# E-Business-Controlling using the Balanced Scorecard

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**Abstract.** The Internet and the linked technologies and developments change all aspects of the daily life. Companies use the new technologies to optimize their business processes and to achieve maximum customer satisfaction. More and more strategies are developed to reach the set targets and they are accepted as a key factor for lasting success. Especially in the e-business field it's very important to find efficient and effective ways to measure the success of the internet applications. Most of the analysis are triggered by a marketing point of view. The Balanced Scorecard (BSC) by Kaplan and Norton is a new approach to overcome former weaknesses of Measurement Systems and to focus on strategic targets from different perspectives. The so called Strategy Map shows an cause-and-effect relationship between the defined targets and explains the measures that drive the business performance. The concept of leading indicators makes it possible to look "ahead", to set the right actions and to react at the right time. This paper shows an approach to set up and implement an e-BSC for e-business-controlling focusing on the perspectives and the measures. An example of an implementation will be shown using the tool ADOscore®.

## 1    Introduction

The usage of the internet technology in companies has developed from a static low-priced homepage to high sophisticated systems and re-engineering of the business processes. In the past the small budgets for e-business-applications derived from the marketing budget and it was not necessary to control the success and effectiveness of the investment. With the new e-business-systems the demands have changed and new efficient and effective controlling methods must be implemented to measure the success and to counteract erroneous trends. The influence of e-business is wide spread and brings changes in different fields [4]:

Business processes are optimized and should bring cost cutting effects
The customer satisfaction and retention can be improved
These improvements should lead to higher turnover
With the new information technology (IT) new systems are installed and the skill profile of the employees is enhanced by training

The above mentioned points assume an e-business controlling system which supports and permits the analysis and management of these multiple perspectives.

Nowadays most of the controlling aspects in e-business are managed by a marketing and distribution point of view [4]. The investigated success factors are reduced to those defined by the web activities of the customer. Analysis of the behavior of the customer like page views, visits, retention periods, and click streams etc. acquired from log files and other sources take center stage in the evaluation without any linkage. But these factors are not satisfying instruments to measure the success of the implementation of an e-business application. An effective controlling system should enrich the information fragments with additional ones to give the possibility to build up an measurement system that includes the strategic objectives and success factors set by the management and that considers the above described multiple perspectives.

The Balanced Scorecard (BSC) as a new management system seems to be the right approach for the demands of an e-business controlling system.

## 2    The Balanced Scorecard

The concept of the BSC was developed by Kaplan and Norton [1]. It was the outcome of a sponsored one-year multicompany study "Measuring Performance in the Organization of the Future" [1, 2, 3]. The result was, that the performance measurement systems of the companies that were developed in the industrial area were no more applicative[3]. These concepts were focusing financial measures, long-term objectives etc. All the weaknesses and missing factors for a modern company being able to implement the strategy and capable of reacting on new developments in the market, new customer needs, rough competition etc. were the input to build up a scorecard that is balanced around four different perspectives – innovation and learning, internal, customer and financial. So the new concept should provide a balance between financial and non-financial measures, between lagging and leading indicators, short and long-term objectives and between internal and external performance perspectives [3].

With the publications of Kaplan and Norton of the findings in the Harvard Business Review and some best selling business books, that have been translated into 19 languages [6] giving hints and examples of BSC implementations, the concept has become very wide spread and accepted. Based on the simple premise "measurement motivates", the strategy is put at the center of the management process [6].

The most innovative step beside the consideration of intangible assets [10] of the BSC is the visualization of the strategic hypotheses with the cause-and-effect relationship. This logical model the so called "Strategy Map" is a good base to outpoint the linkage and relation between the activities that are the drivers of the desired outcome. So it can be used as a communication medium for the management to transfer the strategy into the company to the employees.
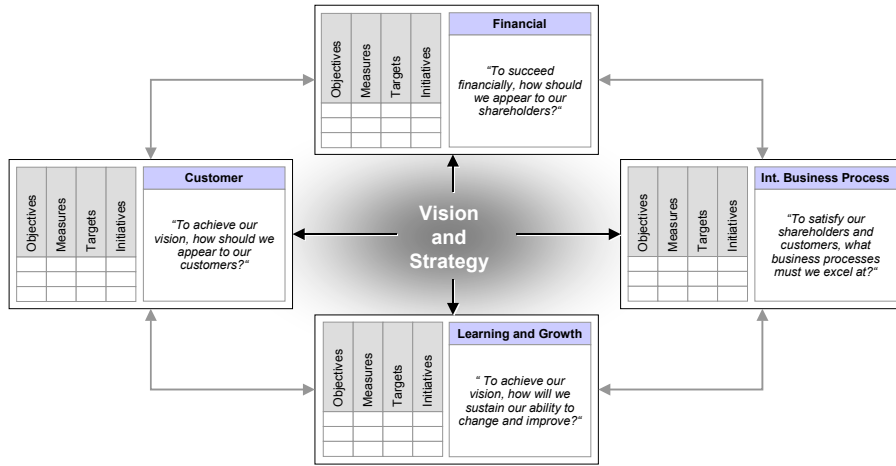
**Fig. 1.** The Balanced Scorecard [3]

## 2.1    The BSC for E-Business Controlling

The continuous development of the BSC beginning with the definition of the vision and strategy over the objectives and ending with the measures is very important. E-business offers new possibilities to reach the set objectives and to improve the competitiveness with additional success factors beside the traditional ones.

