Abstract — Gaining a competitive advantage by achieving a certain level of business performance is the primary prerequisite for the successful operation of a company in the long term in today's highly competitive environment. For this reason, the performance measurement and management system becomes more and more important for evaluating of company performance. This paper deals with performance measurement systems of selected Czech companies. The main aim of the paper is to investigate the characteristics of effectively created performance measurement and management systems of monitored companies through interviews with managers and analysis of internal materials of these companies. The performance measurement systems are examined at two different levels. First the analysis of performance measurement system as an entity is carried out by exploring issues such as: multi-dimensionality of performance measures, interconnection with corporate strategy and defining performance measures at the operational level. Second the analysis of relationship between performance measurement system and environment in which it operates is performed. There is investigated whether the strategy is reformulated on the basis of performance measures evaluation and weather exist the relationship between performance measurement and reward system. The research findings are evaluated within the context of the theoretical background and the conclusions of similar studies. Based on these findings, a research field is defined and significant gaps in performance management process are formulated. The paper is elaborated on the basis of literature review and case studies analysis of selected companies.

Keywords— Characteristics, management control, measurement, performance, system.

I. INTRODUCTION

Increasing demands on human resource management and organizational changes, new assumptions of strategic importance, the information revolution, knowledge management and productivity of "knowledge" employee can be considered as the challenges of the 21st century [1]. Companies have to learn not only to respond to these challenges, but also be able to recognize them and be ready for them. Therefore, it is essential to accurately mapping the environment, the trends in industry and sector in which they operate and the needs of the customers. It is also necessary to constantly monitor the progress of science and technology and be able to use findings learned for innovation not only of the products, but also of the processes within the company.

Recognition and innovation of all processes that take place in the company, setting their targets, their measurement, monitoring and comparing the specified values is essential for performance management. Businesses develop and implement performance measurement and management systems to ensure all these activities. The comprehensive provision of all these activities is its greatest benefit [2].

Although it has long been recognised that performance measurement plays a crucial role in the efficient and effective management of companies, it remains a critical and much debated issue [3]. The reason is that in the field of performance measurement, a diverse and multi-disciplinary research is appearing. This brings different attitudes towards performance measurement and causes complications. Marr and Schiuma [4] state that there is a lack of a cohesive body of knowledge in the field of business performance measurement. The reason is that researchers contributing to performance measurement come from different disciplines mainly strategic and general management, operations management, marketing, and finance and accounting. This multi-disciplinary of research is appealing carries the danger of hindering developments in the field of business performance measurement. The fact has also led to a large number of performance measurement system (hereinafter PMS) definitions and very little consensus on key components and features [5].

We can find a large number of research studies that propose how to develop and implement PMS, but it is still not clear when PMS can be called “effective”. Since a dominant theory has not been developed, vast majority of managers simply continue with what they’ve used in the past. In the last two decades many companies invested considerable effort to implement performance measures that reflect all dimension of their business activities and are clearly linked to the strategy, but with different results. The words of Eccles [6] in his article “Performance measurement manifesto” became a true: “Within the next five years, every company will have to redesign how it measures its business performance”.

Therefore the main purpose of this paper is enhance the body of knowledge in the field of performance management by pointing the characteristics of effective PMS, which can helps
managers identify whether and how they should improve their performance management system. Finally the research field is defined for clearer understanding of components and their relationships in effective performance management process (hereinafter PMP).

II. LITERATURE REVIEW

Performance measurement system is an integral part of a company’s management control system [7]. It is an information system that is at the heart of the performance management process [8], [9]. If PMS is understood as an information system supporting managers in the performance management process, then fulfills two fundamental functions [10]:

• enabling and structuring communication between all business units (individuals, teams, processes, functions, etc.) involved in the process of target setting,
• collecting, processing and delivering information regarding the performance of people, processes, products, services, operations, business units, etc.

According to [8] we can add that also gives feedback to employees about the results of their actions.

From the strategic point of view a crucial role of PMS is to help managers successfully implement strategies within the company. A Simons [11] outlines four key levels of control systems that facilitate strategy implementation: belief systems, boundary systems, diagnostic control systems, and interactive control systems. Among these control mechanisms, managers usually rely on critical performance measures to monitor the strategy implementation and to diagnose deviations from their preset standards of performance [11]. Moreover, performance measures align employees’ incentives and motivate them to enhance performance and achieve the strategic goals [12], [13], [14], [15]. Marr and Schiuma [4] present three basic reasons for measuring a company’s performance: verifying the company’s strategy, influencing the behavior of employees and external communications and company performance management.

