

DEVELOPMENT OF A MODEL OF BUSINESS PERFORMANCE MEASUREMENT SYSTEM FOR ORGANISATIONAL SELF-ASSESSMENT. THE CASE OF POLAND

Rafał Haffer

Nicolaus Copernicus University in Toruń,
Faculty of Economic Sciences and Management, Toruń, Poland

e-mail: rafalh@umk.pl

Abstract

Purpose: The paper introduces a model of business performance measurement system for organizational self-assessment. The model is made up of five elements including areas, elements, functions and processes of the BPMS as well as the introduction procedure. The paper is based on the research project conducted in 2007, entitled “Self-assessment in quality management systems of companies” which concerned the engagement of Polish enterprises in initiatives aiming at business excellence.

Methodology: The detailed characteristics of the business performance measurement system were identified through the analysis of BSC and excellence model concepts as well as the BPMS definitions found in literature. Three different research methods were applied, namely, a questionnaire survey and an interview conducted among the most active companies in the Polish economy and a Delphi method. As a result 230 companies were examined and 19 experts were interviewed.

Findings: The results collected with the use of the Delphi method make it possible to indicate which components of the BPMS are absolutely indispensable for the system to operate efficiently as well as to identify the procedure for introducing BPMS.

Originality/value: The paper combines the data collected from two sources: the representatives of Polish companies and the experts representing academia, business, auditing and certificating companies. The authors are convinced that the model presented in the paper although developed for Polish companies can successfully serve as a reference model also for non-Polish companies. Its value results from its universality.

Keywords: Poland, business performance measurement system (BPMS), BPMS model, EFQM Excellence Model, Balanced Scorecard, self-assessment

Paper type: Research paper

1. Introduction

The research results indicate that organizations applying integrated performance measurement system as a tool supporting management process achieve better business results than those which do not use it (Lingle and Schiemann, 1996; Haffer, 2011; 2014). Thus, the advantage which is provided by business performance measurement systems is empirically proved, however, it is much more difficult to capture the data informing how to maximize this advantage. In other words, it is not so obvious what is an effective performance measurement system and what features should characterize it to maximize the advantage it gives. Nevertheless a lot of authors propose models, methods and guides which can be used by managers in order to develop effective performance measurement systems in their organisations (Neely, 2007; Neely et al., 2007; Neely et al., 1995; Kanji, 2002; Bititci et al., 1997; Sinclair and Zairi, 2001; Pun, 2002). Such an attempt was also made in the present paper.

Business performance measurement arouses interest of researchers and practitioners of many different disciplines in the field of management such as strategic management, quality management, operations management, process management, human resources management, information systems management, marketing management, finance management and management accounting. Each of these disciplines contributes to the development of performance measurement approaches, methodologies and systems.

At the same time, there is lack of consensus among the representatives of the mentioned disciplines about how to define business performance measurement system (BPMS) (Dumond, 1994). Diversity of the research carried out in the field of performance measurement makes it even more complicated. Such a thesis may be well illustrated by the BPMS definition review found in the literature (Franco-Santos et al., 2007). From an operations management point of view, performance measurement system is usually defined as a “set of metrics used to quantify both efficiency and effectiveness of actions” (Neely et al., 1995) which is very often defined from four different measurement perspectives: financial, customer, internal, and learning and growth (Kaplan and Norton, 2004); or as the reporting process that gives feedback to employees on the outcome of actions (Bititci et al., 1997). Strategic management perspective makes it possible to capture two other aspects of the BPMS. Firstly, it reflects the procedures used to cascade down the business performance measures used to implement the strategy within the organization (Gates, 1999). Secondly, the BPMS provides the organization with the information necessary to challenge the content and validity of the strategy (Ittner et al., 2003). From a management accounting perspective, the BPM system is considered to be synonymous with management planning and budgeting (Otley, 1999).

This short definition review indicates the existence of big discrepancies in perceiving the essence of business performance measurement system. A deepened

analysis of hundreds of definitions (found in 300 publications devoted to performance measurement) carried out by Franco-Santos et al. (2007) made it possible to order them with respect to a type of the BPMS aspect brought up. Thus, the definitions emphasize one or a combination of a few following aspects of business performance measurement system, namely:

- areas, understood as the fields of business activity and results covered with the measurement process by the BPM system,
- elements, understood as the components constituting the BPM system,
- functions, understood as the roles that the BPM system plays,
- processes, understood as the series of activities, complete undertaking of which determines the existence of the BPM system.

For the purpose of this article two performance measurement methodologies were of great importance while identifying the main features of performance measurement system, namely balanced scorecard and excellence model.

The balanced scorecard (BSC), created by Kaplan and Norton (1992a; 1996b), is one of the most popular approaches to business performance measurement. The data from 2001 indicate that BSC was implemented by 44% of organizations all over the world, (57% in Great Britain, 46% in USA and 26% in Germany and Austria) (Rigby, 2001; Speckbacher et al., 2003). The survey results suggest that BSC is also becoming more and more popular among the Polish medium and large companies. According to the data coming from 2007 as many as 11% of them apply BSC (Haffer, 2011).

The balanced scorecard is a set of financial and non-financial measures which gives top management a quick and complete view of the business. They are grouped in four perspectives: finance, customers, internal processes, innovation and learning (called next learning and growth perspective) (Kaplan and Norton, 2001).

In their first works Kaplan and Norton focused on supplementing the financial measures with operations measures (Kaplan and Norton, 1992b). Their aim was to create a set of balanced view of both the results of undertaken activities and the indicators of future results. Just after a few years of working with BSC they understood that BSC is an answer for much more fundamental question, namely, how to link long-term business strategy with firm's short-term activities. Thus, it appeared that a problem which they tried to solve changed from business performance measurement to strategy implementation improvement (Kaplan and Norton, 1996b). Undoubtedly, Kaplan and Norton through creating BSC set a standard of performance measurement system.

The other important examples of methodologies establishing a framework for performance measurement are business excellence models, such as the EFQM Excellence Model. The EFQM Excellence Model is the framework behind the European Quality Award which clearly became the most commonly applied

model in Europe for Total Quality Management (Westlund, 2001). The EFQM Excellence Model comprises nine elements grouped under five 'enabler' criteria (leadership; strategy; people; partnerships and resources; as well as processes, products and services) and four 'result' criteria (customer results, people results, society results, and key results). The enablers indicate how the organisation operates, and the results concentrate on the achievements towards organisational stakeholders, and how they can be measured and targeted. 'Results' are caused by 'Enablers' and 'Enablers' are improved using feedback from 'Results' (EFQM, 2009). The EFQM Excellence Model is based on the logical assumption that there is an internal structure between the enabler criteria, which could be expressed as follows: leadership drives strategy, people management along with partnerships and resources, and these three elements influence the results through suitable processes, products and services. This balanced approach allows the synergies between the elements of the model to be optimised (Westlund, 2001), which is in accordance with the global orientation postulated by the model. The EFQM Excellence Model – like other quality award models, such as the Malcolm Baldrige National Quality Award in the USA or the Deming Application Prize in Japan – is based on self-assessment. Self-assessment implies a comprehensive and regular review of an organisation's activities and results against the criteria of the model (Conti, 1997).

