01 Warum Konzeptarbeit häufig scheitert - und wie der Erfolg von Konzepten sichergestellt werden kann

02 Burnout trotz geringer Anforderungen: Warum auch Arbeitslose an Burnout erkranken können

03 Explicate the links between external trends, stakeholder objectives, and an organization’s strategy by an augmented Balanced Scorecard

04 Most Wanted: Die Weiterbildung der Weiterbildung

05 Millennials: Warum wir nicht führen wollen ... wie Ihr führt

06 Das innere Spiel: Entwicklung ohne Angst

07 Organisation als soziales System

08 Strategisches Management und Führungskultur. Warum auch die besten Strategieprozesse manchmal scheitern

09 Neuerscheinungen
Für Ungeduldige: hier geht’s zum Internetauftritt vom SEM | RADAR

Herausgeber

Prof. Dr. Falko E. P. Wilms,
Fachhochschule Vorarlberg GmbH, Hochschulstraße 1, A 6850 Dornbirn
Tel.: +43 (0)5572 792 3216, mail: falko.wilms@fhv.at, URL: www.staff.fhv.at/wf

Herausgeberbeiräte

Prof. Dr. R. B. Bouncken, Universität Bayreuth (D), Prof. Dr. Th. Fischer, Universität Stuttgart/Universität Koblenz Landau (D), Ass. Prof. Dr. A. Größler, Nijmegen School of Management (N), Prof. Dr. W. Grunwald, Leuphana Universität Lüneburg (D), Prof. Dr. E. Kahle, Leuphana Universität Lüneburg (D), Dr. Chr. Michulitz, Büro für Energiewirtschaft und technische Planung GmbH Aachen (D), Prof. Dr. G. Ossimitz, Universität Klagenfurt (A), Prof. Dr. M. Schwaninger, HSG, St. Gallen (CH), Prof. Dr. M. Tilebein, Universität Stuttgart (D)

Internetadresse

http://www.staff.fhv.at/wf/semradar

Hinweise für Autoren


Sollten Sie daran interessiert sein, als Autor einen eigenen Beitrag zu leisten, benutzen Sie bitte nur unsere eigene Druckformatvorlage, sie ist zu finden unter www.staff.fhv.at/wf/semradar und dort unter Autorenhinweise.


Printed in Germany

ISSN 1619-8914

Druck: SDL - Digitaler Buchdruck, Berlin, Germany
Unternehmensführung

Katja Ischebeck
Warum Konzeptarbeit häufig scheitert - und wie der Erfolg von Konzepten sichergestellt werden kann

Christian Julmi/Ewald Scherm
Burnout trotz geringer Anforderungen: Warum auch Arbeitslose an Burnout erkranken können

Stefan Katz/Stefan Groesser
Explicate the links between external trends, stakeholder objectives, and an organization’s strategy by an augmented Balanced Scorecard

Sonja Radatz
Most Wanted: Die Weiterbildung der Weiterbildung

Nico Rose
Millenials: Warum wir nicht führen wollen ... wie Ihr führt

Heinz Peter Wallner/Kurt Völkl
Das innere Spiel: Entwicklung ohne Angst

Hellmut Willke
Organisation als soziales System

Thomas Wunder/Klaus Stemmermann
Strategisches Management und Führungskultur. Warum auch die besten Strategieprozesse manchmal scheitern

Trendscheinungen
Explicate the links between external trends, stakeholder objectives, and an organization’s strategy by an augmented Balanced Scorecard

Stefan Katz, Stefan Grösser

Zusammenfassung


The Balanced Scorecard principally follows a financial logic – most often objectives are only included that directly contribute to an improvement in financial returns. Non-financial goals, which could be important to an organization for other reasons (e.g. compliance), are systematically neglected. This article addresses this challenge by introducing external trends and the objectives of the relevant stakeholders with the aim to develop a more holistic controlling and management tool. This enables users of the Balanced Scorecard to formulate a more balanced strategy which takes into account the specific external environment in which the strategy exists. We apply the augmented Balanced Scorecard in a case study and discuss the findings.