From the definition of [16] that consider PMS as balanced and dynamic systems, resulting other basic characteristics. The notion of balance refers to the need to use different measures and perspectives that together provide comprehensive information on the company performance [14]. The concept of dynamism highlights the need to create a system that continuously monitors the internal and external context and evaluate the objectives and priorities [17], [18] in this respect highlights the changing nature in measurement initiatives; measures should be conceived as part of the fast feedback management systems; and measures should be designed for stimulating continuous improvement capability rather than simply monitor operations strategy. Although a strategic management function is identified in the implementation of performance measurements, a specific role could be related to continuous improvement capability development.

Gimbert et al. [19] see the role of strategic PMS in the strategy reformulation. They argue that they influence strategy reformulation by stimulating the development within the organization of a more comprehensive strategic agenda. On the basis of this argument, the authors distinguish between performance measurement framework and strategic performance measurement framework (SPM framework). The latter being a subset of the former and could be characterised by four key attributes: integration of long-term strategy and operational goals, presence of multi-perspective indicators, inclusion of cause-effect linkages, and presence of a sequence of goals-targets-action plans [20]. A strategic performance measurement system is then a set of nonfinancial and financial objectives and performance measures representing a causal chain of activities that articulates management's hypothesis of strategy [21].

Within this context effectively created PMS can be characterized according to [22]:

• The measures used by an organization have to provide a ‘balanced’ picture of the business.
• The framework of measures should provide a succinct overview of an organization’s performance.
• The performance measures should be multi-dimensional.
• The performance measurement matrix (PMM) provides comprehensive mapping.
• The performance measures should be integrated across the organization’s functions and through its hierarchy.
• The performance measurement system can provide data for monitoring past performance and planning future performance. It implies the measures should measure both results and the drivers of them.

Gomes et al. [23] state why to date, researchers have not adopted a universally accepted best-practice. It is due to the following requirements on PMS:

• Must reflect relevant non-financial information based on key success factors of each business.
• Should be implemented as a means of translating strategy and monitoring business results.
• Must be aligned and fit within a strategic framework.
• Should be based on organizational objectives, critical success factors, and customer needs and should monitor financial and non-financial aspects.
• Must accordingly change dynamically with the strategy.
• Must make a link to reward systems.

III. METHODOLOGY

Neely at al. [16] state that PMS can be examined at three different levels: at the level of individual performance measures, at the next higher level as an entity and at the level of relationship between the PMS and the environment within which it operates. Within this paper PMSs are analysed as an entity and in the context of environment.

The case study was chose as the research method, because can bring an understanding of a complex issue. The case studies were conducted in selected companies at the beginning
of the year 2014 in the form of semi-structured interviews and analysis of internal company materials relating to the areas surveyed. The data collection phase of the study began with a general examination of relevant literature and research studies, to provide researchers with a sufficient theoretical background. The interview structure was designed to investigate the key themes identified form the literature reviewed. The case studies try to find answers for the following research questions:

**Research questions related to the analysis of PMS as an entity:**

- Do you have any strategic performance measures which would ensure strategy implementation?
- Does your performance measurement system provide balanced view on the business? In what particular areas do you measure the performance of your company?
- Have all the appropriate elements - internal, external, financial, non-financial been covered?
- Does your performance measurement system contain the causal links – thus meaning the cause-effect links between the particular areas of performance measurement (strategic objectives)? Do you create a strategic map?
- Do you have any performance measures on the operational level (for the short-term goals)?

**Research questions related to the relationship between the PMS and the environment:**

- Is your performance measurement system linked with the reward system and motivation of the employees? Are the results obtained in the performance measurement reflected in the reward system?
- Do you re-formulate you strategy according to the performance measurement system?

The semi-structured interview was based on the methodology and rules presented by [24], [25]. The interviews were conducted with 10 managers of selected large and middle sized companies. The structure of the sample consists of companies which are expected relationship to the topic survey (e.g. the assumption that the companies have an established system of performance management). The relationship of the selected companies to the topic of the survey was detected by earlier conducted secondary analysis. A content analysis technique is used.

The final sample for interviewing included a total of 10 managers, 4 of which were at the highest management level and 6 were at mid-level management of the companies. Selected companies are from different sectors (1 food processing, 1 plastics production and processing, 1 opencast mining processing, 2 metal-working processing, 1 service in heating plant and energy area, 1 service for automotive, 1 information technology, 1 banking, 1 insurance) and were chosen to introduce diversity into the sample. According to Commission Regulation (EC) No. 800/2008 [26], the selected companies can be divided into 3 large companies (over 250 employees, over 50 million Euro), 7 medium companies (51 - 250 employees, over 10 to 50 million Euro). Small companies are not represented. In terms of the forms of ownership, the sample contains 6 domestic companies with their headquarters in the Czech Republic and 4 foreign companies with headquarters in Italy, Austria, Scotland and USA.

