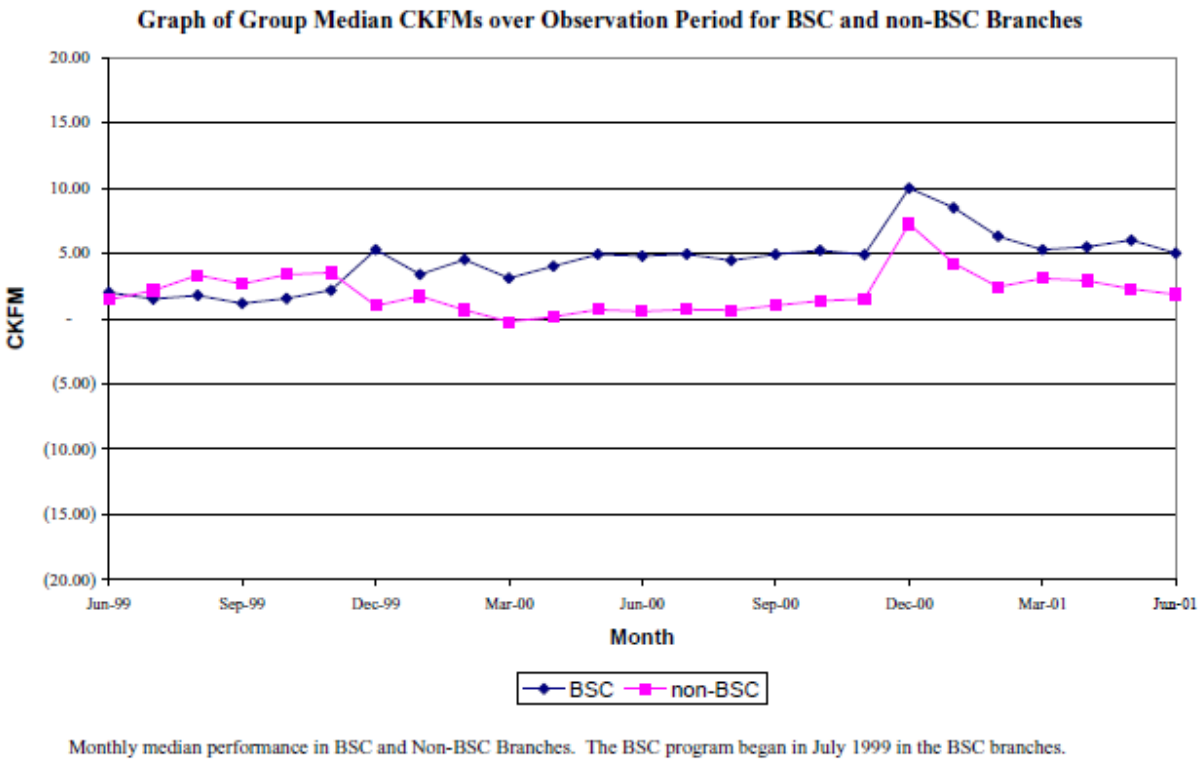


Fig. 11: Development of the Composite Key Financial Measures

Source: Davis and Albright (2004)

The graph shows an overall performance enhancement for experimental (BSC) branches. Furthermore the results of the Wilcoxon signed rank test showed a significant difference (P-value = 0.034) comparing the CKFM levels of June 1999 and June 2001 for BSC branches, but insignificant difference (P-value = 0.500) regarding non-BSC branches. Additionally, the combined test showed that the BSC branch performance improved significantly more than the non-BSC branch performance (P-value = 0.014). Therefore, the authors conclude a positive effect of a balanced scorecard implementation associated with introduction of non-financial measures on financial performance.

Another paper that needs to be mentioned in this context is the work of Fabien de Geuser, Stella Mooraj and Daniel Oyon, which was published in 2009 in the European Accounting Review Vol. 18, with the title *"Does the Balanced Scorecard Add Value? Empirical Evidence on its Effect on Performance."*

4.3 De Geuser, Mooraj and Oyon (2009): Does the Balanced Scorecard Add Value? Empirical Evidence on its Effect on Performance

This study investigates whether the Balanced Scorecard adds value to companies and in which ways it contributes to organizational performance. According to the authors of the study, many normative statements have been formulated and supported by various case studies in order to specify execution, goals and outcomes of BSC implementation processes. In contrast it seems that there are still problems of documenting empirical evidence over the last years because all mentioned papers (Lipe and Salterio, 2000; Ittner et al., 2003; Speckbacher et al., 2003; Braam and Nijssen, 2004; Papalexandris, Ioannou and Prastacos, 2004) were published before the year 2005. So either there exists no empirical evidence in this context for the timeframe between 2005 and 2009, the authors could not find any or it was not valuable enough to be mentioned in their analysis. Certainly there exists more recent research as mentioned and discussed later in this chapter.