1 Strategy Simulation Lab (S-Lab), Bern University of Applied Science, corresponding author Stefan Grösser, Stefan.groesser@bfh.ch
2Explicate the links between external trends, stakeholder objectives, and an organization’s strategy

1. Introduction

The Balanced Scorecard (BSC) has been widely used in different industries. According to the 2013 Bain & Company Survey of Management Tools, it is the 5th most used tool in business. However, the degree of utilization of the BSC has reduced in the last few years from approximately 70% to 40% (Bain & Company, 2013). Also, the degree of implementation varies from one organization to another (Schäffer & Matlachowsky, 2008). The motivation to create the BSC was the epiphany that managers mostly rely on financial measures and that these measures do not drive long-term value creation in organizations (Kaplan & Norton, 2004). The BSC is a management system, i.e., a system that organizes the activities for controlling, coordinating, and directing the production, supportive, maintenance, and adaptive subsystems as well as the adjustment to the external environment (Katz & Kahn, 1978, pp. 51). Subsequent works have added formal processes for strategy formulation, alignment, execution, review, and learning (Kaplan & Norton, 2004, 2008) to increase the BSC’s effectiveness.

In the recent years, researchers have addressed the effectiveness of the BSC (e.g., De Geuser et al., 2009; Iselin et al., 2008, Crabtree & De Busk, 2008). The result of the research indicates that organizations that use a BSC generally have a higher performance. However, given the difficulty of actually measuring the BSC’s effectiveness, as shown by Rieg & Esslinger (2012), it is difficult to attribute the success of the strategy execution to the application of the BSC. Rieg & Esslinger outline these challenges in their review: first, the success of BSC implementation is often evaluated at a subjective level; second, the positive effects of a BSC implementation only occur after significant delays; and third, factors external to the organization, which are not accounted for by the internal focus of a classical BSC, can play a major role to the success or failure and thereby jeopardize the actual impact of a BSC.

A further challenge when evaluating the effectiveness of a BSC stems from the availability of BSC research. The majority of published BSC case studies are successful because either the respective authors have an interest in promoting the benefits of BSC implementations or the
Explicate the links between external trends, stakeholder objectives, and an organization’s strategy

organizations portrayed in the case studies have an interest in showcasing their successful applications of the BSC (see Schaeffer & Matlachowsky, 2008, p. 213). To our knowledge, there are no empirical studies on the failure rate of BSC applications. Thus, the scientific publication body does not provide a balanced view.

Failed or underperforming BSC applications can have a plethora of reasons (Bourne, 2002). We focus on three of them that we intend to tackle. First, according to Kaplan and Norton, a successful application of the BSC critically depends on the support received from top-level management (Frigo 2012, p. 51). Management needs to sponsor and commit to the application of the BSC as well as lead the change necessary for a successful implementation (Bourne, 2002). Second, implementing a BSC is a complex task. Research has shown that coping with complex tasks is only possible if members from many levels of an organization are involved (Schwaninger, 2009, p. 23). Therefore, the strategy of the BSC should be simply formulated so that people other than the top-management team comprehend the reason for selecting specific objectives in a BSC. The capability of the members of an organization to cope with implementation challenges increase and the BSC application depends less on top-level management to be successful. And finally, the strong orientation of objectives in a BSC towards a shareholder logic can lead to underperformance. In recent years, the ideas of ecological and social sustainability and corporate social responsibility uncovered this challenge. For instance, to account for sustainability, Butler et al. (2011) propose either to add a sustainability perspective to an existing BSC, to develop a separate sustainability balanced scorecard, or to integrate measures of sustainability in the existing perspectives of a BSC. These options try to embed top-level, non-financial objectives into a classical BSC which, in the end, is oriented towards financial objectives. The basic shareholder logic of the BSC has not changed. However, the logic of financial objectives as the highest level objectives has to change if organizational objectives, e.g., ecological and social sustainability, are to be implemented with a cause-and-effect logic that is comprehensible by all members of an organization. On a more general level, the classical BSC, i.e., the four perspectives Organization and Learning, Internal Processes, Customers,
Explicate the links between external trends, stakeholder objectives, and an organization’s strategy

and Finance, strongly limits the choice of sub-objectives to a set which ultimately results in financial objectives. Kaplan and Norton (1996, p. 34) are not opposed to adding perspectives, but state as well that the classic perspectives have proven robust over various industries and they do not believe that every stakeholder needs to be included. Moreover, while a strategy designed to satisfy shareholder objectives might work in the short-term, it is possible that such a strategy generates reactions by competitors or other stakeholders that will render the formulated strategy obsolete. Hence, considering a wider range of stakeholders as being equally important redirects the BSC focus from shareholder logic to stakeholder logic, i.e., the weighing of different stakeholder objectives becomes more balanced.

