

## Conference Paper

# Factors Influencing the Implementation and Continuous Improvement of the Performance Management System

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### Abstract

For today's rapidly changing business environment are characteristic changes like globalization of the market place, technological changes, increased business complexity, intensified global competition, increased customer bargaining power, new resources of competitive advantage and more. Therefore, to be successful and able to compete in this environment, companies must identify and analyze their existing position, define mission, vision, strategic goals and operate more effectively. The key to success is to increase the effectiveness and efficiency of all business processes based on measurement and management of their performance. Using performance management system companies can plan, measure and manage the performance of all company activities. Properly designed, created and implemented performance management system can then help the company achieve the desired outputs. The literature, however, states that this is not a simple task, and many companies have problems especially with implementation of these systems. Unfortunately, it is still not quite clear what factors influence successful development, implementation, usage and continuous improvement of the performance management system in companies. There is a gap in the identification of factors influencing the development, implementation, usage and continuous improvement of the performance management system, their detailed study and analysis in practice. For this reason, it is important to deal with the identification, analysis and study of internal and external factors influencing the implementation and continuous improvement of performance management system. The aim of this paper is to identify and analyze internal and external factors influencing the implementation and continuous improvement of the performance management system, which these companies use. In the questionnaire survey is particularly investigated whether managers of surveyed companies are able to identify factors influencing the implementation and continuous improvement of the performance management system. Afterwards is carried out a detailed description of selected key internal factors, and their detailed analysis including identification of the relationship of these factors to the performance management system. Data were obtained by mail questionnaire survey on a sample of large manufacturing and non-manufacturing companies operating in the Czech Republic. The research findings are evaluated within the context of the theoretical background and the conclusions of similar studies.

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## 1. Introduction

The primary requirement for an enterprise to operate successfully over the long term is for it to acquire and maintain its competitive advantage.

In [17] see the essence of competitive advantage in the ability to correctly identify and react to stimuli in the environment while preserving both a focus on performance and the resulting revenues. In [14] states that a way to potentially achieve competitive advantage is by a company performing any of its activities more efficiently than the competition.

Obtaining competitive advantage by attaining a specific level of company performance is the primary prerequisite for a company to operate successfully over the long term [33, 44].

According to [39], company performance makes itself seen, for example, in being better able to secure profit, having more efficient production processes, and for these to be effective when transforming input factors into a final product that provides profit. In a wider context, company performance expresses itself through greater stability and a better ability to learn, adapt to changes, and react to these changes.

To become more competitive, it is generally necessary – with regards to the close relationship of performance and competitiveness – to consider the wider context (systems thinking) and, at the same time, to have a sufficient level of knowledge of modern management theory [44].

According to [25], the business environment is highly turbulent and is becoming increasingly more so. The existence of a company's performance measurement and management system is crucial for the company to be effective, have efficient management, and maintain its competitive advantage.

A performance management system consists of a performance measurement system. This system is the core of the overall process of performance management, it supports its philosophy, and it has fundamental importance for its effectiveness and efficient operation [6, 32]. A performance measurement system represents a balanced and dynamic system that makes it possible to support decision-making processes by compiling, processing, and analyzing information [36].

According to [3], a performance management system covers all relevant aspects of performance, influencing the existence of a company as a whole. A performance management system should provide top management with knowledge about the level of company performance, whether top management fulfill their tasks, and to what extent these tasks are achieved [21].

According to [7], a performance management system plays the following important roles in managing a company: it establishes current performance levels; communicates strategy direction; influences behavior on the basis of good and bad performance; stimulates action – identifies when to intervene; facilitates learning; and implements and revises strategy.

A performance management system can make it possible for companies to plan, measure, and monitor their performance; moreover, decisions, resources, and activities

can be better aligned with company strategies to achieve the desired results on the basis of ensuring these activities [5].

A performance management system should essentially be a “living organism”; it should be suitably embedded in the company environment; it should facilitate the implementation of company strategy; and it should be flexible, i.e., able to react to changes in a dynamic and rapidly changing business environment. In this context, it is thus necessary for a company to be constantly working to make itself more effective.

From the texts listed above, it can be seen that the basis for creating an effective performance management system is to create an effective performance measurement system. For a performance measurement system – and consequently the performance management system – to be considered effective, it must have the specific qualities and characteristics listed in the literature, although various researchers attribute various weights to these individual qualities and characteristics.