Development of Hypotheses

Regarding the normative statements to discuss theory and develop the hypotheses, the authors concentrated on case studies published by Kaplan (1996) and Kaplan and Norton (2001a). These studies proposed value creation because of higher ability to communicate the strategy throughout the organization, development of ideas and employee feedback. Furthermore, the BSC rapidly provides exact and relevant information and concentrates on the identified critical success factors so managers have more time for decision making. Additionally, the implementation of a BSC *"creates an environment that is conducive to learning through the testing of hypotheses regarding cause-and-effect relationships and by laying the groundwork for a 360° feedback process"* (De Geuser et al., 2009). Because most of the case studies and empirical studies conclude positive effects of a BSC implementation on performance the first hypothesis was formulated as follows:

Hypothesis 1: *The development (design, implementation and use) of the BSC is positively associated with the organizational performance of the firm.*

In order to answer the question how the Balanced Scorecard affects organizational performance, the authors used the *"Strategy-Focused Organization"* framework of Kaplan and Norton (2001a). This framework includes five different underlying principles which were transformed into possible sources of organizational performance (De Geuser et al., 2009):

- The support of the top management concerning the Balanced Scorecard implementation especially mobilization of employees, communication of the organizational objectives and governance of launched processes.
- The ability of the Balanced Scorecard to translate the organizational strategy into operational terms using cause-and-effect relationships and strategy maps.
- The use of the Balanced Scorecard to "align" the organization which means linking the individual strategies of different organizational departments.
- The involvement of every organizational member in the design and implementation process of the Balanced Scorecard.
- The continuous integration of strategy into the management system using the Balanced Scorecard.

Consequently, five hypotheses were formulated by De Geuser et al. (2009) in order to analyze possible sources of performance using the BSC:

Hypothesis 2(a): *The higher the support of top management to the development of the Balanced Scorecard, the better the organizational performance.*
Hypothesis 2(b): *The better the translation of the strategy through the Balanced Scorecard development, the better the organizational performance.*
Hypothesis 2(c): *The more the organization is aligned using the Balanced Scorecard, the better the organizational performance.*
Hypothesis 2(d): *The more the Balanced Scorecard encourages strategic input from all levels of the organization, the better the organizational performance.*

Hypothesis 2(e): *The more strategy is integrated into the management system using the Balanced Scorecard, the better the organizational performance.*

Data and Methodology

The authors used the data from a survey of European organizations which already implemented a BSC. These organizations were based in Switzerland, UK, Germany, Austria, France and the Netherlands. The questionnaire consisted of one part which was used to measure the contribution of the BSC to organizational performance and another part which was used to identify the sources of contribution. To answer the question if the Balanced Scorecard adds value to the organization, the study follows the methodology of Foster and Swenson (1997) which contains means comparison of different success measures regarding four dimensions:

- Implementation success of the Balanced Scorecard
- Costs and benefits of the Balanced Scorecard development
- Integration of the Balanced Scorecard into the management processes
- Decentralization of firms and work units

This methodology uses multi-item proxies which lead to four organizational performance measures for the test of the first hypothesis. Additionally, an equally-weighted aggregate measure of the four others was used to provide evidence for the overall success. In order to test the other hypotheses (2(a), 2(b), 2(c), 2(d), 2(e)), five multi-item proxies were defined to represent the different sources of organizational performance according to the five principles of the "*Strategy-Focused Organization*" framework of Kaplan and Norton (2001a). After the definition of the different variables, regression analysis was used to test these various hypotheses and analyze the results.

Results of the Statistical Analysis

Hypothesis 1: *The development (design, implementation and use) of the BSC is positively associated with the organizational performance of the firm.*

According to their analysis, De Geuser et al. (2009) conclude that this hypothesis cannot be rejected. Therefore the 76 surveyed managers of different business units, which are spread over 24 companies, predominantly valued the development of the BSC as a success. Especially members of corporate management and the highest management levels of business units responded enormously positive, while units like purchasing, R&D or distribution reacted with average scores. Overall, this indicates the positive effect of the BSC as a tool to support decision-making and monitoring for higher management levels. Additionally, 72.2% of the surveyed managers considered that BSC benefits exceeded or greatly exceeded costs, although they had *"difficulty in providing estimates for financial improvements directly linked to the Balanced Scorecard"* (De Geuser et al., 2009). Another aspect which was very positively valued by the respondents was the improvement of integration of management processes in business units concerning performance measurement and strategic alignment. This fact is consistent with the results of Speckbacher et al. (2003).

Finally the results show high autonomy of business units concerning the definition of objectives, performance measurement and adaption of incentive schemes. These results are fundamental for the conclusion of De Geuser et al. (2009) that the development of the BSC is positively associated with organizational performance. Since the first hypothesis does not answer the question how value is generated through BSC development, five other hypotheses were formulated using the *"Strategy-Focused Organization"* framework of Kaplan and Norton (2001a) in order to analyze possible sources of performance using the BSC:

Hypothesis 2(a): *The higher the support of top management to the development of the Balanced Scorecard, the better the organizational performance.*

In order to verify this hypothesis a proxy variable was created which evaluates the support of the top management for the development of the BSC. The results do not show statistically significant values and therefore fail to provide support for this hypothesis. Surprisingly, there is no indication that top management support leads to positive performance effects which leaves room for further research.