Although the excellence models were designed for self-assessment and organizational improvement purposes, a perspective provided by them is valuable particularly in the context of performance measurement considerations. The excellence models make it possible to consider many areas of business activities and results which are passed over in classic performance measurement methodologies e.g., BSC. Good examples of such areas can be a quality of leadership treated as a component of organizational potential or an influence on society treated as one of the result components. Two significant messages of the excellence models should be taken into account when considering them as performance measurement methodologies. Firstly, both, the ways of achieving results, that is, the *enablers* being simultaneously the potential sources of results improvement, and the targets, verified by the actually achieved *results* should turn up among the criteria against which a company is assessed. Secondly, the business results must be considered in a multidimensional way which means with respect to the requirements of all key stakeholders. In different excellence models the business results are usually considered with reference to the main four groups of stakeholders, namely employees, customers, shareholders and the whole society.

In literature one can find opinions according to which it is difficult to treat excellence models as the methodologies of objective measurement of business performance as they are based on subjective assessments (Neely et al., 2007). However, this judgement can be easily challenged since one of the self-assessment

goals is just striving for objective assessment scores. It is achieved mainly through the proper selection of the assessing team members, which makes it possible to cover a wide range of competencies as well as through the use of external assessors and the most sophisticated self-assessment method that is the award-based one which imposes strong investigation discipline. Moreover, in the case of the classical performance measurement methodologies such as BSC objectivity of applied data and measures created on the basis of them can be also called into question. Similarly, in the case of the data used in the self-assessment, their objectivity is not undisputed. Thus, the problem amounts to the correctness of designing the business self-assessment and performance measurement system, and to the reliability of conducting the measurements as well as assessing and applying the results.

The approach to performance measurement suggested in BSC and the framework for performance measurement which is behind business excellence models should not be considered separately. On the contrary, they are compatible and they complement each other. Thus, a simultaneous application of both approaches when building a holistic business performance measurement system, or in other words, a holistic self-assessment system, may provide a company with a big advantage. A good example of a measurement approach which combines BSC and business excellence model in one framework is Kanji's business scorecard (Kanji, 2001; Kanji and Sá, 2002; Kanji, 2002; Kanji, 2005).

The detailed characteristics of the BPMS identified through the analysis of BSC and excellence model concepts as well as BPMS definitions found in literature are shown in Tables 1–4 which present the research results. The appearance of these characteristics in the BPM systems of the examined companies was analysed with respect to areas, elements, functions and processes of the BPM system mentioned above. The Delphi method results made it possible to indicate these characteristics of BPMS which are indispensable for effective use of business performance measurement system.

2. Research Methodology

The data presented in this paper come from a research project conducted by one of the present paper authors (Haffer, 2011) within the confines of a grant of the Polish Ministry of Science and Higher Education, no. 1 H02D 099 30, entitled, "Self-assessment in firms' quality management systems" during the period of 2006–2007. The data were collected by means of a structured questionnaire which was sent to medium and large companies (employing fifty or more employees) operating in Poland, indicated in such databases as "2005 firms. Marketing CD", "Polish quality leaders" and "Business gazelles". An empirical research was conducted in three stages. The first stage was a questionnaire survey. Interviews in companies constituted the second stage. The third stage had the form of an expert

survey carried out by means of correspondence version of the Delphi method. The sample examined in the first research stage consisted of 230 firms. In the second research stage 37 companies took part and they constituted 16% of the basic sample. The Delphi method encompassed 19 experts being the representatives of academia (61%), consultancy (18%) and business practice (11%). This article concentrates most of all on the interview results and the expert survey results. The interview results were calculated on the basis of evaluations given by representatives of top management who were asked to characterize business performance measurement systems applied in the companies they manage, with respect to their areas, elements, functions and processes. The expert survey headed towards an identification of key features (areas, elements, functions and processes) of the efficient business performance measurement system.

3. The framework of Business Performance Measurement System (BPMS)

In Figure 1 a general outline of a BPMS Model is presented. The model should be perceived as the one which is dedicated to organisational self-assessment as it was built on the basis of the most popular performance measurement approaches (Neely, 2007; Kaplan and Norton, 1992a) and business excellence models (EFQM..., 2009; Baldrige..., 2010).

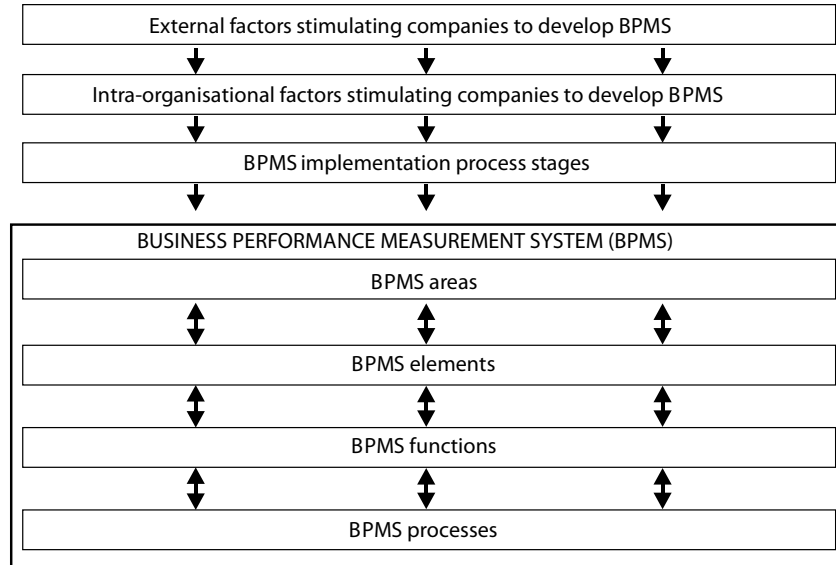


Figure 1. General outline of BPMS Model

The model indicates:

- key characteristics namely areas, elements, functions and processes of the BPMS which are indispensable for its effective use,
- stages of BPMS implementation process,

- key intra-organisational and external factors stimulating companies to develop BPMS.

The model came into being as a result of the expert survey as well as questionnaire survey and interviews conducted in the examined companies. As regards experts, they were asked to express their opinions on the above-mentioned issues using a three-grade scale, in which 1 meant that a given area, element, function, process, implementation action or stage or else internal or external factor was superfluous for efficient functioning and development of BPMS, 2 – optional, 3 – absolutely indispensable. As to representatives of top management from the examined companies, they were asked to characterize the BPMS applied in companies they manage and to indicate internal and external factors stimulating them to develop BPMS. In this way the experts' opinions are presented against a background of questionnaire and interview results which made it possible to evaluate Polish companies' advance in development of BPMS applied.

All components of the model are developed and characterized in more details in the next part of the paper.

4. BPMS areas

Table 1 shows measurement areas which should be definitely covered by an efficient business performance measurement system as well as the percentage of Polish firms active in these areas, determined on the basis of companies' self-assessment conducted according to the EFQM Excellence Model criteria. It appears from the data that none of four key measurement areas, analogous to BSC approach, namely finance, customers, business processes and employees (learning and growth), cannot be missed in BPMS. The best advantage taken from performance measurement can be achieved only when an organization applies an integrated set of performance indicators, which makes it possible to evenly divide attention of managers between all mentioned areas. Such an approach creates an opportunity to track and understand the cause and effect relationships between different groups of business results and at the same time between different groups of stakeholders. This relationship is as follows: financial results like profit or return on capital employed are determined by customer results like customer satisfaction and loyalty; customer results depend on the level of value added in business processes described by such indicators as e.g. new product development time or rework rate and finally business process measures are determined by people indicators such as employees' morale, job satisfaction or number of employee suggestions. An integrated set of performance indicators makes it possible to achieve balanced satisfaction of all stakeholders (customers, employees, shareholders, the whole society) and through it to increase the probability of the long-term business success.