In [37] identified six key characteristics of a performance measurement system, which were presented before the year 2002.

Additionally, using the literature on performance measurement available from the previous two decades, [24] created the following summary of functions and qualities relevant to performance criteria and performance measurement systems:

- It must reflect non-financial aspects on the basis of the key factors for the success of any company.
- The criteria should be implemented as the means for formulating strategy and monitoring company results.
- It should be based on organizational goals, critical success factors, and customer needs; it should keep track of both financial and non-financial aspects.
- It must change dynamically along with the strategy.
- It must satisfy the needs of specific situations within production operations, and it should be focused on the long term; similarly, it should be understandable and implementable.
- It must be connected to a rewards system.
- Financial and non-financial criteria must be consistent with and used within the strategic framework.
- It should stimulate a continual process of improvement.
- It must be easily understood and realistic to implement.
- It must be clearly defined and have a very explicit purpose.
- It should make it possible to quickly and precisely react to changes in the organizational environment.

There is strong evidence that the development and constant improvement of an effective performance management system is not a trivial task for managers.

According to [29], factors influencing the development of a performance measurement system – and consequently

a performance management system – are numerous and complicated. It is possible to divide them into two groups:

1. Drivers of change (factors that cause change to be necessary)
2. Barriers to change (factors that prevent a change from being effectively implemented).

A study conducted by [28] identifies primary factors that are key for developing a performance measurement system over time:

- Process – the existence of a process, its establishment, its review, and implementing correctional measures.
- People – access to the required knowledge and skills, their use, the ability to reflect company and employee needs, meeting requirements, and implementing measures.
- Culture – the existence of a culture that ensures that performance measurement is not perceived negatively.
- Systems – the availability of flexible systems to facilitate collecting, analyzing, and reporting the necessary data.

The same four key factors were also identified by [2].

In [38] identify and investigate the influence of internal and external factors on performance measurement systems. Many authors – e.g., [3, 45], etc. – deal exclusively with internal factors that influence the development of performance measurement and management systems.

The internal factor most frequently mentioned in the literature is clearly a performance-oriented corporate culture, which has been analyzed by [6, 19]; and others. In terms of corporate culture, [28] define the specific aspects that comprise it. Certain authors consider these aspects in terms of their importance as independent factors. Examples of this are top management's commitment and support [7, 26], employee training [11], and interconnection with a rewards policy [9].

It is possible to list organizational learning [35], organizational strategy and structure [12], and top management [20] as other internal factors influencing the effective development of a performance management system. Other significant internal factors are the existence of a process for revising performance criteria and access to flexible IT systems that make it possible to collect, analyze, and report data [4].

As to external factors, it is necessary to realize that these are factors that commonly influence business and, as a result, company performance. Examples of these factors are new IT technology, intensifying global competition, increasing customer bargaining power [38], or cultural differences [1, 13].

From the theoretical basis outlined above, it can be seen that, unfortunately, it is still not entirely clear which factors influence the successful development, implementation, utilization, and continual improvement of a company's performance management system. Therefore, the goal of this paper is to identify and analyze internal and external

factors that influence the implementation and continual improvement of the performance management system used by the companies being studied. Primarily, attention is given to internal factors, because companies are able to manage and influence these directly.

## 2. Methodology and Research Methods

The goal of this survey was to identify and analyze internal and external factors influencing the implementation and continual improvement of a performance management system. In terms of internal and external factors, it was determined whether the managers at the surveyed companies were able to identify these factors and what weight they assigned them (the strength of their influence). Attention was primarily given to internal factors, because these are factors that a company can manage and influence directly. In terms of internal factors, the following were selected and analyzed in detail: corporate culture, organizational culture, process quality, and IT system level and quality.

For the factor of corporate culture, the specific aspects of corporate culture with the strongest influence on the implementation and continual improvement of a performance management system were determined. Specifically, this consisted of the following aspects of corporate culture: top management's support, management style, employee engagement and training, individual employee competence, interconnection with a rewards system, company communication, and innovation culture.

The factor of process quality was analyzed for the companies being studied using statements that are typical for the processes of measuring and managing the performance of individual company activities.