Among the four proposed perspectives by Kaplan and Norton it could be useful to introduce new perspectives depending on the e-business stage, the implemented applications of the company etc.

Some examples could be the following perspectives with the appropriate question:

Information Technology Perspective: "To achieve our vision, how can we adjust the hardware and software we use?"

Corporate Identity Perspective: "To achieve our vision, how should our presentation look like?"

Integration Perspective: "To get the maximum benefit, which process must be adapted to have the full integration?"

Practical cases show, that for the management it is difficult to define the e-business strategy, objectives and to find the right measures to control the progress because of too little experience.

The following table gives a suggestion of objectives and measures regarding the e-business perspectives Customer, Internal Processes, Learn and Growth and Financial [4]:

| E-Business Customer Perspective | |
|---|---|
| *Objective* | *Measure* |
| Increase of Customer Retention | Amount of recurring customers<br>Turnover per order |
| Improvement of Services | Amount of inquiries via e-mails |
| Increase of Customer Satisfaction | Amount of customer complaints<br>Quality of the information presented on the web |
| Increase of Market Share | Ratio of visits from different regions<br>Amount of banners placed in different sites<br>Ranking in search engines |
| **E-Business Internal Processes Perspective** | |
| Short Process Cycles | Comparison of classical procurement and e-procurement processes<br>Ratio of automated activities to manual ones |
| Integration of e-business processes in the company | Processes supported by e-business systems |
| **E-Business Learn and Growth Perspective** | |
| Skill of Employees in the field of e-business | Training ratio<br>External Training for employees |
| Knowledge Management (KM) | Usage of the e-business KM system |
| Resources of IT | Amount of e-business experts<br>Efficiency of the implemented systems |
| **E-Business Financial Perspective** | |
| Online shop system | Costs/Visit or /Customer or Order<br>Turnover/Customer |
| Cost cutting | Amount of orders through virtual marketplaces<br>Transaction cost reduction |
| Efficient usage of the budget | Amount of e-business projects in relation to the investment |

**Table 1.** Suggestion of objectives and measures regarding the e-business perspectives Customer, Internal Processes, Learn and Growth and Financial

## 2.2 IT-based development of an E-BSC

The IT-support during the development process of the BSC and the further implementation is very important to ensure high flexibility, equal data basis and actual data [5]. The IT is an "enabler" for management theories but on the other hand the heterogeneous systems and the wide spread data sources and legacy systems lead to some difficulties.

There are a lot of software tools on the market with different focuses and features.

ADOscore® is a tool that has an model based approach. With different model types from the Strategy to the Measures the development and documentation process is supported. For the controlling and managing of the BSC a Controlling Cockpit is

generated and provided which is accessible via the web with "traffic-lighting", OLAP functions etc. [8].

The offered model types are:

Strategy: Vision, Mission, Strategy are derived and documented.

BSC-Map: This model gives the possibility to visualize the hierarchical organization and to link the developed BSC to the strategic business unit.

Success Factors: Success factors are placed and assigned to the different perspectives. The clustering of some factors leads to the objective.

Cause-and-Effect: Gives the possibility to build up the cause-and-effect chain with the objectives and measures

Key Figures: All the measurement systems needed for the cause-and-effect-model can be build up and be documented.

Elementary Key Figures: The measures for the measurement system are generated and linked to the data sources

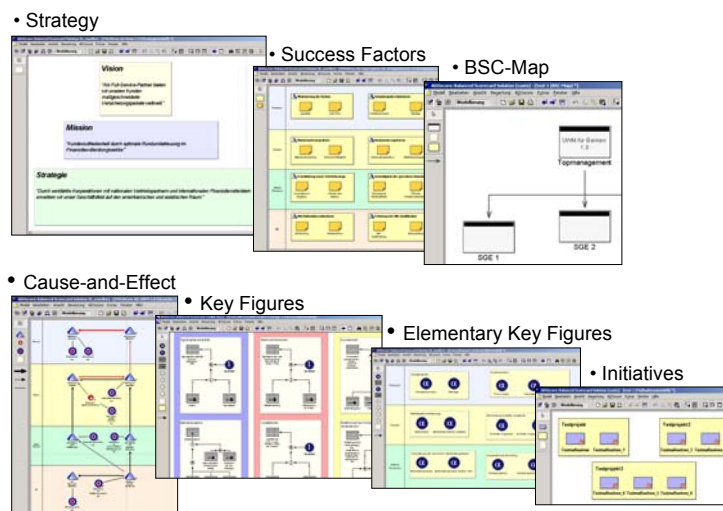Initiatives: In the Action-model the activities for achieving the set objectives are documented.