Hypothesis 2(b): *The better the translation of the strategy through the Balanced Scorecard development, the better the organizational performance.*

In order to verify this hypothesis a proxy variable was created which evaluates if the BSC plays the central role for developing the strategy and setting strategic priorities. The results show statistically significant values and therefore support this hypothesis. This implies a positive effect on organizational performance if the BSC is used as the central tool to translate and communicate the strategy of the organization.

Hypothesis 2(c): *The more the organization is aligned using the Balanced Scorecard, the better the organizational performance.*

In order to verify this hypothesis a proxy variable was created which evaluates if the development of the BSC aligns the processes, the services and the competencies of the organization. The results show statistically significant values in one case and therefore indicate partial support for this hypothesis. This implies a positive effect on organizational performance if the BSC is used to coordinate the alignment of processes, services, competencies and units of the organization.

Hypothesis 2(d): *The more the Balanced Scorecard encourages strategic input from all levels of the organization, the better the organizational performance.*

In order to verify this hypothesis a proxy variable was created which evaluates the degree of implication of everyone in the development of the BSC. The results do not show statistically significant values and therefore fail to provide support for this hypothesis. Again, there is no indication that the involvement of all employees leads to positive performance effects which leaves room for further research.

Hypothesis 2(e): *The more strategy is integrated into the management system using the Balanced Scorecard, the better the organizational performance.*

In order to verify this hypothesis a proxy variable was created which evaluates the extent to which the BSC is developed to influence management practices, processes and systems on a

continuous basis. The results show statistically significant values and therefore support this hypothesis. This implies a positive effect on organizational performance if the BSC is used on a permanent basis to adapt management practices, processes and systems.

Concerning the hypotheses 2(a) – 2(e), which try to identify possible sources of performance enhancement, De Geuser et al. (2009) conclude that *"the organizational performance generated by the development of a BSC comes primarily from its strategic focus."* This statement supports the findings of Speckbacher et al. (2003) who found out that the main reasons for BSC implementation are improving the alignment of strategic objectives with the actions actually undertaken in order to improve company results in the long term. Therefore, the next chapter discusses the findings of Speckbacher et al. (2003) which do not directly analyze performance effects in context with BSC implementation, but provides strong influences to contribute to the conclusion of this work.

4.4 Speckbacher, Bischof and Pfeiffer (2003): A Descriptive Analysis on the Implementation of Balanced Scorecard in German Speaking Countries.

In this study, Speckbacher et al. (2003) investigated the usage of the BSC in Austria, Switzerland and Germany, and argued with a very representative sample of companies listed in the DAX, ATX and the Switzerland stock exchange. The study provided a very high response rate of 87% representing 174 companies. 42 of these companies were considered to use the BSC and completed the questionnaire. These companies were involved in the BSC analysis. Surprisingly, one third of the BSC users did not include the learning and growth perspective which should play a central role in the BSC to increase the probability for subsequent performance improvement. Since BSC implementation generally goes hand in hand with employee training programs which belong to the learning perspective it should be the case that one third of the analyzed organizations had no training in place to support BSC implementation. This is not explicitly stated in the analysis and therefore leaves room for misinterpretation.

Furthermore, only 50% of the organizations used cause-and-effect relationships to support the BSC program but more than two thirds linked their bonus program to the BSC. A possible explanation could be that the other 50% do not consider cause-and-effect chains as crucial for a BSC or, more likely, they apply these relations intuitively by comparing single key figures. The latter is confirmed by the assumption of Speckbacher et al. (2003) which states that in the early implementation process it is hard to find the crucial relationships between key figures.

One further finding of this work was the confirmation of the assumption analyzed by Hoque and James (2000), that the size of the organization is positively associated with BSC usage. In contrast to that fact there are also examples of successful or performance enhancing BSC implementations in small and medium sized enterprises (Fernandes, Raja and Whalley, 2006). As already mentioned in the last chapter, Speckbacher et al. (2003) also asked for the main reasons for the BSC usage:

- Improving the alignment of strategic objectives with the actions actually undertaken
- Improved company results in the long term
- Stronger consideration of nonfinancial drivers of performance
- Supporting the shareholder value based management system

According to Speckbacher et al. (2003) stakeholders and intangibles were ignored regarding these main reasons. This fact can be doubted because customers and employees are directly linked to nonfinancial drivers of performance and also play a major role for the improvement of company results. Therefore the interpretation could also be that stakeholders are not explicitly but indirectly considered, and following a shareholder value improvement strategy does not necessarily imply an exclusion of stakeholder concerns. The next paper which will be discussed in detail is again based on quasi-experimental design.

4.5 Chi and Hung (2011): Is the BSC Really Helpful for Improving Performance? Evidence from Software Companies in China and Taiwan

The research of Chi and Hung (2011) used the same approach as Davis and Albright (2004) and applied it to software companies situated in Taiwan and China. The three compared companies were among the top ten major corporations in terms of annual revenue rankings of 2005 and 2006 in the software industry in Taiwan. All analyzed firms were founded between 1980 and 1985 and the number of employees reaches from 2300 to 2800. The major business items include software development, process improvement, Enterprise Resources Planning (ERP), system application, e-training, technical R&D, software design, enterprise process reengineering, information system development and application, supply chain management and information safety protection. One of these companies implemented a BSC in the beginning of the year 2004 and therefore represents the experimental group. The other two investigated companies did not implement a BSC during the observation period which identifies them as the comparable control groups.