The results regarding the examined companies show how active they are in the field of business performance measurement in four key measurement

areas: finance, customers, internal processes and growth (employees), separated according to the guidelines of BSC. It appears from the data that the majority of the examined companies neglect employees area in the first place and in the second – business processes area. Finance and customers areas are treated by the majority of the examined companies with priority, but the majority does not mean all of them. It's obvious then that intensification of efforts to assess on regular basis all four performance areas with the use of a precisely designed integrated set of measures constitutes a great challenge for Polish companies interested in striving towards business excellence.

BPMS areas	Percentage of active firms	Expert assessment
Finance area	61%	3
Customers area	55%	3
Business processes area	44%	3
Employees area	18%	3

5. BPMS elements

Table 2 shows elements which should be included in an efficient business performance measurement system as well as the degree to which they are developed in BPMS of the examined companies. It appears from the data that five out of eight elements are recognized as absolutely indispensable for BPMS to be complete and correctly fulfil its role. Three elements of BPMS, indicated in the table as the last ones, are regarded as optional that is dependent on the firm-specific needs and other systemic solutions existing in a given organization.

BPMS elements	Companies	Experts
Strategic goals used to design performance measures serving for monitoring the strategy	+/-	3
Integrated set of performance measures established in all four measurement areas: finance, customers, internal processes, employees	+/-	3
Cascade of measures linking strategic and operational levels	+/-	3
Clear targets for the results set and used to verify a degree of operational objectives achievement	+	3
Causal models created to track relationships between BPMS areas	+/-	3
Infrastructure supporting performance measurement mented companies achievement and it main and the only one domain of business performance	+/-	2
Guidelines for rewarding and paying bonuses for employees depending on the degree of target accomplishment	+/-	2
Performance contracts reached with employees	+/-	2

Table 1. BPMS areas according to the expert opinions given in 3-grades scale (in which 1 means that a given area is superfluous, 2 – optional, 3 – absolutely indispensable) and the percentage of active companies in these areas (mean value on the level of minimum 80 points on a 0–100 scale)

Table 2. BPMS elements according to the expert opinions given in 3-grades scale (in which 1 means that a given element is superfluous, 2 – optional, 3 – absolutely indispensable) and the degree to which they are developed in BPMS of the examined companies (+ satisfied level, +/- insufficient level, - lack of a given element)

An efficient BPMS should be based on clearly defined and operationalized strategy, which starts from the mission and strategic level and ends at the operational level. Strategic goals are undoubtedly a starting point in the process of performance measures design as these measures should be derived from them. The measures, created in this process, should enable managers to verify the degree to which strategic goals are achieved through monitoring of performance indicators from the bottom to the top of organization, i.e., starting from these which are clearly linked with operational goals up to these which relate directly to strategic goals. This cascade of measures is necessary to ensure a link between the strategic and operational levels. According to the expert opinions also a clear target setting is very important as they are used to verify a degree of operational objectives achievement. This is a level where the whole process of performance measurement is started. An organisational hierarchy determines a vertical layout of the measure links, whereas key measurement areas, indicated in Table 2, determine a horizontal layout of the measures. Thus BPMS should be designed in such a way to ensure integrated measurements in the vertical and horizontal layouts.

The last element of an efficient BPMS are causal models created to track relationships between performance indicators analysed and at the same time between different BPMS areas. This idea derives from RADAR logic (EFQM..., 2009) used in organisational self-assessment based on the EFQM Excellence Model criteria. It assumes that understanding of the cause and effect relationships between Key Enablers (such as people and processes) and Key Results (such as customer and financial results), according to process and system approaches, is essential for successful generation of improvement activities which should be a consequence of BPMS application. The benefits of BPMS application can be maximized through the inclusion of a self-assessment methodology based on a business excellence model to the system. Taking into account an example of the EFQM Excellence Model, in such a case four measurement areas, indicated in Table 2, could be supplemented with other self-assessment areas, namely leadership, strategy, partnership and resources as well as society results. Regular monitoring of actions and their results by means of appropriate performance indicators in all these areas and a detailed analysis of cause and effect relationships between them would be of great value as regards increased improvement opportunities.

Three out of eight BPMS elements are optional according to the expert opinions. One of them is the infrastructure supporting data acquisition, collation, sorting, analysis, interpretation, and dissemination. Such an infrastructure should take the form of a set of tools and procedures used for fulfilling the functions of BPMS, including, in particular, the performance measurement and assessment as well as the internal and external communication of the self-assessment results.

For this purpose an organization can use the potential of its existing IT and management systems. That is why the infrastructure supporting performance measurement is an optional element of BPMS. All procedures, tools and techniques e.g. in ISO or ERP systems can serve as the infrastructure supporting performance measurement.

A quite similar situation is connected with the remaining two optional BPMS elements: the guidelines for paying the bonuses and rewarding employees as well as the performance contracts, which are the contracts of employment respecting an expected level of achievements. They can constitute the components of personnel policy. However, even if these two BPMS elements are a part of HR policy they should be determined on the basis of regular measurements performed in an employee (growth) area. In such a way they could become also a part of BPMS.

The above observations show how and to what degree a comprehensive business performance measurement system can be integrated with other multi-dimensional management approaches. At the same time it is upsetting that the majority of Polish firms declare that their performance measurement systems are built on only one successfully developed component. These are the target values of performance indicators which make it possible to verify a degree of operational objectives achievement.

6. BPMS functions

Table 3 shows the functions attributed by experts to a comprehensive business performance measurement system as well as the degree to which they characterize BPMS of the examined companies. According to expert opinions as many as ten tasks, listed in the table in the first place, should be attributed to the efficient business performance measurement systems. Next tasks listed in the table can be treated as the optional ones that depend on the firm-specific needs and other systemic solutions existing in a given organization.

A set of tasks attributed to a BPMS seems to be coherent and complete making the system a holistic solution to assessment and improvement challenges. A BPMS should be most of all utilised for performance measurement and evaluation and at the same time for progress monitoring. However, the most important function of BPMS is to make an organization capable to make a full use of performance measurement results. Their role is to release feedback, that is to activate actions leading to improvement initiatives. In such a way BPMS can become the foundation for the process of a learning organization creation. At the same time the data collected in BPMS should support the strategy formulation process and ensure internal communication of performance, priorities and objectives, that could impact employee behaviours. A whole work carried out in BPMS should be in accordance with an organisational strategy, providing the organization with the data serving for monitoring the process of strategy implementation. At last,

the data gathered in BPMS should be well used in building the organizational image and in shaping relations with their stakeholders. Therefore also external communication of performance, priorities and objectives was rated among the absolutely indispensable functions of BPMS.

The next several BPMS functions listed in Table 3 are classified as optional. In fact, these functions result to some degree from the above-mentioned ones. The well-designed BPMS and, in particular, a set of performance indicators enable managers to focus their attention on key performance parameters, putting organization in order. At the same time BPMS can support business planning and control processes. One of its tasks can be also providing an organization with the input data for the process of rewarding and paying bonuses to employees (guidelines for this process are also an optional BPMS element) or providing an organization with the input data for a benchmarking process.

