

Lighting up 'Blind Spots' while Measuring Knowledge Capital

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Abstract: Practical experiences in developing and introducing performance measurements systems for measuring and managing knowledge capital have shown that these instruments do not sufficiently fulfil the expectations of their users. Some authors even point out that the fundamental understanding of methodological and conceptual issues is inadequate. Therefore, we suggest that instead of creating further new instruments, an explanation of *how* and *when* Performance Measurement Systems (PMS) become effective is necessary. We argue that highlighting their potential production of "blind spots" and comprehending the use of PMS more reflexively will bring more sustainable effects. As a result, the concept of *First and Second Order Reflection of PMS* is introduced.

Keywords: Knowledge capital, performance measurement systems, organisational practices, first and second order reflection

1. Introduction

During the last ten years, the discussion of knowledge capital (KC) and intangible resources in general has shifted to the centre of interest while measuring and assessing activities of companies. The reason is common sense in the current scientific literature: Knowledge – and knowledge capital, the positive result of its effects – has gained importance since it has been recognised as a sustainable key resource of superior value creation: "The principal source of economic value and wealth is no longer the production of material goods, but [...] the creation, acquisition and exploitation of intangibles" (Eustace 2003, Riahi-Belkaoui 2003). As a consequence, a large number of efforts has been undertaken in order to make knowledge accountable. One of the first steps is represented by the well-known Balanced Scorecard (BSC) (Kaplan and Norton 1996a). It stresses that the majority of authors at that time reduced performance measurement to financial reporting and disclosure (Quick 2002, Upton 2001, Blankenburg 1999, Foster et al. 2003, Kristensen and Westlund 2001, Reed 2001). The BSC is based on the idea that sustainable growth cannot be described by single financial indicators and short-term measurements of a company's performance (Kaplan and Norton 1996b).

Despite all efforts of researchers and practitioners, the ongoing worldwide proliferation of performance measurement systems, and the advantages ascribed to them, should not mislead about the fact that PMS do not comply with their expectations (Edvinsson and Brünig 2000; Lev 2001; Dueck 2004). Some empirical case studies give us some first indications which should leave us thoughtful:

1. PMS are implemented "pro forma" in organisations. PMS have no internal effects and

complete an "alibi function". (e.g. Becker 2003)

2. PMS become independent from organisational reality (e.g. Townley et al. 2003, Lohman et al. 2003). Users of PMS feel like in a „measurement panopticum“ because the „rationality of organisational action“ is dominated by a „rationality of instruments“. The design and technical aspects of instruments are in the centre of interest.
3. No participation of users takes place while creating PMS (Lev 2003) or developers of the original instruments disregard the organisational complexity and the changes of PMS requirements in organisations. Presumably triggered by this „mechanical application“, PMS are manipulated intentionally by the persons concerned (e.g. Lynn 1998, Dueck 2004).

Beside these observations of PMS effects, most of empirical studies do not analyse the experiences of organisations while they are actually using PMS. There is less investigation in analysing the effects of PMS in organisations, their embeddedness in organisational practices and the difficulties in creating, implementing and using of PMS in organisations. Most of the studies focus on the degree of fulfilment of predefined criteria like e.g. features, standardisation, IT embeddedness, thus, their methodology follows a normative approach. They only study the deviation from the 'ideal case' by means of formal criteria (e.g. Grübel et al. 2004, Brooks and Coleman 2003, Schomann 2001, Thor 1998, Brown 1996). It finishes in a circle of self-reference: More and more PMS for knowledge capital are being developed, arguing that the formerly employed instruments do not function well.

Our paper will address this problem as well as systematically examine the constant discrepancy

between expectations and practice in the systems' application. Additionally, we stress the circumstance that through a better embedding of PMS in organisational practices, its management functions can be better realised. Moreover, in a long-term view we show that it will be necessary for organisations to use PMS in a reflexive way by lighting up the organisations' inevitable 'blind spots' while measuring activities.