The results and partial results are compared with a theoretical construct, which is based on results of foreign studies.

**IV. FINDINGS AND DISCUSSION**

**Analysis of PMS as an entity**

In the last two decades more and more attention has been paid to the issue of performance measurement as a tool for the strategy implementation and revision. Most surveys have focused on the area of transforming strategy into action, thus confirming that the PMS is an effective tool in this regard [14], [27], [15], [28]. Therefore we focused first on the relation between performance measurement and corporate strategy. The research of Knapkova [29] conducted in Czech companies found that, on average, 73% of companies in the Czech Republic base their performance measurements on their company strategies and objectives. Within our survey almost all companies, except one, confirmed that their performance measurement is based on the vision and strategic goals. At first glance it might seem that there is constantly growing trend and that meeting with medium or large company in the practice who’s PMS is not connected with strategy is a rarity. Unfortunately subsequent deeper analysis of PMSs shows that this is only partially true, because not all strategic objectives are really measured. Summarizing, we can say that current PMSs are based on corporate strategy, but not for all strategic objectives are defined performance measures.

This statement confirms the analysis of specific performance measurement areas, which should show how “balanced” view of corporate performance current PMSs provide. The previous research studies [30], [31], [32] revealed that the vast majority of companies measure performance particularly in the financial area. Chow and Van der Stede [33] stated that in a study carried by Wm. Schiemann & Associates, the executives widely acknowledged the limitation of traditional financial measures. Nevertheless, they still favored them over nonfinancial measures because they saw them as being generally less ambiguous. Despite the results of newer studies point to the fact that companies are increasingly beginning to realise how important it is to also monitor the process and customer areas [34]. Yadav et al. [35] also stated that in the era post 2000 can be seen some new performance measures, such as leadership, training, education, innovation, capabilities, knowledge, personal improvement, etc.

The analysis conducted in the surveyed companies shows that monitoring performance in various fields is slowly becoming more balanced. 6 companies from 10 have already created PMS with strategic performance measures in financial, customer, and processes as well as employees area. All companies monitor performance in the area of finance and customer, 7 in the area of processes and 6 in the area of...
employee. These results show that the companies surveyed no longer primarily monitor the financial sector. However, remains, the problematic question of defining performance measures in the area of employee and innovation processes. Although many research studies have confirmed the strong relationship between human resources management and the attitude of the employees on the one hand and the performance of the organisation on the other hand, HRM indicators are not yet the norm in examining the effectiveness of human resources management and its impact on company results. This is closely related to the issue of multi-dimensionality of performance measures.

The effective PMS should be created by all appropriate performance measures – financial, non-financial, internal, external, lag and lead. 8 of 10 surveyed companies use both financial and non-financial measures as well as internal and external. The other two companies mainly rely on financial indicators. Unfortunately more detailed analysis revealed that performance measures aimed at improvement are still rarely seen in the PMSs of monitored companies. Measures related to knowledge, employee improvement and innovation were found only in PMSs of 2 companies. The survey of Stivers et al. conducted in U.S. Fortune 500 and Canadian Post 300 companies revealed that customer service factors are perceived to be the most important measures by executives and factors in the innovation and employee involvement categories were perceived to be less important in goal setting. More than fifteen years later, the results of our study are similar. The question is, why this is so?

As one of the causes we can consider that managers don’t identify the logical relationships among key performance indicators used. Only 1 of surveyed companies creates a strategic map and 1 determines partly causal links in the description of each performance measures. In other surveyed companies these relationships are not examined or their examining remains at the level of apparent hypothesis. According to numerous authors, the BSC framework’s inherent simplicity creates difficulties in communication and comprehension of its underlying logic which hinder implementation. This statement applies to all performance management frameworks. Research on causal modelling suggests that strategy maps can simplify and facilitate the transmission of complex systems, and thus implies that strategy maps have the potential to help managers overcome the cognitive challenges posed by the BSC.

Communication and comprehension of strategy is closely linked to the cascading of strategic measures to the lower hierarchical levels. For example, argue that only when lower-level employees and managers understand and agree with the organization’s strategies and methods of implementing them can they bring this focus to their daily tasks. Consensus on strategy implementation is critical to achieving the benefits of PMS. It improves the coordination and cooperation within a company, which, in turn, creates synergy from employees’ coherent behaviors. Therefore it is crucial to set goals and measures on operational level. The analysis of internal materials confirmed that only 4 of surveyed companies cascaded strategic performance measures to the operational level. The rest of surveyed companies’ measure operational measures related to financial indicators, production and productivity of employee. But we can’t speak about real cascading of strategic measures through the company.