The objective of our paper is to contribute a methodological extension to overcome the aforementioned causes for failed or underperforming BSC implementations. We achieve this by augmenting the classical BSC to obtain a BSC with a wider model boundary. Besides shareholder logic, it also includes expectations from relevant stakeholders who are codified in the BSC as stakeholder objectives. To widen the boundary of the BSC, we use the St. Gallen Management Model (Rüegg-Stürm, 2005) as a conceptual basis for including stakeholders and environmental spheres. To provide first empirical evidence for its usefulness, we apply the augmented BSC in a revelatory case study.

The paper is structured as follows: In Section 2, we develop the augmented BSC. In Section 3, we demonstrate the application of the augmented BSC in a case study. In Section 4, we discuss our approach and provide ideas for further research.

2. Augmenting the BSC

Kaplan and Norton (1996, p. 92) suggest selecting only the objectives that are most critical in achieving customer and shareholder objectives. However, given that shareholder value might not be one of the top-level objectives for organizations, including stakeholder objec-
Explicate the links between external trends, stakeholder objectives, and an organization’s strategy and environmental trends improve the foundation for defining the essential objectives for an organization.

2.1 Foundations for integrating environmental trends, stakeholder objectives, and an organization’s strategy

The classical BSC has a unidirectional view where the effects of the organization’s strategy on the external environment are largely neglected. However, in socio-economic systems, most decisions and actions taken by organizations create adaptations and reactions made by stakeholders within the system of which the original organization is a part (Figure 1; also Sterman, 2001).

![Diagram showing the links between the acting organization and the reactions of other stakeholders](image)

**Fig. 1: Links between the acting organization and the reactions of other stakeholders (adapted from Sterman 2001)**

By disregarding stakeholders’ reactions, conceptually well-formulated strategies are prone to failure. Examples of this can be escalating price wars or the depletion of natural resources which limit growth (Hardin, 1968; Senge, 1992, pp. 378). Without explicating the links between the external environment, stakeholders, and the organization’s strategy, the BSC lacks an essential component of a successful strategy. A strategy which does not account for the links to its external environment or stakeholder objectives is not necessarily bound
Explicate the links between external trends, stakeholder objectives, and an organization’s strategy to fail—as there are many companies that have used the classical BSC successfully. However, explicating the links to the external environment and other stakeholders uncovers latent system relations which foster a more accurate understanding of the system’s behavior. This, in turn, leads to more grounded discussions, improvements in mental models of decision makers, more effective decisions, and consequent-ly, higher organizational performance (Gary & Wood, 2011). In other words, to include external environment and stakeholders in the BSC enables considering intended and unintended consequences in a formal way. This is crucial when formulating a sustainable strategy and achieving organizational success.

In the following section, we focus on the interaction of organizational objectives, the currents status of the external environment, and stakeholders’ objectives (Figure 2, based on Figure 1).

Fig. 2: Illustrating the relationship between strategic objectives of the organization, its external environment and its stakeholders

2.2. Integrating environmental trends, stakeholder objectives, and organization’s strategy
In order to account for the aspects as detailed above, we add two perspectives to the classical BSC. The first (bottom layer in Figure 2) represents the external environment, e.g., any kind of resource and trend, such as the population’s willingness to work, the abundance of resources, biological and genetic engineering, or macroeconomic structures. The second (top layer in Figure 2) accounts for relevant stakeholders, for example competitors or the government, and their objectives. These two additional perspectives help to explicate the relationships between organizational objectives, the organizations external environment, and its stakeholders.

Fig. 3: The conceptual structure of the augmented BSC

The **stakeholder perspective** and the **resources and trends perspective** influence the development of the organization’s strategy by constituting a frame in which the strategy is created. This frame of **resources and trends** and **stakeholders objectives** enables decision makers to map the interactions of each organizational objective with the external environment in two ways. First, decision makers can evaluate if the derived internal objectives are adequate to fulfill the external objectives.
8Explicate the links between external trends, stakeholder objectives, and an organization’s strategy (i.e., estimation of internal consistency). And second, decision makers can evaluate possible external intended and unintended consequences on external environment and stakeholders (Figure 3).