2. Knowledge as a capital

Most authors subsume all intangible resources to that which is often called the "central resource" of organisations: knowledge. More exactly, they refer to it as an asset, thus to *knowledge capital*, and assume intellectual capital, intellectual assets, knowledge assets, knowledge capital as synonyms. Yet, there is no common understanding of knowledge or knowledge capital, no commonly accepted definition has been established. In this respect, the former knowledge management discussion has been continued. Existing approaches of knowledge management did not develop a common understanding for knowledge as well. From our point of view, every specific perspective (like marketing, strategy, accounting etc.; see Marr 2005a) generates a different definition which will be judged exclusively by the adequacy of access to knowledge capital:

"It is important to note that there are no right or wrong definitions of intellectual capital; however, what do exist are adequate and inadequate definitions of intellectual capital. The least-adequate case occurs when authors fail to define intellectual capital at all and leave it to the reader to interpret the construct." (Marr 2005b: 222)

Referring to the sociological discussion of capital by Bourdieu (1983) in a first step, three subcategories of knowledge capital can be distinguish: social, symbolic and human. According to recent management literature, *social* or *relational capital* exists in relations with suppliers, customers and other stakeholders of the company (Edvinsson and Brünig 2000). *Symbolic capital* includes the company image, for instance as represented by trade names or important managers (Sveiby 1997). *Human capital* comprises competences and skills of persons or groups - this understanding can be seen as common sense in the PMS discussion. Moreover, some authors differentiate *structural capital*, e.g. information technology, communication technology, infrastructure (Edvinsson and Brünig 2000; see also Lev 2001, Edvinsson and Malone 1997).

As this enumeration shows, neither the term "intangible" is sufficient to split resources into different subcategories of knowledge capital, nor all

subsumed resources are really intangible in literal sense. There is no fundamental criterion which justifies the differentiation of intangible resources into various kinds of capital. Especially some components of the structural capital contain material resources, thus one must explain why structural capital should be a part of the intangible resource discussion (Sullivan 1998). Hence, we suggest criteria based on theoretical considerations of the various ways how resources are generated (Moldaschl and Fischer 2004). Social capital, for example, becomes visible in active relations between persons and is generated by interaction. Symbolic capital is based on actions within the organisation (or in other social systems) as well, but it is ascribed by third parties – we do not simply have it, although it must be acquired. In contrast, human capital is bound to a person. Only this individual can dispose of a skill, competence, or an experience. It is generated by individual activity and by discourse in organisations. Besides, we argue that structural capital can be understood as a visible, tangible condition or result of intangible resources, e.g. social relations, an image or a specific human skill.

3. Measuring knowledge capital in organisations

In order to structure the KC discussion, we relate to PMS in a historical view. First efforts in trying to delineate several "generations" of PMS were originally presented by Baruch Lev in his article "Rethinking Accounting" (Lev 2002), which we take as a basis and expand it later by adding a third generation.

As shown in Table 1, the *first generation* of PMS concentrated on the measurement of financial assets (tangible resources). The *second generation* arose as the measurement started to focus on resources 'you cannot see nor touch nor buy or sell'. Parallel to the first generation, an "intangible movement" (Lev 2002) gained in importance. A competition started in trying to develop the one-best-way for measuring intangible as well as tangible resources.

3.1 Measuring the tangibles

The first generation of PMS is characterized by its exclusive concentration on financial and tangible information, so we can mark these instruments as forerunners of knowledge capital measurement. Within this phase, resources or stocks of tangibles are at the centre of attention. By aggregating corresponding information in reporting tools like income statements or balance sheets, supplementary information can be extracted. Management ratios like "ROI", "target costing", "RONA" and

“Break Even Analysis” are examples for measuring tangible resources.