The evaluated time frame of this study reached from the year 2003 to 2006 which results in four different points in time at the end of each year to compare the performance measures of the experimental group with those of the control groups as displayed in figure 12 below.

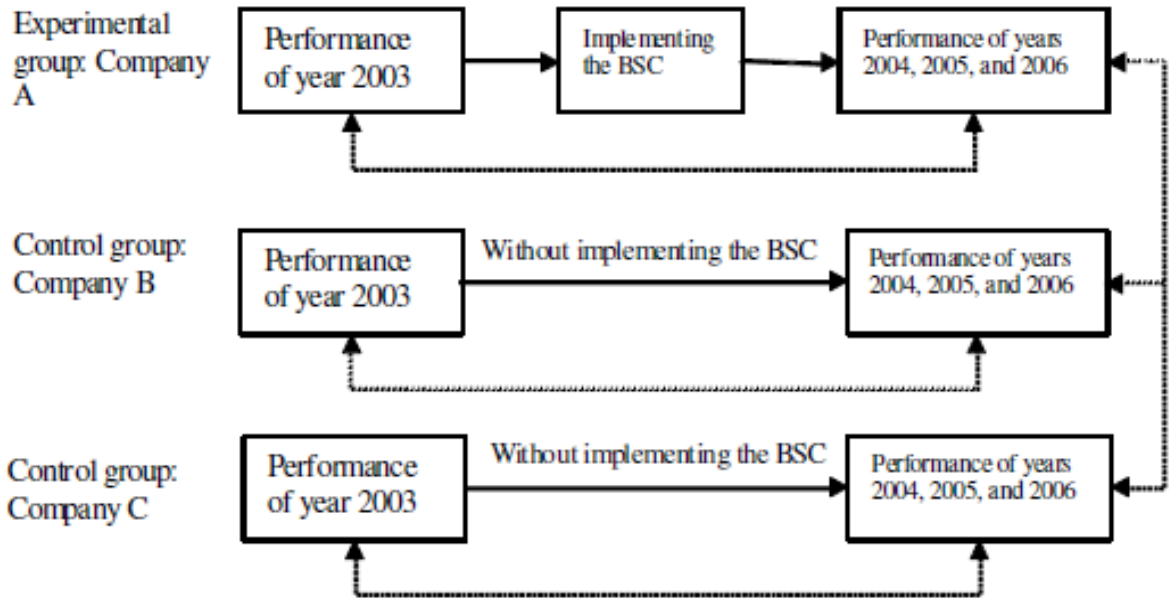


Fig. 12: Model of Research Design

Source: Chi and Hung (2011)

This study is based on quasi-experimental design as displayed in chapter 4.2 (Table 5), and investigates the software industry. According to the description of the BSC program a *"Type III BSC"* (Speckbacher et al., 2003) was established. Therefore, it is guaranteed that financial and non-financial performance measures are included in the evaluation. Furthermore, these measures are displayed by defining cause-and-effect relationships and finally a strategy map was created to define goals, activities and other related decisions. These goals concerned all 4 perspectives of the BSC and the focus was set on 3 to 5 performance measures for every perspective as displayed in table 7 below.

BSC perspective	Measurement indicator	Weight*(%)	Measurement method	Data resource
Financial perspective	Sales growth rate	40	(Sales revenue of this period and sales revenue of prior period) / Sales revenue of prior period	Income Statement
	S and A Exp. ratio	30	S and A Exp. / Total operating Exp.	Income Statement
	Product profitability	30	Net product profit / Total product cost	Statement of sales revenue; Statement of manufactured cost
Customer perspective	Number of customer complaints	20	Statistics of number of customer complaints	Records of marketing department
	Customer satisfaction	40	Customer satisfaction index	Customer questionnaire investigation
	Market share growth	40	(Market share of this period and market share of prior period) / Market share of prior period	Investigation data of marketing department
Internal business flow perspective	Work achievement rate	20	Completed piece numbers/required piece numbers for completion	Statistic data of each department
	Product delivery delay rate	20	Completed piece numbers in delivery/ required piece numbers for completion in delivery	Statistic data of each department
	Production cost ratio	20	Production cost / total cost	Statement of manufactured cost; Income Statement
	Comprehensive and humanized level of product functions	20	Customer satisfaction index	Customer questionnaire investigation
	Product stability	20	Customer satisfaction index	Customer questionnaire investigation
Learning and growth perspective	Employee satisfaction	20	Employee satisfaction index	Employee satisfaction questionnaire investigation
	Employee resignation rate	10	Employee numbers in resignation / Total employee numbers	Statistic data of human resources department
	Employee short-term advanced study ratio **	20	Employee numbers in short-term advanced studies / Total employee numbers	Statistic data of training department
	Employee long-term advanced study ratio ***	20	Employee numbers in long-term advanced studies / Total employee numbers	Statistic data of training department
	Ratio of training cost (expense) account for total expense	30	Training expense / Total expense	Statistic data of finance department

Table 7: Overview of Performance Measures

Source: Chi and Hung (2011)

Cause-and-effect relationships were defined within the perspectives and across the perspectives and afterwards displayed in a strategic map. The suggested sample causal chain shows the same

intention like Wallenburg and Weber (2006) and uses the same sequence of a closed loop model as displayed in chapter 4.2 (Fig. 10).