2.3. The value creation process

The value creation process runs from bottom to top in the strategy map shown in Figure 3. It is the process that moves through the inner workings of an organization and translates resources into a product or a service that satisfies stakeholder objectives. The value creation process is initiated at the environmental spheres and allows management teams to identify trends and available resources in the environmental spheres and uses the information gathered as a basis for formulating the company’s strategy. The process also documents the understanding of the environment and the business logic that the current management team has. We use the four environmental spheres, society, nature, technology, and economy, from the standard St. Gallen Management Model (Rüegg-Stürm 2005, p. 15).

After environmental trends and resources that are critical to the organization’s success are identified, the strategy formulation process details how the organization aims to utilize these environmental trends and resources. The four classical perspectives of a BSC constitute this part of the value creation process (Kaplan & Norton, 1996):

- **Organization and learning perspective**: Organization and learning defines the infrastructure required to run the internal processes effectively. The organization can, for example, identify the need for more flexible working hours as well as a demand for more employees to be able to better manage work-life balance. The organization can capitalize on these trends through objectives, e.g., hiring a certain amount of part-time employees.

- **Process perspective**: The internal processes deliver the value proposition for the customers. For example, the process perspective can benefit from a trend towards more green manage-
Explicate the links between external trends, stakeholder objectives, and an organization’s strategy. The process perspective can then include the objective, e.g., to reduce the demand for paper resources.

- **Customer perspective**: The customer perspective accounts for the organization’s customers. Core outcome measures are, for example, customer satisfaction or customer retention. A common concern among customers could be the lack of time they have to choose products between several companies. An organization could use this information to formulate an objective and to sell products from different companies at the same sales point.

- **Financial perspective**: Financial objectives typically relate to profitability, measured, e.g., by income or return on investment. An adjustment in taxation of an organization’s profits might lead to a different use of the profits.

Each of these four perspectives interacts with the three classical perspectives as well as with the two perspectives we have added:

- **Stakeholder perspective**: The stakeholder perspective comprises all stakeholder objectives relevant to an organization’s strategy. This perspective intends to estimate the effects of the organization’s strategy on the external environment. This allows decision makers to map the external environment effects on the organization and vice versa.

- **Resources and trends perspective**: This perspective enables organizations to map available resources as well as predominant trends. The visual map facilitates understanding of the strategy and the environmental circumstances which the strategy intends to utilize. In other words, explicating these relationships increases the understanding for the organizational members about how the strategy is based on the conditions in the environment.
Explicate the links between external trends, stakeholder objectives, and an organization’s strategy.

Fig. 4: The specified structure of the augmented BSC

The examples given above are intentionally simple to foster understanding. It is crucial however to note that the logic between the external environment, the organization’s strategy, and stakeholder objectives complements—augments—the value generation logic of the classical BSC. The implementation process still follows the “classical” BSC logic that a vision is defined which then is translated into financial output objectives, which requires customer objectives, which requires process objectives which finally requires objectives for organization and learning to be realized. While this logic continues to be true, the augmented BSC enables organizations to thoroughly and comprehensively allocate the selected strategy within the framework of their specific external environment and ensure that the strategy complies with the resources and trends as well as with objectives of stakeholders (Figure 4).

In the following, we apply the augmented BSC to a revelatory case study.
Explicate the links between external trends, stakeholder objectives, and an organization’s strategy

3. Application of the Augmented BSC in a case study

The case described here is based on a real case. The organization CASE is a student project at a tertiary educational institution, called EDUCATE. CASE is a project designed by two students enrolled at EDUCATE. Over time, the initiative engages six students to be part of its management team. Its objective is to provide services for students which include projects, services, and workshops which complement the existing program at EDUCATE. The intended consequence is to foster a participatory culture among students and to develop additional business related skills and competencies. CASE is independent of EDUCATE. CASE’s management team has used the augmented BSC (Section 2) to develop its strategy.

Fig 5: The environment of CASE

To define its strategy, CASE analyzed the external environment using the St. Gallen Management Model framework. This analysis included surveys, reviewing newspaper articles, and interviewing experts in the educational sector. The findings were then categorized using the

SEM | Radar, 4. Jg., 02/2005: 141 - 166
Explicate the links between external trends, stakeholder objectives, and an organization’s strategy

stakeholder groups and environmental spheres of the St. Gallen Management Model. With this information, CASE’s management team identified relevant external trends (bottom of Figure 5) and the stakeholders’ main objectives (top of Figure 5). The main stakeholder groups are students, the student representative body, and EDUCATE’s administration. The identified objectives that CASE needs to comply with are: (S1) graduating students expect to be competitive on the job market, (S2), EDUCATE has to manage the student body as cost-effectively as possible, and (S3) EDUCATE’s must make an effort to position the study programs within the national educational environment. The trends that CASE intends to use are (T1) the economy’s demand to hire students with developed soft skills and business competencies, (T2) the increasing financial pressure from the government in the educational sector, and (T3) that there are few quality job opportunities available to students. Furthermore, including the student representative body enables CASE to uncover and map unintended consequences (S4). With CASE’s activities, the student representative body will forfeit its monopolistic position among the students in terms of being the only one that offers additional engagement opportunities for students.