Table 3. BPMS functions according to the expert opinions given in 3-grades scale (in which 1 means that a given function is superfluous, 2 – optional, 3 – absolutely indispensable) and the degree to which they characterize BPMS of the examined companies (+ satisfied level, +/- insufficient level, - lack of a given function)

BPMS functions	Companies	Experts
Performance measurement and evaluation	+	3
Progress monitoring	+	3
Identification of improvement areas and providing an organization with the input data for business improvement process	+	3
Supporting strategy formulation process	+	3
Internal communication of performance, priorities and objectives	+	3
Feedback release (performance measurement results activate specific actions)	+	3
Supporting strategy implementation process	+/-	3
Creating a learning organization	+/-	3
Influencing employee behaviours	+/-	3
External communication of performance, priorities and objectives	+/-	3
Focusing managers' attention on key performance parameters	+	2
Supporting business planning process	+	2
Managing relationships	+/-	2
Providing an organization with the input data for a process of rewarding and paying bonuses for employees	+/-	2
Supporting control process	+/-	2
Assuring a compliance of business activities with external regulations	+/-	2
Providing an organization with the input data for benchmarking process	+/-	2
Putting organization in order	nda*	2
Application for a quality award	nda	2

* no data available

According to the data coming from the Polish companies, six out of ten BPMS indispensable tasks are carried out in BPMS of the examined firms. They are as follows: performance measurement and evaluation, progress monitoring, providing the organization with the input data for business improvement process, supporting strategy formulation process, ensuring internal communication through communicating performance, priorities and objectives as well as releasing feedback.

The data presented in Table 3 confirm also that in the majority of the companies examined it is not a rule to use the data coming from measurement activity for monitoring the strategy implementation process and influencing employee behaviours. It appears that the examined firms to a little degree treat the performance measurement system as a tool of creating a learning organization and enabling external communication of performance, priorities and objectives. These four features of BPMS in the examined firms should be treated as their main weaknesses.

7. BPMS processes

Table 4 shows BPMS processes which should be definitely performed within an efficient business performance measurement system and the degree to which they are developed in BPMS of the examined companies. The experts stated that all six processes listed in the table should be performed in a comprehensive business performance measurement system. None of them was treated as an optional one.

For sure the selection of the measurement points and design of measures belongs to essential processes which should be realized in a comprehensive BPMS. This process is of a fundamental importance for efficient use of BPMS as it determines comprehensiveness of the set of metrics applied, their fit to business specificity and stakeholders requirements, and consequently, the quality of decisions taken on the basis of obtained information as well as the effectiveness of improvement processes being performed. Simultaneously, placing these works within a business system and coupling them with a strategy is so much important that in expert survey one more process was added namely strategic goals definition. In this way the most significant task of an efficient BPMS is again emphasized. This task is to support the strategy formulation and implementation process through corrective and improving actions. These actions are in turn connected with the realization of next two main processes of BPMS which are: collection and processing of data and information management through data interpretation and decision making.

The next important process of BPMS is performance evaluation and rewarding. Monitoring of performance (on individual, team and organizational levels) has one main purpose which is fair rewarding, that is, appreciating individual and team efforts in a way which motivates people for creativity release

Table 4. BPMS processes according to the expert opinions given in 3-grades scale (in which 1 means that a given process is superfluous, 2 – optional, 3 – absolutely indispensable) and the degree to which they are performed in BPMS of the examined companies (+ satisfied level, +/- insufficient level, - lack of a given process)

BPMS processes	Companies	Experts
Selection of measurement points and design of measures	+/-	3
Collection and processing of data	+	3
Information management (data interpretation, decision making)	+	3
Performance evaluation and rewards	+	3
System review	+	3
Strategic goals definition (specification)	nda*	3

* no data available

and performance improvement. The last indispensable process of a comprehensive BPMS is a system review. The system review is most important from the viewpoint of changes taking place in an environment and the necessity of reacting them. Strategic alignments often require the update of the performance measures applied in BPMS and the verification of the range and correctness of system procedures. These actions should be taken during cyclical system reviews.

The interview results show that four out of five processes, evaluated by company representatives, are performed in BPMS of the majority of Polish firms. They include: collection and processing of data, information management realized through data interpretation and decision making on the basis of obtained information, performance evaluation and rewarding as well as the system review. The weakest point among all processes performed in BPMS of the examined companies is selection of measurement points and the design of measures. It means that their coupling with strategy and their alignment with the firm-specific needs leaves a lot to be desired in many Polish companies. It seems that they should make a significant progress within that field if they want to increase the effectiveness of their BPM systems.

8. BPMS implementation process stages

Detailed actions making up a process of BPMS implementation were identified only on the basis of the expert survey. They are presented in Table 5. It appears from the data that a process of BPMS implementation includes as many as twenty actions which are absolutely indispensable for efficient functioning of BPMS among twenty six actions being under evaluation. Six of them are optional that depend on the firm-specific needs and other systemic solutions existing in a given organization.

On the basis of the actions indicated in the table eleven BPMS implementation process stages were identified. Three of them are optional. They are presented in Figure 2.

No.	Actions	Mean value
1	Meeting of top management representatives with lower level managers	3
2	Top management declaration of the self-assessment need	3
3	Appointment of self-assessment project coordinator	3
4	Self-assessment team formation	3
5	Self-education of self-assessment team members	3
6	<i>Selection of an institution offering self-assessment package*</i>	2
7	<i>Training of self-assessment team members provided by external institution*</i>	2
8	<i>Commissioning external institution to conduct next stages of BPMS implementation*</i>	2
9	Measurement objectives formulation	3
10	Measurement scope/self-assessment areas identification	3
11	Designing performance measures for selected self-assessment areas	3
12	Targets determination	3
13	Determining the methods of data acquisition	3
14	Creating measurement infrastructure	3
15	Determining a self-assessment schedule	3
16	Creating data analysis infrastructure	3
17	Determining ways of self-assessment results application	3
18	Determining ways of internal and external self-assessment results communication	3
19	Determining procedure of correcting/improving actions taking	3
20	Determining ways of system efficiency evaluation – system review	3
21	Disseminating and consulting a course of BPMS implementation – consensus among employees	3
22	<i>Indicating members of self-assessment team responsible for data acquisition*</i>	2
23	Indicating members of self-assessment team responsible for data analysis and documentation	3
24	<i>Indicating members of self-assessment team responsible for correcting/improving action plans realisation*</i>	2
25	Training of people responsible for realisation of individual stages of self-assessment process	3
26	<i>Pilot measurement *</i>	2

* Optional actions in BPMS implementation process

Table 5. Detailed actions making up a process of BPMS implementation according to the expert opinions given in 3-grades scale (in which 1 means that a given action is superfluous, 2 – optional, 3 – absolutely indispensable)

A short description of BPMS implementation process stages is given below:

- 1) Top management decision and entitlements delegation – this stage encompasses three first actions, listed in Table 5. The process starts on the top of the organisational power and needs constant support in the form of engaged leadership. Top management representatives need, in turn, to release engagement in lower level managers mainly through clear