The paper of Chi and Hung (2011) concludes that in this case the BSC implementation improved performance over all 4 perspectives (financial, customer, internal processes, learning and growth) compared to the control groups. Examples for improvement for the **financial perspective** could be found when comparing sales growth rate, selling and administrative expense ratio and product profitability of the experimental group with the corresponding measures of the control groups. In the **customer perspective** the internal targets for market share, customer complaints and customer satisfaction were not achieved by any of the companies but the experimental group clearly outperformed the control groups. Regarding the **internal business processes** perspective the evaluation shows steady improvements in the product delivery delay rate and the production cost ratio. The fundament for these enhancements is represented by the **learning and growth perspective** which shows progress in each measure. This is reflected by the employee satisfaction measure as well as the training expense ratio.

These improvements provide evidence that in this case the BSC contributes significantly to performance measure increases in every perspective. So the study supports the opinion of different authors (e.g. Davis and Albright, 2004), which is also the opinion of a substantial part of managers, that the BSC has positive effects on organizational performance. Contrary, there are also examples in the economic literature for cases without performance measure increases or even decreases.

4.6 Neely (2008): Does the Balanced Scorecard Work? An Empirical Investigation

This research paper based on quasi experimental design was written by Neely (2008) and compared two wholesalers of electrical components in the course of an acquisition process in the UK. The data represents the 3-year time period from 2000 to 2002 regarding the acquired company. The first year (2000) was used for BSC preparation and in the second year the BSC was introduced. This included a new bonus scheme for branch managers, which was linked to the

BSC and integrated branch performance as well as overall company performance. Therefore, the BSC can be considered as *"Type III BSC"* (Speckbacher et al., 2003) despite there is no cause-and-effect relationship mentioned (see chapter 3.3).

In the third year of observation (2002) a reorganization process led to the reintroduction of the traditional performance measurement system. The acquiring company relied on traditional methods for the evaluated years (2000, 2001) while the acquired company used a BSC in 2001. Therefore, this case was treated as a naturally occurring experiment which provided 56 pairs of matched branches. Every pair consisted of one branch which adopted the BSC in 2001 and another which did not. This was a possibility to compare the differences in performance regarding the matched branches. Furthermore, the author was also able to look at the different measures of the acquired company for the year 2001 (when the BSC was in place) in contrast to 2000 and 2002. These results are displayed in table 8 below.

	2000	2001	2002
Total Sales	100%	103.34%	91.83%
Gross Profit	100%	97.75%	92.28%

Table 8: Performance Results

Source: Neely (2008)

These values were examined in a more detailed manner by comparing monthly results of total sales and gross profit for the 3 years. Overall, the data suggested that the introduction of the BSC had a positive impact regarding sales and gross profit and the removal had a negative impact for both measures. But this data can be misinterpreted because this calculation does not involve a control group to exclude the possibility that other factors influenced the measures besides the implementation and removal of the BSC.

The other approach was to compare the data of the acquired company with the available data of the acquiring company on a monthly base for the years 2000 and 2001. This evaluation showed another outcome than before and led to the conclusion that the BSC organization had no significantly better performance than the other company regarding sales and gross profit. Consequently, Neely (2008) proposed that the positive effects discovered at the separate

evaluation of the acquired company, comes from other external factors and not from the BSC implementation. Afterwards, the study presented calculations for the branches which performed well (above the mean value) on the non-financial measures, and compared them to the poorly performing ones (below mean value). Based on these non-financial measures there was also no superior effect on financial performance observed.

Therefore, an overall statement was that the BSC does not work. A possible explanation was the time constraint because the analyzed organization operated with the BSC only for one year. Consequently, it is difficult to analyze why the implementation did not result in financial performance enhancement. Most papers with similar time constraints therefore suggest a long term horizon for further research on the topic because the improvement of non-financial performance can lead to better financial performance at a later point of time because of lagged effects. The same sort of self-criticism is mentioned by Papalexandris et al. (2004) in their study concerning BSC implementation in a Greek software company. All of the studies which are treated in detail are also integrated in table 4 of chapter 4.1 which presents the development of empirical literature over the last 20 years. As table 4 shows, MCS adaption represented by the example of BSC implementation leads to mixed results as already clarified regarding the discussed research. Additionally, the last chapter provides a summary of different outcomes of several empirical studies concerning possible performance effects and critical discussion of the different findings.

5 Summary of Findings and Conclusive Remarks

The summary of different studies provides a broad overview of possible positive and negative performance effects regarding BSC implementation. The purpose of this chapter is the unification of all the influences of the relevant empirical work and to differentiate between the possible positive and the negative results. Therefore, it is the last chapter of this diploma thesis which is the last source of information for the conclusion of this work.