This objective (S4) generated an important discussion among CASE’s management team. Two possible scenarios were hypothesized to the reaction of the student representative body:

1. The student representative body perceives CASE as a competitor and engages in a negative competitive spiral where there is no collaboration.
2. The student representative body sees CASE as a valuable contributor to creating a participatory student culture and the two organizations cooperate in providing such services.

CASE’s management team engaged in discussion with the representative body, which determined that the first option was much more likely to occur. This forced CASE to take a strategic position and improve its collaboration with EDUCATE and to rely less on the support of the representative body.
Explicate the links between external trends, stakeholder objectives, and an organization’s strategy

While it seems trivial that the trend of financial pressure in the education system requires more efficient student management by EDUCATE, the application of the augmented BSC confirmed that this trend is serious. The financial pressure was initially seen as a threat because with fewer resources, initiatives such as CASE are not readily accepted and have limited access to available resources. However, by offering complementary services CASE might be able to increase its level of acceptance.

The next step was to develop a strategy map that links external trends to the stakeholders’ objectives (Figure 6).

![The strategy map of CASE using the augmented BSC](image)

Fig 6: The strategy map of CASE using the augmented BSC

After completion of the external analysis, CASE’s management team determined organizational objectives that addressed and satisfied the different stakeholder expectations as codified in the map. It became clear that financial resources would be a serious challenge. To gain access to financial resources, CASE needs to provide services that help stakeholders, e.g., promote EDUCATE’s social media presence or
14Explicate the links between external trends, stakeholder objectives, and an organization’s strategy

increase students’ engagement through complementary student coaching. These projects should provide the necessary financial resources needed to invest in additional activities for students. It is important to note, that to date, this has been planned, but has not yet been achieved.

Students are expected to develop the skills and competencies that are relevant for today’s business environment. To achieve the customer’s objectives, CASE has to offer and provide relevant services for students to fulfil this demand. The goal is to promote active student participation and to provide motivating activities that may trigger students to initiate new projects within the CASE framework. To ensure the success of the student managed projects, time to develop a participatory culture within the student body is essential. Moreover, a sustainable business relationship with EDUCATE is necessary to demonstrate that CASE is able to provide valuable services.

The benefits of including EDUCATE’s and students’ stakeholder objectives as a basis for analysis increases the level of understanding among the CASE’s management team. Another important realization was that the interaction between students from different semesters should be fostered. This interaction can promote knowledge transfer between students and eventually result in a culture where students are actively involved. By increasing the level of student participation is a good example to demonstrate the value of the augmented BSC: the participatory culture does not have a direct financial logic per se for CASE. Any money saved through student projects does not result in better financial performance of CASE, but in better performance of EDUCATE. This, in turn, would improve the internal reputation of CASE.

In concluding the case study, we can state that the objectives we initially defined were mostly met during CASE’s strategy formulation process: First, the weighing of stakeholder interests is more evenly distributed and financial objectives are now a means to achieve other stakeholder objectives rather than the ultimate goal. And second, the relationships between external trends, the stakeholders’ objectives, and CASE’s strategy have been clarified.
4. Discussion and Conclusion

The classical BSC has limitations: First, the execution depends largely on the top-level management’s understanding of implicit relationships between the organization and its external environment. Second, this understanding should be available to all levels of an organization to successfully implement a strategy. Third, a classical BSC does not allow for a cause and effect relationship for objectives that does not follow a shareholder logic. The augmented BSC helps to overcome these limitations. During strategy formulation, each organizational objective is defined in a way that it has three possible links for the objectives to be causally linked to each other:

- An objective can support another objective towards providing customer and shareholder value.
- An objective can be linked to the fulfillment of a stakeholder objective.
- An objective can be linked to trends and resources an organization intends to capitalize on.