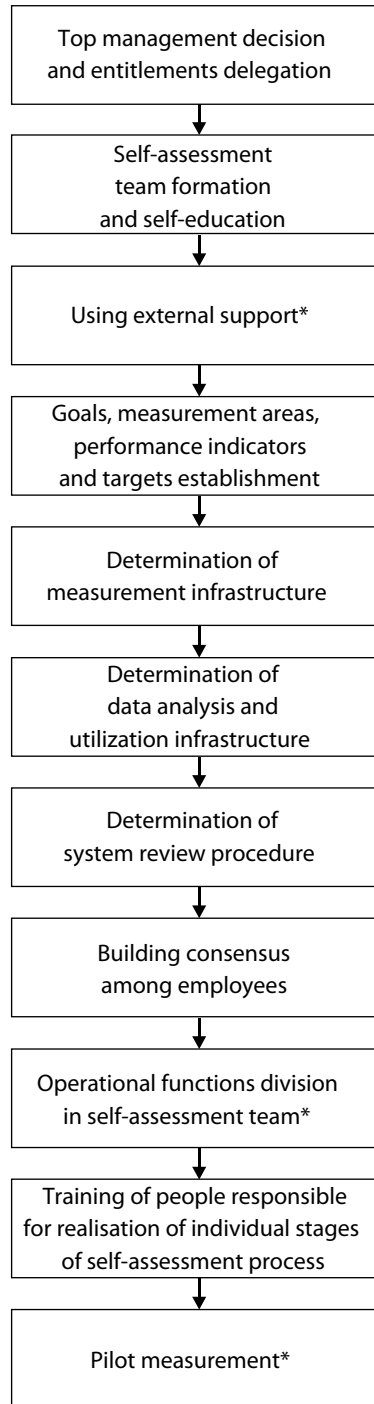


Figure 2.
BPMS
implementation
process stages

- communication of self-assessment benefits, motivation building and systematic progress monitoring after BPMS introduction. As a result of this stage a self-assessment project coordinator should be appointed.
- 2) Self-assessment team formation and self-education (actions 4–5 in Table 5) – this stage is very important for the whole process to be successful. The business performance indicators which can be used in BPMS may relate to a wide spectrum of organisational aspects such as finance and costs, organisational behaviours and HR management, customers attitudes, process management, impact on society and others. It is rather unlikely that in-depth knowledge about all these areas is in one person's disposal. That is why the team members should come from different functional areas and become a group of credible specialists capable of not only conducting measurements, but also disseminating the assessment results making organizational improvement possible. A leader plays a key role in a self-assessment team. Their role is to develop necessary knowledge and skills as well as the passion for excellence among all team members. For that purpose the leader can use external support.
 - 3) Using external support (actions 6–8 in Table 5) – this optional stage may encompass a training of a self-assessment team leader, but also a selection of an institution offering self-assessment package (e.g. European Foundation for Quality Management or a consulting firm), a training of self-assessment team members provided by this institution and commissioning it to conduct next stages of BPMS implementation. A use of external support should be dependent on the firm-specific needs and financial possibilities. However, it is recommended for companies to build their BPMS by themselves based on commonly used approaches like ISO 9001 standard, business excellence models or BSC methodology.
 - 4) Goals, measurement areas, (performance) indicators and targets establishment (actions 9–12 in Table 5) – it is the most important stage in a process of BPMS design. A starting point is establishing goals of measurements that is determining the form of assessment results' utilization. Doing this leads to BPMS tasks identification already described in point 6 of this paper. A core of BPMS is an integrated set of performance measures which should give a whole picture of the assessed organization including cause and effect relationships between different BPMS areas, described in points 4 and 5 of this paper. Different rules, for instance proposed by Brown (1996), and frameworks can be used when determining the measures and targets including above-mentioned BSC and the business excellence models as well as the SMART pyramid (Lynch and Cross, 1991), the input-process-output-outcome framework (Brown, 1996), the performance prism (Neely et al., 2007) and many others.

- 5) Determination of measurement infrastructure (actions 13–15 in Table 5) – this stage is made up of determining the methods of data acquisition and expected measurement results as well as a measurement schedule. It is a stage in which a measurement process is planned. In this stage a form of the output data as well as a frequency of their acquisition are determined.
- 6) Determination of a data analysis and utilisation infrastructure (actions 16–19 in Table 5) – in this stage the guidelines for data collation, sorting, analysis, interpretation, dissemination and utilisation should be created. Apart from analytical and computational techniques it is necessary to determine the procedures for internal and external communication of measurement results as well as for its utilisation in corrective and improving actions. These procedures should be integrated with management systems and everyday operations existing in organization.
- 7) Determination of system review procedure (action 20 in Table 5) – in this stage procedures used to review the efficiency of BPMS should be defined. Top management should be responsible for a system review. A review should create an opportunity to assess to what degree the BPMS follows its procedures and fits to external conditions and intra-organisational requirements. Improvement proposals prepared on the basis of a review could concern such issues as the revision of the BPMS objectives, measurement techniques or performance indicators.
- 8) Building consensus among employees (action 21 in Table 5) – this stage concerns communicating BPMS objectives and benefits as well as inviting employees to participate in BPMS creation. It is very important to get employee acceptance for BPMS initiative as their future engagement in organisational self-assessment will determine the BPMS efficiency.
- 9) Operational functions division in self-assessment team (actions 22–24 in Table 5) – in this optional stage a responsibility assigned to team members may concern three different issues, namely, data acquisition, data analysis and documentation as well as correcting/improving action plans realisation. These duties may be covered by the team members, however other employees from behind the team may be also engaged in these activities.
- 10) Training of people responsible for realisation of individual stages of self-assessment process (action 25 in Table 5) – the main purpose of these stage is to equip people with skills necessary for efficient and consequent BPMS operating. Top management may decide again to use external support and commission the training to external institutions. Depending on the firm-specific needs, the training may concern such issues as the measurement or self-assessment methodologies (e.g. BSC, EFQM Excellence Model), research techniques (e.g. questionnaires for attitudes'

measurement, focus group), statistical techniques (e.g. statistical process control) or improvement methodologies (e.g. BPR, Six Sigma, Lean Management).

- 11) Pilot measurement (action 26 in Table 5) – in this optional stage it's possible to verify whether the measurement tools and techniques work properly and to build cross-departmental and cross-functional consensus about the final BPMS shape. It is not an obligatory stage as the system review stage built in the BPMS implementation process should guarantee that the system is improved and adjusted to changing internal and external requirements on a constant basis.

9. Intra-organisational factors stimulating companies to develop BPMS

Table 6 includes intra-organisational factors which, according to managerial and expert opinions, stimulate managers most strongly to develop BPMS applied. A full conformity of given opinions emerges in case of six out of fourteen factors listed in the table. Therefore they should be recognized as the key intra-organisational factors activating actions towards BPMS development in companies.

No.	Factors	Companies	Experts
1	Corporate or board requirements/ Owner guidelines/ Top management commitment/ Engaged leadership	x	x
2	Dissatisfaction and growing expectation of employees and a need to keep them in organization/ Employees' acceptance for a decision of BPMS implementation	x	x
3	A need for higher motivation of employees and for their performance improvement/ A need for improvement of HR system which could support innovativeness and promote changes	x	x
4	A need for control of strategy implementation process and for strategy actualization	x	x
5	A need for internal communication improvement	x	x
6	Favourable organisational culture/ Open internal and external communication/ Trust/ Continuous improvement	x	x
7	A need for management efficiency/ business performance/ market position improvement	x	-
8	Management systems implemented and a need for certificates' maintenance	x	-
9	Low productivity and a need for its increase	x	-
10	Insufficient performance control	x	-
11	A need for organization and management system improvement	x	-
12	The commitment of the tactical and operational level managers	-	x
13	Process approach implemented	-	x
14	Information and knowledge management system	-	x

Table 6. Key intra-organisational factors stimulating companies to develop BPMS

A fundamental factor which can activate a process of BPMS development is an impulse given by top management and, next, the sustainable and clear top management commitment in the system maintenance and its application for the purpose of organization development. BPMS development is both a manifestation and a facilitator of strong leadership. It is also a confirmation of manager awareness of a relationship between self-assessment and performance measurement and quality of management.

As many as two factors stimulating companies to BPMS development concern employees. Both managers and experts are conscious of the fact that BPMS is a means of meeting people expectations half way, as measurement and evaluation of people results facilitate a human resources management process, strengthening people motivation and their willingness to innovate. They understand that before BPMS implementation it is essential to get the employee acceptance for the way performance and attitude indicators are calculated and applied in HR policy. The best solution is to invite employees to the process of designing measures and data utilization procedures especially when it comes to the rewarding procedures.