**Fig. 2.** Model types of the BSC-Tool ADOscore® [7]

## 2.3 BSC for E-Business Controlling of an Insurance Company

The following example will show the cause-and-effect model for the e-business-controlling of an insurance company.

In this case it is assumed, that the company has developed an overall corporate BSC and that a BSC for the e-business should be developed. The company wants to amplify the classical distribution channel by enlarging the online-segment that should lead to cost cutting effects focusing on the services and customer needs.

The strategic team has added an additional perspective to the generic BSC model. Beside the Financial, Customer and Process Perspective the fourth dimension Learn

and Information Technology perspective was added. The data for the measurement is provided by different sources and log files, data collectors, data warehouses etc.

The success factors were discussed in several workshops and these where aggregated to objectives. The linkage between these objectives lead to the following "E-Business Strategy Map".
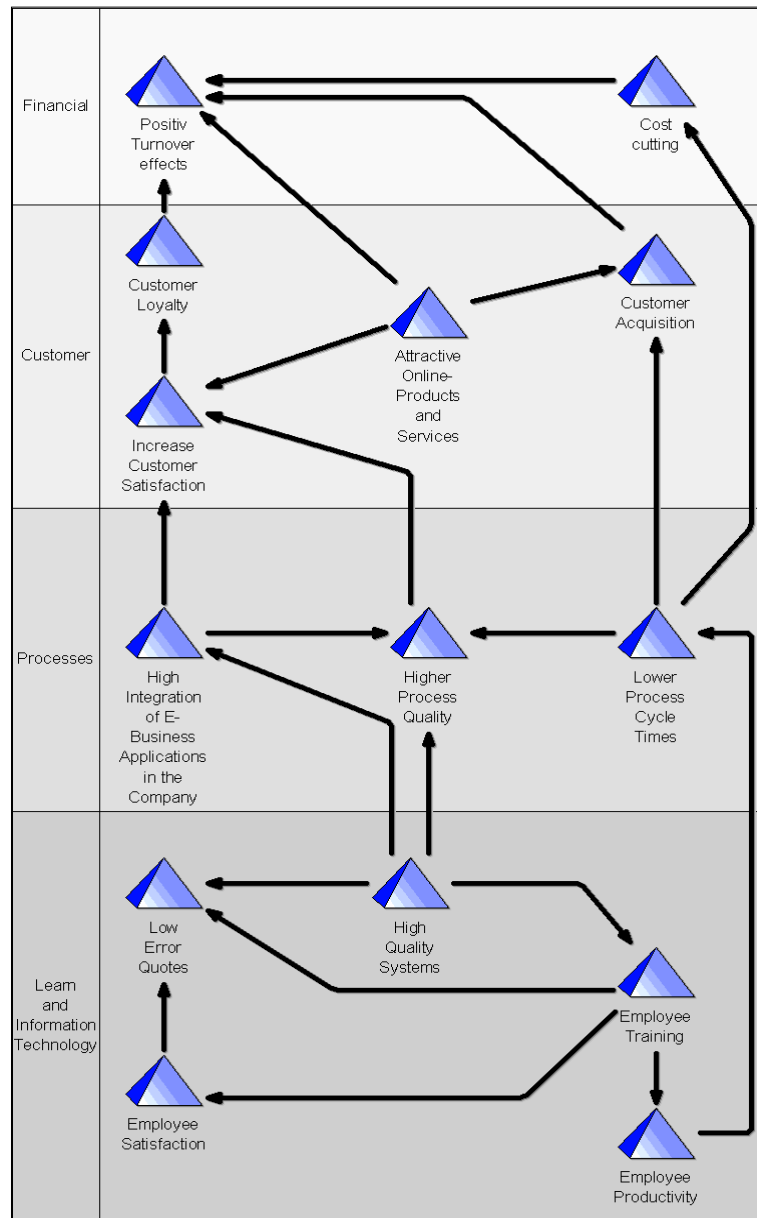


**Fig. 3.** Cause-and-effect model for e-business controlling generated with ADOscore®

The overall goal are the "Positive Effects on Turnover". Drivers for this objective are "Cost Cutting in the Procurement", "Customer Acquisition", "Attractive Online-Products and Services" and "Customer Loyalty". The "High Integration of E-Business Applications in the Company" should drive "Customer Satisfaction" and lead to "Higher Process Quality". The "High Quality Systems" need good trained, satisfied and productive employees and should lead to "Low Error quotes".

# 3    Conclusion

The growing significance of e-business investments require adequate controlling mechanisms. These approaches have to provide the opportunity to take up multiple points of view. The Balanced Scorecard by Kaplan and Norton offers a proper instrument for the evaluation of the e-business system implemented. Software tools bring facility and flexibility during the complex development process.

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