In defining the organizational objectives, at least one of these links needs to be used; ideally, all three are used. This allows organizations to set objectives based on internal requirements, the external environment, and stakeholder objectives. To summarize, the resulting benefits of the augmented BSC are:

- A richer understanding of the causal relationship between external developments and the formulated strategy.
- A clearer comprehension of the causal relationship between stakeholder objectives and the formulated strategy.
- With a wider model boundary, the effects of the strategy on the various stakeholder groups are discussed more vividly and can be assessed which reduces the risk of unintended consequences of an organization’s strategy.
Explicate the links between external trends, stakeholder objectives, and an organization’s strategy

- A more differentiated weighing of stakeholder objectives.

A strategy formulated using the augmented BSC adds possibilities to discover links between an organization’s strategy and its external environment. This is valuable to define a successful long-term strategy as well as for communicating the strategy and its foundations to organizational members. Moreover, using the augmented BSC allows learning about both internal aspects of the strategy and the strategy’s effects on the external environment to be more systematic and available to all organizational members.

In addition, in times with frequent changes in management teams, implicit understandings of the links between the external environment, the stakeholder objectives, and the organization’s strategy might be absent. This complicates the development and execution of a long-term strategy and it might be one of the reasons for the negative relation between changes in management teams and firm stock performance (Kaplan & Minton, 2011). This challenge can be reduced significantly if the strategy is comprehensively visualized and extensively documented (Eppler & Platt, 2009).

Moreover, we propose that an organization which can adapt to and influence its external environment more professionally, can be considered an intelligent organization (Schwaninger, 2009, p. 7). The augmented BSC is a tool, providing its users with a better understanding of the strategy to enable sustainable long-term performance.

One limitation is that the augmented BSC has been applied in only one organization. Clearly, the case is not representative for all types of existing organizations, e.g., profit and non-profit organizations. Hence, we cannot generalize our insights to a larger sample. However, the case study was helpful in substantiating the usefulness of the augmented BSC.

One fruitful direction for future research could be to review failed and underperforming BSC applications with a special focus on the external environment, e.g., trends and resources, as possible reasons for the application failure. Another direction could be to apply the augmented BSC in large organizations over extensive periods of time.
Explicate the links between external trends, stakeholder objectives, and an organization’s strategy in order to evaluate both the performance implications and changes to the level of understanding of the strategy within the studied organization.

References


Balanced Scorecard Institute, no date: Examples and Success Stories, Online: http://www.balancedscorecard.org/BSCResources/ExamplesSuccessStories/tabid/57/Default.aspx (30.08.13)


Crabtree, A. D. & DeBusk, G. A., 2008: The effects of adopting the Balanced Scorecard on shareholder returns. In: Advances in Accounting, 1/24, p. 8-15

Explicate the links between external trends, stakeholder objectives, and an organization’s strategy


Iselin, E. R., Mia, L. & Sands, J., 2008: The Effects of the Balanced Scorecard on Performance: The Impact of the Alignment of the Strate-
Explicate the links between external trends, stakeholder objectives, and an organization’s strategy.


SEMI-RADAR erscheint halbjährlich

Einzelheft EUR 10,-
Abonnenten-Lieferung portofrei innerhalb der EU

Bestellungen an:
Wissenschaftlicher Verlag Berlin
Körtestr. 10
10967 Berlin
Tel.: 030-89 37 98 99
Fax: 030-618 50 21
www.wvberlin.de / http://wvberlin.com
verlag@wvberlin.de

ISSN 1610-8914

© 2013 Wissenschaftlicher Verlag Berlin
Olaf Gaudig & Peter Veit GbR
www.wvberlin.de
Alle Rechte vorbehalten.
Dieses Werk ist urheberrechtlich geschützt.
Jede Verwertung, auch einzelner Teile, ist ohne
Zustimmung des Verlages unzulässig. Dies gilt
insbesondere für fotomechanische Vervielfältigung
sowie Übernahme und Verarbeitung in EDV-Systemen.

Druck: Digitaler Buchdruck SDL, Berlin
Printed in Germany
EUR 10,-
Mit Beiträgen von

Stefan Groesser, Katja Ischebeck, Christian Julmi, Stefan Katz, Sonja Radatz, Nico Rose, Ewald Scherm, Klaus Stemmermann, Kurt Völkli, Heinz Peter Wallner, Hellmut Willke, Falko E.P. Wilms, Thomas Wunder

EUR 10,-