Next is quality of a strategy which is pursued in a company. The higher quality of a strategy as regards its operationalization and transparency the stronger need to support the strategy implementation process in respect of its monitoring and actualization. In such a case BPMS as a strategic control tool, which links strategic goals with everyday actions through performance indicators, has a crucial role to play.

The last two key internal factors stimulating BPMS development concern an internal communication and in principle a need of its improvement as well as a favourable organisational culture, promoting open internal and external communication, trust among employees and continuous improvement. In fact, trust is one of the conditions of good communication, knowledge sharing and continuous improvement. It is also a manifestation of a positive organizational climate existing in a company. Positive organisational climate is about positive employee beliefs and feelings towards such issues as a clarity of organisational standards and procedures, a range of organisational responsibility and flexibility, a level of engagement in teams and a level of satisfaction with work and a reward system (Haffer, 2010). This is a social phenomenon which favours effective fact-based management, essential for good communication. Therefore, it is easier for top management to make a decision on BPMS development when a positive organizational climate is present in a company as such a decision leads to increased transparency of performance results people achieve and needs their acceptance.

10. Key external factors stimulating companies to develop BPMS

According to expert and interview survey results a stimulating influence of external factors on BPMS development is much lower comparing to the one of internal factors. At the same time it appears from the data that among external factors the sectoral ones stimulate companies do develop BPMS harder than the macro-environmental ones.

Table 7 shows the sectoral factors which, according to managerial and expert opinions, stimulate managers most strongly to develop BPMS applied. A full conformity of given opinions emerges in case of six out of nine factors listed in the table. Therefore they should be recognized as the key sectoral factors activating in companies actions towards BPMS development.

No.	Factors	Companies	Experts
1	Competition	x	x
2	Customer requirements	x	x
3	Sectoral requirements	x	x
4	Efforts undertaken by companies in order to strengthen their public relations (PR)	x	x
5	Market which is becoming more and more dynamic	x	x
6	Business partners' requirements	x	x
7	Benchmarking – sectoral rankings (national and international)	x	-
8	Actions undertaken by institutions organizing competitions for quality awards (e.g. Polish Quality Award, European Quality Award)	-	x
9	Management systems integration becoming more and more wide-spread among companies	-	x

Table 7.
Key sectoral
factors stimulating
companies to
develop BPMS

The examined top management representatives and experts agreed that competition is the main incentive for managers to develop BPMS as well as to intensify improvement actions. BPMSs provide companies with competitive advantages influencing quality of management and the data coming from the system are more and more commonly used to strengthen an image of companies. At the same time a market which is becoming more and more dynamic (locally and globally) also in Poland, especially after joining the European Union, sets companies the challenges reflected in growing sectoral requirements raised by both business partners and customers. They often take the form of normalized requirements e.g. industry quality standards like ISO/TS 16949 in automobile industry or HACCP in food industry. These fundamental facts are undeniable and their significance, according to systematically growing environmental turbulence, will also be growing.

Table 8 shows the macro-environmental factors which, according to managerial and expert opinions, stimulate managers most strongly to develop BPMS applied. A full conformity of given opinions emerges in the case of four out of eleven factors listed in the table. Therefore they should be recognized as the key macro-environmental factors activating actions towards BPMS development in companies.

No.	Factors	Companies	Experts
1	Economic changes	x	x
2	Changes including growing competition on labour market/ Growing role/ power of employees	x	x
3	Increasing product quality standards (quality requirements)	x	x
4	Increase of corporate social responsibility (CSR)/ Growing public opinion sensitivity	x	x
5	Technological requirements (machines, apparatus, equipment, systems)	x	-
6	Legal requirements	x	-
7	Social changes	x	-
8	Benefits and challenges of globalization	-	x
9	An information need of different groups of stakeholders (especially shareholders and investors)	-	x
10	Actions towards disseminating quality culture e.g. Polish Quality Award or European Quality Award competitions	-	x
11	Global market requirements	-	x

Table 8.
Key macro-environmental factors stimulating companies to develop BPMS

Changes taking place in macro-environment and inside companies, stimulating them to BPMS development, are mostly linked with economic and social factors in the opinions of the managers and experts. The first group of factors involves globally increased international standard dissemination. It is mainly about the quality management system standards as ISO 9001, but also other management system standards as the environmental management standard (ISO 14001), Occupational health and safety management standard (OHSAS 18001), CSR management standard (ISO 26000), risk management standard (ISO 31000), information safety standard (ISO 27000) and many others. Implementation of selected management standards forces the companies to intensify measurement efforts according to the process approach which above-mentioned standards are based on. As regards social changes, they find expression mostly in growing public opinion sensitivity and a growing role of employees as a party in negotiations on labour market which cannot be passed over by employers. These changes force companies to take care more and more of social effects identification and control,

leading to the increase of corporate social responsibility. It is about the effects on natural environment, customers, employees, business partners, owners and potential investors as well as other stakeholders.

To sum up, it should be noticed that there is a substantial group of internal and external factors stimulating the examined companies to BPMS development. It seems like their stimulating influence will be increasing company efforts towards performance measurement and self-assessment, giving a chance of practical verification of the model presented in this paper.

11. The Business Performance Measurement System Model: conclusion and discussion

The Business Performance Measurement System Model developed in this paper is presented in Figure 3. When it comes to the characteristics of the model, the selection of areas, elements, functions and processes of the BPMS depicted as indispensable for the effective use of the model, finds very well confirmation in literature.

As regards indispensable BPMS areas which are finance, customers, business processes and employees ones, they can be found in the majority of business performance measurement and self-assessment frameworks including BSC (Kaplan and Norton, 1992a), the business excellence models (EFQM..., 2009; Baldrige..., 2010), the SMART pyramid (Lynch and Cross, 1991), the input-process-output-outcome framework (Brown, 1996), the performance prism (Neely et al., 2007), Scandia Navigator (Edvinsson and Malone, 1997) and many others. Some of them aim also to include additional measurement and self-assessment areas such as society results, leadership or partnerships. Although it is arguable which of them to choose additionally, these kind of modifications can be freely introduced according to the presented model depending on firm-specific needs.