5.1 Overview and Discussion of Possible Performance Effects

The paper of Chang, Tung, Huang and Yang (2008) analyzed a BSC implementation and development process in a hospital in Taiwan over a time span of 4 years. They listed the positive effects of the BSC:

- Clarification and consensus on the business strategy between senior managers and the board of directors which led to common communication of strategy throughout the entire organization
- Better understanding and focus on BSC measures and connected targets
- Optimized balance between short-term financial goals and long-term investments for growth
- Improvement of performance measures in all 4 perspectives
- Increase in employee learning pace and continuous improvement
- Recognition of existing problems and opportunities

Clarification and consensus on the business strategy between senior managers and the board of directors which led to common communication of strategy throughout the entire organization

The strategy alignment described in the first point of the above list is stressed by a multitude of different authors. The results of Braam and Nijssen (2004) suggest that BSC use that is aligned to company strategy positively influences overall company performance. Malina and Selto (2001) also found significant opportunities to develop, communicate, and implement strategy. According to the study of De Geuser et al. (2009) performance can only be expected from the strategic side of the BSC. But strategy is determined by people so it is also possible that BSC implementation is deemed to be a failure because of a poorly selected strategy of executive personnel. But in this case there is at least a possibility to recognize the inefficiency of the chosen strategy by concentrating on the selected key figures. Furthermore, it has to be mentioned that the strategic role of the BSC is disregarded in many studies because only short-term time horizons are established and analyzed in the relevant empirical research papers. Therefore, it is easy to make the theoretical statement that the strategy has to be aligned throughout the entire organization or the BSC has to reflect the strategy, but this is just a requirement and no guarantee for any sort of positive future performance effects.

Better understanding and focus on BSC measures and connected targets

The second point of the above list implies a better understanding and more focus on the BSC measures and connected targets. Since the implementation of a BSC in a company involves more or less all departments of the organization, the communication of a common strategy raises the focus and understandability for the important key figures and the connected targets throughout the entire organization. The conclusion of this fact made by many authors of BSC literature is also a better identification of employees with the organization and their jobs because of clarification of the purpose and goals connected to their tasks. On the one hand De Geuser et al. (2009) found no indication that the involvement of all employees leads to positive performance effects. On the other hand there is a high probability that involvement of all departments of the organization is another requirement which does not guarantee future performance effects but might help to achieve them.

Optimized balance between short-term financial goals and long-term investments for growth

The third point of the above list suggests an optimization of the balance between short-term financial goals and long-term investments for growth. This is a possible observation without explicit evidence and implies an improvement over all 4 perspectives which is rarely the case as described next.

Improvement of performance measures in all 4 perspectives

The fourth point of the above list suggests the possibility of improvement over all 4 perspectives. This is observed by a number of authors (Papalexandris et al., 2004; Chang et al., 2008; Chi and Hung, 2011). In contrast other authors provide mixed results (Malina and Selto, 2001; Braam and Nijssen, 2004) or concentrate only on the improvement of financial performance because of the assumption that financial performance can be achieved by improvement of non-financial measures (Davis and Albright, 2004).

Increase in employee learning pace and continuous improvement

The fifth point of the above list is the increase in employee learning pace and continuous improvement which explicitly addresses organizational learning in context with MCS. The central role of the learning and growth perspective especially of employee training is supported by a multitude of authors (Kloot, 1997; Davis and Albright, 2004; Papalexandris et al., 2004; Wallenburg and Weber, 2006). Khan and Halabi (2009) propose that the learning and growth perspective is essential for success in their case of evaluation of a multinational organization. Also Harlow (2008) stresses a positive association of a tacit knowledge index, which contains the drivers of employee satisfaction, retention and productivity, with innovation and financial outcomes. In contrast, the study of Speckbacher et al. (2003) had the surprising outcome that only 57% of their analyzed sample of Austrian, Swiss and German organizations used a learning and growth perspective in their BSC. But this finding can be relativized because it is possible that a substantial part of the other 43% used a comparable perspective without the explicit denomination “learning and growth perspective”. Additionally no evidence is provided that those organizations which do not use a “learning and growth perspective” have no employee training programs in place and do not focus on staff training. This would be very surprising because of

significant immediate, lagged, direct and indirect effects of training on economic performance claimed by numerous authors (Lawler, Mohrman and Ledford, 1995; MacDuffie, 1995; d´Arcimoles, 1997; Wong, Marshall, Alderman and Thwaites, 1997; Oakland and Oakland, 1998; Smith and Hayton, 1999; Jayaram, Droge and Vickery, 1999). Consequentially, it seems that the predominant opinion in the literature, that training represents a crucial factor for performance, reflects the truth.

Recognition of existing problems and opportunities

An additional possibility of positive effects of the BSC is provided by Lupi et al. (2011) as well as Anand et al. (2005). The former suggested the BSC to be effective regarding the recognition of existing problems and opportunities for improvement within an organization in the Italian health care sector. The latter stressed that most companies in their study of Indian organizations claimed, that the implementation of the BSC has led to the identification of cost reduction opportunities which, in turn, has resulted in improvement in the bottom line.