Table 1: First and second generation of knowledge capital measurement (following Schomann 2001)

Dimension Phase	Addressee	Orientation on change	Period of time	Aim	Object
1st Generation	whole organisation	non	past	reporting, control, planning	financial resources
<i>Examples:</i> Balance Sheet, traditional Accounting (US-GAAP, IAS), Target Costing, ROI, RONA, ZVEI, Break Even Analysis, Cash Flow Statement.					
2nd Generation	specific management function/ level or whole organisation	support of organisational change	past and future	managing	financial/ non-financial, tangible/ intangible resources
<i>Examples:</i> Tobin’s q Ratio, Human Resource Costing & Accounting, Balanced Scorecard, Intangible Assets Monitor, IC-Index, The Value Explorer, Meritum Guidelines, Danish Guidelines, IC-Rating, Total Value Creation System, Value Chain Scorecard, Value Creation Index, Guidelines of European Foundation for Quality Management.					

Later on, these management ratios were criticized because they illustrate organisational reality inadequately and cannot support management decisions in the “knowledge economy” sufficiently because of their past orientation and exclusive reporting, control, and planning function (Quick 2002, Upton 2001, Blankenburg 1999). Some authors even argued that traditional PMS are not reliable at all (e.g. Kristensen and Westlund 2001). Moreover, in the early 1990s, traditional PMS’s fail to explain the gap between book and market value (Foster et al. 2003, Quick 2002, Reed 2001).

3.2 Measuring the Intangibles

The second generation of PMS is characterized by the search for suitable methods to measure intangible resources. New instruments are created and already existing PMS are expanded. In the 1950s one of the first instruments of this generation was the “Tobin’s q-ratio”, which tries to explain the gap between book and market value of a firm. Other examples were the “Human Resource Costing and Accounting” (HRCA) in the 1970s and the “Balanced Scorecard” (BSC) in the 1990s. It is obvious, there is a booming demand as well as an increasing supply of PMS for knowledge capital in theory and practice. PMS are expected to be comprehensible and bring a clear increase in value for the organisation by providing better information about knowledge capital (Sammer et al. 2003, Upton 2001, Schomann 2001, Lev 2001, Edvinsson and Brünig 2000). Characteristics of the second generation of PMS are:

- insights in organisational reality were expanded by adding knowledge capital information,

- multidimensional performance measurement systems were created, and
- interdependence of management ratios were taken into account (e.g. Mouritsen et al. 2005, Marr and Roos 2005).

Taken apart, the intensive efforts of inventorying knowledge capital, the information produced by PMS should have, of course, an effect on organisational practices. Correspondingly, two functions of PMS can be identified: First, improving one’s image in the view of external (potential) investors carries the hope of “closing the value gap between book and market value” (Lev 2003, see also Andriessen 2004, Mouritsen 2004, Mouritsen et al. 2001). PMS should allow standardised benchmarkings of knowledge capital among and within organisations, along either company divisions or specific projects over the course of time (Kristensen and Westlund 2001). For example, information about knowledge capital today should be comparable with information from last year. For external representation, PMS should provide information about (*measurement function*):

- individual employees’ knowledge, and competences, as well as changes and costs linked with these factors (Chen et al. 2004, Felton and Finnie 2003, Lev 2003, Rathert and Krug 2003, Sammer et al. 2003, Thorbjørnsen and Mouritsen 2003, Lynn 1998, Weissenberger-Eibl 2000, KPMG 2000) and
- customers, suppliers and other stakeholders of the organisation (Chen et al. 2004, KPMG 2000, Wagner et al. 2000).

Second, for internal ends, measuring and assessing knowledge capital should influence organisational practices (*management function*). The information produced by PMS about knowledge

capital should be, on the one hand, a basis for strategic decisions, resource allocation, learning processes, innovations and employee motivation (Andriessen 2004, Chen et al. 2004, Holzer and Yang 2004, Mouritsen 2004, Khim Ong 2003, Roos et al. 2001, Schomann 2001, Forst 2000, KPMG 2000, Neely 1999, Lynn 1998, Hermann 1996). On the other hand, these effects should be controlled by PMS (Andriessen 2004, Holzer and Yang 2004, Mouritsen 2004, Khim Ong 2003, Lynn 1998).

In our days, almost one decade later, there are a lot of experiences with strengths and weaknesses of performance measurement systems. At present, we can state that PMS often do not meet their expectations in practice. As indicated in the introduction, there are above all shortcomings concerning the management function of PMS: The influences on the organisational occurrence are hardly noticeable or PMS even produce negative effects. Triggered by qualitative case studies, the original euphoria has been superseded by a phase of helpful contemplation concerning enabling and constraining effects of PMS on organisational practices (e.g. Townley et al. 2003, Dueck 2004, Lohman et al. 2003).