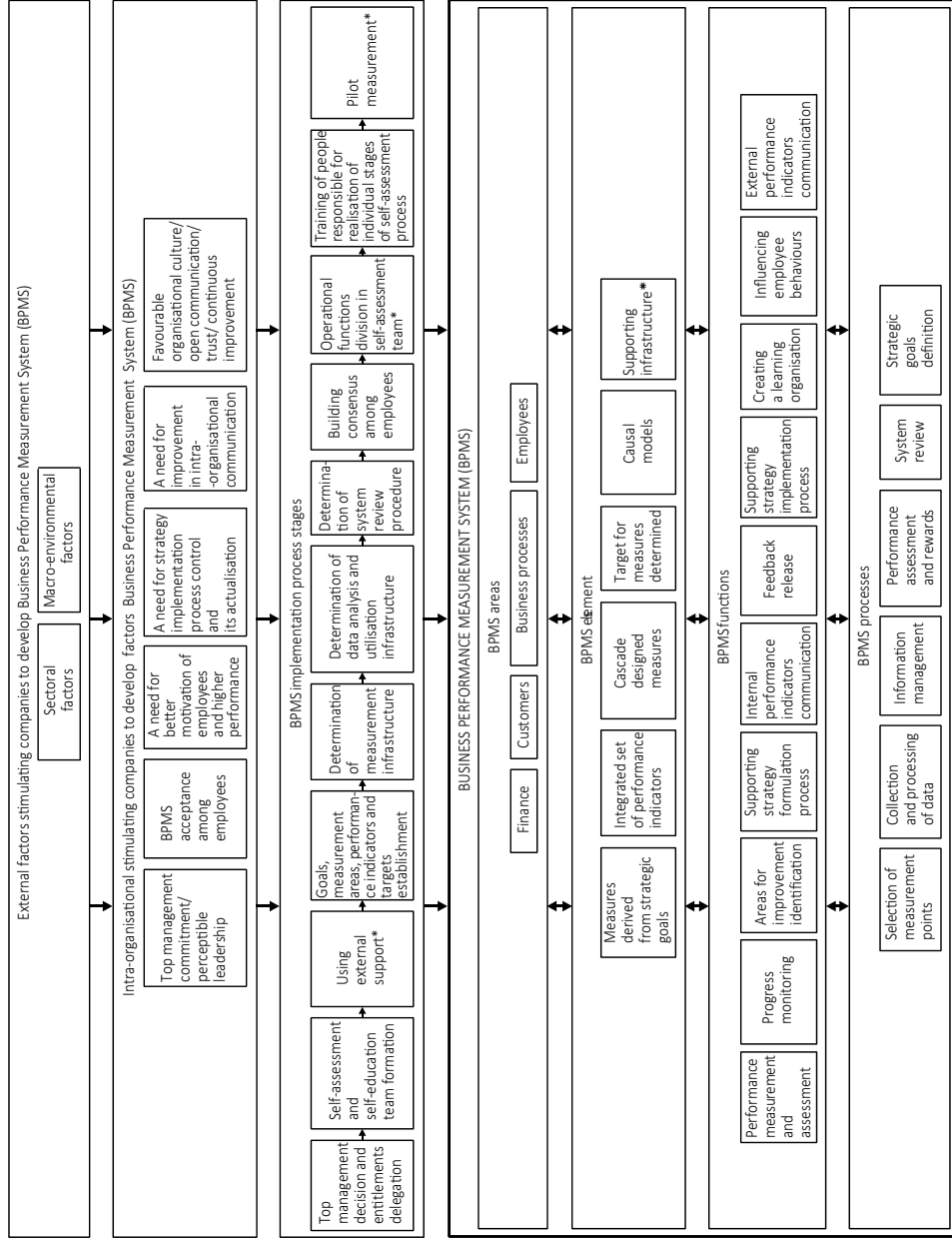
With reference to indispensable BPMS elements proposed in the model, there is a common agreement among many authors that at least five issues should be included on this list. These are: strategic goals used to design performance measures serving for monitoring the strategy (Atkinson, 1998; Gates, 1999; Ittner et al., 2003, Maisel, 2001; Kaplan and Norton, 1996a), an integrated set of performance measures established in all four measurement areas: finance, customers, internal processes and employees (Bourne et al., 2003; Kaplan and Norton, 1996a; Lebas, 1995; Neely et al., 1995), a cascade of measures linking strategic and operational levels (Atkinson, 1998; Gates, 1999; McGee, 1992; Rogers, 1990; Kaplan and Norton, 1996a), clear targets for the results set and used to verify a degree of operational objectives achievement (Atkinson, 1998; McGee, 1992; Otley, 1999); causal models created to track relationships between BPMS areas (Atkinson, 1998; Lebas, 1995; EFQM..., 2009).

As to the BPMS functions, again, these ones which are depicted in the model are emphasized by many authors as indispensable for the system to be efficient. They are as follows: performance measurement and evaluation (Atkinson et al., 1997; Bititci et al., 1997), progress monitoring (Neely, 1998; Lebas, 1995; Atkinson, 1998), improvement area identification and providing an organization with the input data for business improvement process (Neely et al., 1995; Lynch and Cross, 1991), supporting strategy formulation process (Atkinson, 1998; Bourne et al., 2003; Rogers, 1990; Ittner, 2003), internal communication of performance, priorities and objectives (Forza and Salvador, 2000; Lynch and Cross, 1991; Otley, 1999; Neely, 1998), feedback release (Otley, 1999; EFQM..., 2009), supporting strategy implementation process (Kaplan and Norton, 1996a; Rogers, 1990; Gates, 1999; Maisel, 2001; McGee, 1992); creating a learning organization (Atkinson, 1998; Kaplan and Norton, 1996a; EFQM..., 2009), influencing employee behaviours (Atkinson, 1998; Neely et al., 1995; Neely, 1998; Otley, 1999), external communication of performance, priorities and objectives (Neely, 1998; Atkinson et al., 1997; Kerssens-Van Drongelen and Fisscher, 2003).

With regard to BPMS processes, five issues appeared in the presented model. There is a considerable amount of evidence in literature proving that they are indispensable for efficient BPMS functioning. These BPMS processes are as follows: the selection of measurement points and design of measures (Atkinson et al., 1997; McGee, 1992), collection and processing of data (Atkinson, 1998; Neely, 1998; McGee, 1992; Forza and Salvador, 2000), information management (Lynch and Cross, 1991; Neely, 1998; Otley, 1999; Ittner et al., 2003; Maisel, 2001), performance evaluation and rewards (Ittner et al., 2003; McGee, 1992; Neely et al., 1995; Otley, 1999), system review (Rogers, 1990; Kaplan and Norton, 2004).

Although the significance of the model components for the effective use of the BPMS can be easily confirmed by other authors, there are still some BPMS elements and functions listed in Tables 2 and 3 which were not selected in the research as the indispensable ones. It might be interesting to check in further research whether this regularity would be confirmed in other countries. Also an issue of linking performance measurement and self-assessment in the process of BPMS implementation could be brought up for discussion. Finally, it is arguable whether the internal and external factors stimulating Polish companies for BPMS development are of universal character.

The authors are convinced that the model although developed for Polish companies can successfully serve as a reference model also for non-Polish companies. In such a way it could be treated as a universal model to be used in companies operating in different economies.