Overall, it seems that the BSC is extensively considered by managers to deliver positive performance effects. As presented in chapter 2.5, this is confirmed by Simons (1994) as well as Bose and Thomas (2007) who provide evidence for changes in the MCS after hiring a new manager. Consequentially, managers have to believe that BSC has to have positive impact on performance. But there are also critical contributions to this issue which suggest a probability of negative performance effects for BSC implementation and application:

- Time consumption
- Increase in costs
- Decrease in financial performance

Time consumption

Since BSC implementation is a continuous process which involves numerous departments of an organization, the time factor is very important. Most employees have to spend time and deal with the changes in context with the BSC adoption. Therefore, they need to handle their daily business

routines and additionally support the development of the BSC. Consequently, the required time is the main factor which causes negative effects for BSC implementation.

Increase in costs

An increase in costs is the best evidence for the argument of excessive time consumption. The loss of time for any employee goes hand in hand with a raise of costs because of payments for additional working hours. Another possibility is the reduction of effort regarding daily business routines to spend more time on the involvement in the BSC implementation process. Consequently, the daily routines are not handled properly and the result is again a raise of costs because somebody else needs to do the work and gets paid for it.

Decrease in financial performance

This point represents the worst case scenario if there is a permanent decline regarding the financial performance measures. Although there are a few studies which found some negative performance effects (Lipe and Salterio, 2000; Malina and Selto, 2001; Papalexandris et al., 2004; Braam and Nijssen, 2004; Cheng et al., 2008; Neely, 2008) none of them draws the conclusion that the BSC permanently reduces financial performance. Furthermore all of these papers provide explanation approaches for the reasons of specific performance declines concerning the respective cases.

5.2 Explanation Approaches for Negative Performance Effects

After the discussion of positive and negative outcomes of BSC application, it is also necessary to deal with the reasons for negative empirical results provided in the literature. Additionally to the modest improvements in the financial perspective over a period of 12 quarters in a U.S. FORTUNE 500 company, Malina and Selto (2001) discovered possible reasons for negative performance effects of the BSC:

- Measures are inaccurate or subjective
- Communication about the BSC is one-way (e.g. top-down and not participative)
- Benchmarks are inappropriate but used for evaluation

Further possible approaches are:

- Too much focus on details (e.g. specific measures) while disregarding strategy
- Focus on the wrong strategy or targets
- Poor assignment of weightage to the different perspectives
- Too short time horizon
- Generalization of the studies not possible
- Skepticism
- Lack of motivation for change

Measures are inaccurate or subjective

The first point of the above list describing possible reasons for negative performance effects was proposed by Malina and Selto (2001) regarding their study of a U.S. FORTUNE 500 company. The possibility that the selected measures are inaccurate or subjective are confirmed by Lupi et al. (2011) who detected problems of choosing the right indicators for performance in their study of an Italian health care organization. Of course the choice of the right performance measures is a crucial point for the success of a BSC implementation. This can be seen in many studies where performance measures are eliminated, changed or substituted after an amount of time because of ineffective results or modifications of the corporate strategy. The choice is not easy to make because it is also the fundament for the definition of cause-and-effect relationships which can only be established by detection of the crucial links between relevant performance measures.

Communication about the BSC is one-way (e.g. top-down and not participative)

The second point of Malina and Selto (2001) criticizes non-participative communication about the BSC as a possible factor of negative performance. Theoretically this sounds rational and confirmation can be found reading De Geuser et al. (2009) who suggest that there is no indication that the involvement of all employees in the implementation process of a BSC leads to positive performance effects. Conversely, possible negative effects cannot be excluded.

Benchmarks are inappropriate but used for evaluation

The third point of the above list stressed by Malina and Selto (2001) is the choice of inappropriate benchmarks which are also used for performance evaluation. This is an obvious reason for possible negative performance because if managers concentrate on the achievement of inappropriate benchmarks it is highly probable that the disregarded important performance measures are less attended and focus lies only on those measures used for evaluation. This point goes hand in hand with the selection of performance measures and the lack of focus on corporate strategy explained in the next point.

Too much focus on details (e.g. specific measures) while disregarding strategy

This Point of the above list is crucial for most authors who analyze BSC implementation and application. Despite the positive findings regarding a strategy-focused BSC use, Braam and Nijssen (2004) also discovered significant negative effects for the case of a measurement-focused BSC use. Confirmation was provided by De Geuser et al. (2009) who stressed that performance can only be expected from the strategic side of the BSC.

Focus on the wrong strategy or targets

Another possibility besides disregarding strategy is the selection of a poor strategy and the corresponding targets. Despite the negative effects found for measurement-focused BSC use (Braam and Nijssen, 2004) a strategy-focused BSC application can only work in context with a fitting strategy for the organization.

Poor assignment of weightage to the different perspectives

This explanation approach found support from Lupi et al. (2011) as well as Anand et al. (2005). They detected difficulties in assigning weightage to the different perspectives. Additionally, Anand et al. (2005) discovered problems in establishing cause-and-effect relationships among the perspectives which has been discovered to be the most critical issue in the implementation of the Balanced Scorecard in corporate India.