**Analysis of PMS in the context of environment**

In addition, when operational performance measures are used in reward systems, they can help even better communicate the organization’s goals and plans, so that lower-level managers and employees know their specific roles in the implementation of strategies. Furthermore, performance goals in incentive plans can motivate employees to exert effort toward implementing the organizational strategies, which ultimately enhances organizational performance. Only in 2 of surveyed companies are performance measures fully integrated into remuneration policy. In other companies only in certain departments is remuneration system based on individual goals and performance measures.

An emerging stream of research studies points out that PMS may effectively be used not only for the strategy implementation but also for shaping the processes of their formulation. Unfortunately the use of performance measures for strategy re-formulation in practices is limited. Despite the fact that 8 of 10 companies stated that they reformulated the strategy on the basis of performance measures, the subsequent analysis revealed great rift between the answers and reality. Only in 5 of surveyed companies we were able to map the entire process of key performance measures evaluation, strategy review and reformulation.

**V. CONCLUSION**

According to Gomes et al. the recent dramatic environmental and market changes have fundamental influence to the literature relate to performance measurement. The most recent literature highlights that is necessary approach to performance measurement from a more open systems perspective. The business focus should be redirected from performance measurement to performance management, should capture the dynamic nature of the market and environment and include it in the PMS.

Through the research field can we identify individual components and their relationships within the PMP. Decomposition of relationship among individual variables that influence or are influenced by the PMS or PMP can provide a simple overview on some important processes and their context.

Created research field (Fig.1) confirms the fact that PMS is at the heart of PMP. PMP is based on information obtained from PMS.

The PMP is determined by the definition, implementation
and review of strategy on the basis of information obtained from PMS. The basic components in the PMS are:

- Balanced (Multi-dimensional) strategic performance measures - a stakeholder oriented approach should be created that lead to balanced view in its perspective.
- Causal maps and system dynamics - by using causal map can be determined the missing measures in PMS and so can be provided a balanced view to the company; through a system dynamics then can be understood the functioning of the whole system, all variables of PMS and relationships between them; after that, is possible to change these variables, to influence their behavior and manage them.
- Engagement of all hierarchical levels - according to Kennerley and Neely [22] the performance measures should be integrated across the organization’s functions and through its hierarchy.
- Remuneration policy and motivation – PMS must be interconnect with the remuneration policy as an instrument for employee motivation; problematic remains the question of defining performance measures in the area of employees, despite, that one of the most common reasons for performance management is influencing the behavior of employees, their motivation and their remuneration.
- Continuous improvement - Maskell [18] defines that measures should be conceived as part of a fast feedback management systems; and measures should be designed for stimulating continuous improvement capability rather than simply monitor operations strategy; although a strategic management function is identified in the implementation of performance measurements, a specific role could be related to continuous improvement capability development.

The quality of PMP is subsequently influenced by four key factors:

- Quality of processes - comprehensive approach to developing, clearly defining and setting processes.
- Corporate culture - through corporate culture the top management declare visible commitment and support to performance measurement, make sure consistent communication and transfer knowledge of learn from a mistakes and adaptation to changing environment.
- Trained people - PMS should take in consideration the human factor, including new and innovative incentive/reward systems, and their links to performance measurement in order to involved employees in the performance measurement process and motivate them.
- Systems - Information systems and technology are the facilitators of the performance measurement and management process.

Fig. 1 research field

Based on the research field and case studies analysis we identified two significant gaps. First gap lies in the development of PMS, as companies are still not paying sufficient attention to the potentials - measures focus on improvement, people, culture, environment, processes, etc. still missing. The reason may be lack of knowledge and inability to use causal models and detecting causal relationships.

Second gap is in implementation of PMS, because companies are not able to secure dynamics of PMS. Attention is paid to what should be measured today, but little attention is paid to the question what should be measured tomorrow. Measurement systems should be dynamic.

In summary, we can conclude that only 1 of the surveyed companies has developed, implemented and managed PMS according to “effective” characteristics resulting from literature review.

Based on the gaps identified through research field further research will be conducted. The main aim of future investigation will be find answers to two key questions:

1) How to secure, that measures concerning employees and improvement will be put into PMS?
2) How to secure that PMS and after that also PMP will be dynamic?

REFERENCES