* Optional BPMS implementation process stages ** Optional BPMS element

Figure 3.
The Business Performance Measurement System Model

References

- Atkinson, A. A. (1998), "Strategic performance measurement and incentive compensation", *European Management Journal*, Vol. 16 No. 5, pp. 552–561. DOI: [http://dx.doi.org/10.1016/S0263-2373\(98\)00032-2](http://dx.doi.org/10.1016/S0263-2373(98)00032-2)
- Atkinson, A. A., Waterhouse, J. H., Wells, R. B. (1997), "A stakeholder approach to strategic performance measurement", *Sloan Management Review*, Vol. 38 No. 3, pp. 25–37.
- Baldrige Performance Excellence Program. 2011–2012 Criteria for Performance Excellence, (2010), National Institute of Standards and Technology, Gaithersburg.
- Bititci, U. S., Carrie, A. S., Mcdevitt, L. (1997), "Integrated performance measurement systems: a development guide", *International Journal of Operations & Production Management*, Vol. 17 No. 5,6, pp. 522–535. DOI: <http://dx.doi.org/10.1108/01443579710167230>
- Bourne, M. C. S., Neely, A., Mills, J. F., Platts, K. W. (2003), "Implementing performance measurement systems: a literature review", *International Journal of Business Performance Management*, Vol. 5 No. 1, pp. 1–24. DOI: <http://dx.doi.org/10.1504/IJBPM.2003.002097>
- Brown, M. G. (1996), *Keeping Score. Using the Right Metrics to Drive World-Class Performance*, Productivity Press, New York.
- Conti, T. (1997), *Organizational self-assessment*, Chapman & Hall, London.
- Dumond, E. J. (1994), "Making best use of performance-measures and information", *International Journal of Operations & Production Management*, Vol. 14 No. 9, pp. 16–31. DOI: <http://dx.doi.org/10.1108/01443579410066712>
- Edvinsson, L., Malone, M. S. (1997), *Intellectual capital: realizing your company's true value by finding its hidden brainpower*, Harper Business, New York.
- EFQM Excellence Model 2010 (2009), EFQM Publications.
- Forza, C., Salvador, F., (2000), "Assessing some distinctive dimensions of performance feedback information in high performing plants", *International Journal of Operations & Production Management*, Vol. 20 No. 3, pp. 359–385. DOI: <http://dx.doi.org/10.1108/01443570010308112>
- Franco-Santos, M., Kennerley, M., Micheli, P., Martinez, V., Mason, S., Marr, B., Gray, D., Neely, A. (2007), "Towards a definition of business performance measurement system", *International Journal of Operations & Production Management*, Vol. 27 No. 8, pp. 784–801. DOI: <http://dx.doi.org/10.1108/01443570710763778>
- Gates, S. (1999), *Aligning Strategic Performance Measures and Results*, The Conference Board, New York.
- Haffer, R. (2010), "Relacje pomiędzy komponentami modelu wewnątrzorganizacyjnych oddziaływań Pozytywnego Potencjału Organizacji", in: Stankiewicz, M. J. (Ed.), *Pozytywny potencjał organizacji. Wstęp do użytecznej teorii zarządzania*, TNOiK „Dom Organizatora”, Toruń, pp. 159–213.
- Haffer, R. (2011), *Samoocena i pomiar wyników działalności w systemach zarządzania przedsiębiorstw. W poszukiwaniu doskonałości biznesowej*, Wydawnictwo UMK, Toruń.
- Haffer, R. (2014), "Business Performance Measurement Systems versus Business Results and Business Excellence: The Case of Poland", in: Chopra, P. K. (Ed.), *Quality*,

- Excellence and Measurement. A Tribute to Professor Gopal K. Kanji*, Wisdom House Publications, Leeds.
- Ittner, C., Larcker, D., Randall, T. (2003), "Performance implications of strategic performance measurement in financial service firms", *Accounting, Organizations and Society*, Vol. 28 No. 7/8 pp. 715–741. DOI: [http://dx.doi.org/10.1016/S0361-3682\(03\)00033-3](http://dx.doi.org/10.1016/S0361-3682(03)00033-3)
- Kanji, G. K. (2001), *Measuring Business Excellence*, Routledge, London.
- Kanji, G. K., Sá, P. M. (2002), "Kanji's Business Scorecard", *Total Quality Management*, Vol. 13 No. 1, pp. 13–27.
- Kanji, G. K. (2002), "Performance Measurement System", *Total Quality Management*, Vol. 13 No. 5, pp. 715–728. DOI: <http://dx.doi.org/10.1080/0954412022000002090>
- Kanji, G. K. (2005), "Sustainable Growth and Business Excellence", *Total Quality Management*, Vol. 16 No. 8, pp. 1069–1078. DOI: <http://dx.doi.org/10.1080/14783360500163292>
- Kaplan, R. S., Norton, D. P. (1992a), "The balanced scorecard: measures that drive performance", *Harvard Business Review*, January-February, pp. 71–79.
- Kaplan, R. S., Norton, D. P. (1992b), "The Balance Scorecard: Measures That Drive Performance", in: *Harvard Business Review on Measuring Business Performance*, Harvard Business School Press, Boston.
- Kaplan, R. S., Norton, D. P. (1996a), "Linking the balanced scorecard to strategy (reprinted from the balanced scorecard)", *California Management Review*, Vol. 39 No. 1, pp. 53–79.
- Kaplan, R. S., Norton, D. P. (1996b), *The Balanced Scorecard: Translating Strategy into Action*, Harvard Business School Press, Boston.
- Kaplan, R. S., Norton, D. P. (2001), *The Strategy Focused Organization*, Harvard Business School Press, Boston.
- Kaplan, R. S., Norton, D. P. (2004), *Strategy Maps: Converting Intangible Assets into Tangible Outcomes*, Harvard Business School Press, Boston.
- Kerssens-Van Drongelen, I. C., Fisscher, O. A. M. (2003), "Ethical dilemmas in performance measurement", *Journal of Business Ethics*, Vol. 45 No. 1/2, pp. 51–63.
- Lingle, J. H., Schiemann, W. A. (1996), "From balanced scorecard to strategy gauge. Is measurement worth it?", *Management Review*, March, pp. 56–62.
- Lebas, M. J. (1995), "Performance measurement and performance management", *International Journal of Production Economics*, Vol. 41 Nos. 1–3, pp. 23–35. DOI: [http://dx.doi.org/10.1016/0925-5273\(95\)00081-X](http://dx.doi.org/10.1016/0925-5273(95)00081-X)
- Lynch, R. L., Cross, K. F. (1991), *Measure up – the Essential Guide to Measuring Business Performance*, Mandarin, London.
- Maisel, L. S. (2001), *Performance Measurement Practices Survey Results*, AICPA, New York.
- McGee, J. V. (1992), *What is Strategic Performance Measurement?*, Ernst & Young Center for Business Innovation, Boston.
- Neely, A. (1998), *Measuring Business Performance: Why, What and How*, The Economist and Profile Books Ltd., London.
- Neely, A., Gregory, M. J., Platts, K. (1995), "Performance measurement system design: a literature review and research agenda", *International Journal of Opera-*

- tions & Production Management*, Vol. 15 No. 4, pp. 80–116. DOI: <http://dx.doi.org/10.1108/01443579510083622>
- Neely, A., Kennerley, M., Adams, Ch. (2007), “Performance measurement frameworks: a review”, in: Neely, A. (Ed.), *Business Performance Measurement. Unifying and integrating practice*, Second edition, Cambridge University Press, Cambridge.
- Neely, A. (Ed.) (2007), *Business Performance Measurement. Unifying and integrating practice, Second edition*, Cambridge University Press, Cambridge.
- Otley, D. T. (1999), “Performance management: a framework for management control systems research”, *Management Accounting Research*, Vol. 10 No. 4, pp. 363–382. DOI: <http://dx.doi.org/10.1006/mare.1999.0115>
- Pun, K. F. (2002), “Development of an integrated total quality management and performance measurement system for self-assessment: A method”, *Total Quality Management*, Vol. 13 No. 6, pp. 759–777. DOI: <http://dx.doi.org/10.1080/0954412022000010127>
- Rigby, D. (2001), “Management tools and techniques: a survey”, *California Management Review*, Vol. 43 No. 2, pp. 240–247. DOI: <http://dx.doi.org/10.2307/41166079>
- Rogers, S. (1990), *Performance Management in Local Government*, Longman, London.
- Sinclair, D., Zairi, M. (2001), “An empirical study of key elements of total quality-based performance measurement systems: A case study approach in the service industry sector”, *Total Quality Management*, Vol. 12 No. 4, pp. 535–550. DOI: <http://dx.doi.org/10.1080/09544120120066127>
- Speckbacher, G., Bischof, G., Pfeiffer, T. (2003), “A descriptive analysis on the implementation of balanced scorecards in German-speaking countries”, *Management Accounting Research*, Vol. 14 No. 4, pp. 361–387. DOI: <http://dx.doi.org/10.1016/j.mar.2003.10.001>
- Westlund, A. H., (2001), “Measuring environmental impact on society in the EFQM system”, *Total Quality Management*, Vol. 12 No. 1, pp. 125–135. DOI: <http://dx.doi.org/10.1080/09544120020010147>