This leads us to a different approach in thinking about PMS, in which an explanation of shortcomings and a qualified understanding of PMS effects should be given. Based on the restricted, instrumental view of PMS mentioned above, we provide a wider view and introduce a *third generation of PMS*. As stated before, the plausibility and effectiveness of PMS is principally linked to the degree of their integration in organisational practices. Therefore, in our point of view, the third generation of PMS discussion should change from a pure instrumental focus to a focus of embeddedness in organisations and to a critical, reflexive assessment of PMS in practice:

„The reason why reflexivity is so important comes precisely from the recognition that our accounts are partial, contingent, ...inadequate, and from our desire... to bring up for discussion the things we take for granted“ (Antonacopoulou and Tsoukas 2002, 861).

4. Understanding performance measurement systems as reflection instruments

The insufficient effects of PMS are not caused mainly by their construction. Rather, the problems arise due to the way these tools are used and the way they are embedded in organisational practices. Moreover, we believe the effectiveness of a

PMS is only assessable in a concrete organisational setting (Becker 2003, Mouritsen 2004).

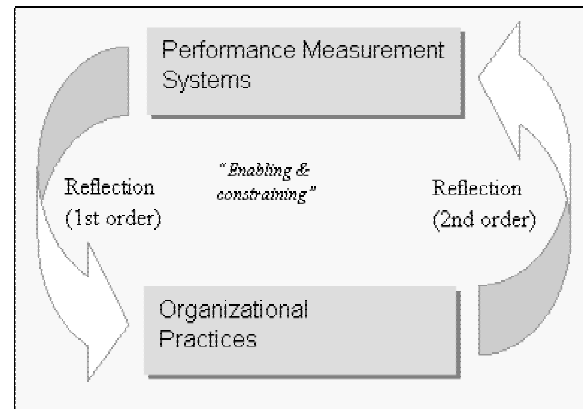


Figure 1: Performance Measurement Systems as Reflection Instruments.

The implementation and use of PMS in organisations always implies reflecting knowledge capital: On one hand we are interested in which ways PMS illustrate organisational reality and practices. Following von Foerster (1984), this kind of reflection is called *First Order Reflection*. On the other hand, it is possible that these instruments themselves can be an object of critical reflection in organisations. This is called *Second Order Reflection* (von Foerster 1984). Both kinds of reflection occur in organisations. Figure 1 gives an orientation to the two levels of reflection we can observe while creating and applying PMS.

4.1 First order reflection: Observation of organisational reality

Knowledge capital can be conceived, as we have already outlined, in different ways and with different effects on organisational practices by means of management ratios: PMS are reflexive institutions in principle, but can be practically anything from a general instrument of control up to a instrument of reflection in organisations (Moldaschl 2004). At first, this implies that by means of Performance Measurement Systems, a First Order Reflection takes place in which the organisation itself observes its organisational practices and results (see Figure 1):

“By combining and recombining the elements of the intellectual capital statement itself, it can actually change and transform people’s ideas about what’s happens in the firm. Sometimes the intellectual capital statement changes the firm in the eyes even of management. (...) It is also interesting for its ability to perform as an input to reflexivity through which things can be changed and mobilised“ (Mouritsen 2004: 264f., also Azofra et al. 2003).