Too short time horizon

The observation of short time periods is the most obvious reason for negative performance results. As displayed in table 4, a multitude of the influential papers can be criticized because of the short time horizon chosen and lack of available data for more than one year. Therefore, the problem of these studies is obvious since there should be lagged effects which have no influence on important key figures instantly. In consequence many papers claim that the performance of the first year shows negative results. This is no surprise because the implementation process of a BSC is time consuming and demands for intensive involvement of employees. The amount of time which is spent for BSC implementation represents costs which are usually used for daily business duties depending on the analyzed branch. Working with a BSC is also a completely new situation for most of the employees and goes hand in hand with substantial changes regarding the entire organizational habits. Therefore, it is very hard to draw conclusions if the studies do not observe a longer time frame.

Generalization of the studies not possible

Additionally to short time horizons, another problem, which is mentioned above, is widely spread over the different papers is the generalizability of the studies for other sectors. Since most of the studies concern certain branches or industries which are mainly hospitals, software firms, manufacturers and banks or financial services companies, it is problematic to predict the outcome of BSC implementation for corporations which operate in other business sectors. Furthermore, many studies do not only concentrate on one industry, they are even more specific and go into detail with particular cases of one corporation. Therefore, it is even harder to draw conclusions from unique case examples for other corporations which might be completely different regarding culture, structure or competition.

Skepticism

The application of new instruments and strategies could trigger negative performance effects because employees need to change their working habits and routines according to the new strategy map or concentrate on other measures than before. Therefore, many organizational members might be skeptical about a BSC implementation and the associated changes.

Lack of motivation for change

The skepticism mentioned in the last paragraph usually results in lack of motivation of the employees. Therefore it is very important that there is enough communication within the entire organization to raise the motivation of all employees and to make clear that the changes are necessary. This can be difficult during the BSC implementation process because there are no immediate effects expected which can be expressed by performance measures.

So it seems that there are enough explanation approaches for negative performance effects in the common literature. Most of these effects are associated with the time- and cost-intensive implementation process in the first phase because of the necessary adaption of organizational practices. But most of the longitudinal studies draw positive conclusions regarding performance even if they report difficulties concerning the implementation process of the BSC. The comparison of positive and negative performance effects presented in a multitude of studies is the basis for the conclusion of this work.

5.3 Conclusive Remarks

Nowadays MCS play a very important role for the success of organizations because *"control is concerned with influencing the behavior of managers and employees in ways which lead to the attainment of organizational objectives"* (Kloot, 1997). The achievement of organizational goals depends on numerous internal and external factors. These could be management and employees, organizational and social structure, size and complexity of the organization, organizational learning which means the adaption to environmental changes, government legislation and many more. The main purpose of MCS is to integrate and consider all of these factors in order to structure the necessary tasks for organizational performance enhancement. The tools which are embedded in the system spread the focus on the optimization of various sorts of business processes. Therefore, it is no surprise that changes of management personnel are associated with a high probability of MCS adaption (Simons, 1994). This finding leads to the central question of this diploma thesis:

What happens to the performance of organizations when implementing and using new techniques of MCS?

Because of the extensive use within organizations, the BSC seems to be the best example for a fundamental adaption of MCS. It includes strategic planning, resource allocation, human resource management and operation management, so it is difficult to identify any management activities that are not considered to belong to the focus of the BSC. Therefore, it is not only a performance measurement tool, but a systematic approach to integrate different management techniques which already exist for many years. To answer the central question of this work, the chapters 5.1 and 5.2 provide a summary of all findings of the empirical research of the last 20 years and discuss the positive and negative performance effects. The discussed empirical research heads in so many different directions and therefore it gets more and more complex to analyze the overall effects of a BSC on performance. Because of the different nature of organizations which have quite different needs and operate in diverse industries and markets, the BSC of two different organizations are usually not identical. Therefore, a substantial share of BSC research is just a description of the implementation process in certain organizations. There will be no exact "instruction manual" which guarantees success but the implementation is based on the same theoretical framework. Hence, it is only possible to say: "That is how it could work for our company" and not "That is how it will definitely work for our company."

Overall it seems that the positive outcomes of different studies and performance effects outweigh the negative results. Critical contributions predominantly come from lagged effects which are not assessable for a time horizon of less than 2 years. Because of the time- and cost-consuming implementation phase it seems that the consequence cannot be an immediate financial performance increase which is solely associated with the BSC adoption. Furthermore, the organizational changes are quite difficult to adjust to for the employees of an organization. Therefore, the learning aspect, the invested effort and motivation plays an important role for the process. In essence, it seems that MCS, based on the example of a BSC implementation, provide huge potential for a performance increase in the long term, given that the fundament is a fitting strategy which is connected to the BSC measures and targets.

A recommendation for further research is to focus on different industries besides financial institutions, manufacturing firms, health care organizations and software firms. Furthermore, there is still too much focus on specific cases which cannot be generalized. It seems that there is lack of quantitative research about the success of BSC implementation which involves a representative sample size and a time horizon of more than 2 years.

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