Effects from Performance Measurement Systems can be observed from an empirical point of view with regard to their influence on organisational practices (see Figure 1). Organisational practices are streams of actions that refer to each other and that can be reproduced in different situations (in reference to the concept of social practices by Giddens 1979 and 1984). They appear regularly and continuously, and can be designated as *routines*. Organisational practices are only visible over the course of time and are not necessarily perceived by the members of an organisation themselves; they are of an implicit nature. Performance Measurement Systems have enabling as well as constraining effects on organisational practices (see Figure 1): Firstly, they restore a certain “elbowroom” to an organisation. By using these instruments, organisations wear “glasses” with which they observe themselves but blind out certain other perspectives relevant to survival. Secondly, they affect organisational reality by influencing organisational practices. This can happen in a communicative, standardizing, authoritative and/or economic way (with reference to Fried 2003):

- Economic effects: Performance Measurement Systems are primarily a basis for economic decisions, for example investment budgets in IT or personnel development, that positively influence the exploitation of intangible resources.
- Standardizing effects: Performance Measurement Systems give information about which kind of intangible resources are rated as important in an organisation and which resource information becomes a basis for organisational decision and action. Some organisations devote significant amounts of time to the analysis of their intangible resources, whereas in other organisations, knowledge capital is of no interest.
- Authoritative effects: As a consequence of their standardizing character, PMS can serve as a basis for personnel decisions or, for example, for a certain strategy of a group in the organisation; this way they also result in authoritative, or micro-political, effects.
- Communicative effects: If members of an organisation apply a typical PMS vocabulary (e.g. the item “knowledge capital”) and refer to knowledge capital in debates or in strategy formulations, specific effects on organisational practices can be imputed.

We understand these differentiations of effects on organizational practices as an analytical frame. Thus, it is possible to describe the success and failure of PMS of knowledge capital in detail. The analytical frame goes beyond questions of the first and second generation of the PMS discourse,

which originally discussed whether PMS correspond to the formal criteria of a so-called ‘ideal instrument’. Nevertheless, the question remains: Since Performance Measurement Systems blind out certain perspectives relevant to their survival, what can organizations do?

4.2 Second order reflection: Evaluation of PMS

Management ratios produce organisational reality. This production of reality is based on distinctions like e.g. tangible/ intangible resources or human/ social/ symbolic capital (von Glasersfeld 1992). As such, they always generate a ‘remainder’ or an ‘other side’ – called the *unmarked state*. With the process of differentiation, which is necessary for such observations, the possibility of observing and describing the organisational reality as a “whole” disappears (Bardmann 1994). To observers, like users of PMS, the *unmarked state* of measurement and assessing knowledge capital becomes a ‘blind spot’. Consequently, even the most elaborate instruments can never illustrate organisational reality completely. But how can organisations take this circumstance into account?

On the one hand, the validity and importance of PMS cannot be perpetually questioned. On the other hand, organisations should have a critical look in the long run at the ‘blind spots’ which arise by the use of these instruments. Organisations must ask themselves repeatedly *first*, whether they can still observe what is relevant to their survival and second, whether they achieve the effects they originally intended. In Figure 1 we call this kind of reflection a *Second Order Reflection*. Organisations carry out Second Order Reflections while continuously evaluating the effects (not only economic ones, but also their communicative, authoritative and standardising effects) of performance measurement systems on organisational practices. Thus, evaluation of PMS is rarely a subject of the knowledge capital discussion, although studies about organisational change, for example, already deal with the concept of continuous reflection (Walgenbach 1999, Rüegg-Stürm 2001). Since organisations are interested in the positive, sustainable effects of PMS, research studies should deal with them and should make use of experiences from other fields of management instrument evaluation.

5. Implications for research and practice

A more sustainable discussion of measuring and assessing knowledge capital should extend the current PMS discourse. A lot of empirical work has to be done to substantiate the third generation

of PMS. However, in order to give a first impression, some implications for academics, practitioners, and consultants are mentioned.

Forthcoming research studies should

- underline the reciprocal link of intangible resources in situations of organisational action and decision,
- analyse underlying management dilemmas, which are inherent in these actions and decisions,
- investigate how organisations handle the positive as well as negative effects of measuring and assessing knowledge capital, and

- show how the “Second Order Reflection” of PMS in organisations take place.

For practitioners and consultants, the concept of First and Second Order Reflection implies

- a connection of the knowledge capital discussion in organisations with existing organisational problems or challenges,
- the participation of later users during PMS creation,
- the critical-distanced dealing with PMS,
- to establish different mechanisms for PMS evaluation in organisations on a regular basis.

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