In conjunction with the analysis of the factor covering IT system level and quality, it was determined whether the sophisticated information system for measuring and managing performance implemented in these companies provides the firms with sufficient information for management and whether they correspond to the necessary requirements. Here, the respondents were given space to specifically express any possible shortcomings in their company's IT system. It was also determined which specific key areas (finances, customers, employees, internal processes) were available to the IT system for data collection, analysis, reporting, and evaluating operational goals and the use of resources.

Concerning external factors, it was determined which specific external factors influence the implementation and continual improvement of the performance management system as well as the strength of their influence. The following are the key external factors that were selected: cultural differences, increasing customer demands, increasing competition, and the development of IT technologies.

This study was conducted in March of 2016. The method of an electronic questionnaire was selected for data acquisition [42].

The basic sample included all large enterprises engaged in manufacturing or providing services that were actively conducting business activities in the Czech Republic and

Internal factors	Intensity of influence				
	1	2	3	4	5
Corporate culture	1,23	4,94	25,93	41,98	25,93
Organizational culture	4,94	14,81	27,16	24,69	28,40
Process quality	3,70	2,47	12,35	25,93	55,56
IT system level and quality	2,47	7,41	19,75	35,80	34,57

TABLE 1: Influence intensity of particular internal factors.

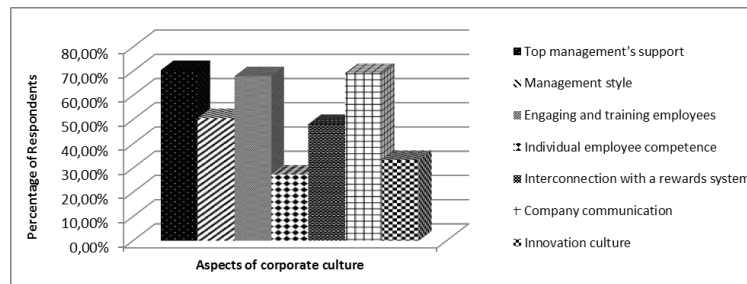
had both a turnover of CZK 30 mil. or more and more than 250 employees. These were large companies, because it can be assumed that they have a developed performance management system. Thus defined, the basic sample was identified using the Magnus Web database of business entities. Accordingly, the basic sample included a total of 1,809 companies. All these companies were approached using the email contact. However, 367 questionnaires were not received by the respondents because of an inoperative email contact. The questionnaire's overall rate of return was 11.37%, i.e., 164 companies. For calculating the rate of return, the formula listed in [16] was used.

On account of vaguely specified, imprecise or even omitted answers on the part of the respondents concerning business type, it is impossible to describe the enterprises' type of business more precisely. It is only possible to state that the company sample is composed of companies with business activities that fall under CZ NACE categories A, B, C, D, F, G, H, J, and K. Regarding ownership type, the sample is composed of 35.8% of the enterprises have domestic ownership, 61.7% are owned completely or in part by a foreign entity, and 2.5% are state-owned enterprises. According to the anonymous nature of the questionnaire, it is not possible to describe the enterprises in more detail. For the most part, the questionnaire was completed by directors or managers at the highest or middle management level.

### 3. Findings and Discussion

The survey was concerned with determine which internal and external factors influence the implementation and continual improvement of the performance management system and to ascertain how strong that influence was. Attention was primarily given to internal factors, because companies are able to manage and influence these directly.

First, internal factors were analyzed in detail. It is evident from the questionnaire that all respondents agreed that the internal factors listed do actually influence the implementation and continual improvement of the performance management system. The following table (Table 1) lists the percentages of respondents' answers concerning the strength of influence for individual internal factors. The strength of influence is evaluated using a scale of 1–5, with 1 being the weakest degree of influence, 2 weaker influence, 3 medium-strong influence, 4 stronger influence, and 5 the strongest degree of influence.



**Figure 1:** Most important aspects of corporate culture.

The results concerning the individual internal factors' strength of influence point to the fact that most respondents (more than 80%) believe that the internal factor of process quality shows a stronger or the strongest degree of influence on the implementation and continual improvement of the performance management system. They consider IT system level and quality to be the next factor with significant influence (70% of the respondents selected stronger or the strongest degree of influence) as well as the factor of corporate culture (more than 67% of the respondents). On the other hand, the least amount of respondents (more than 53%) believes that the factor of organizational structure significantly influences the implementation and continual improvement of the performance management system.

Next, the respondents were given space in the questionnaire to list other internal factors that they thought influenced the implementation and continual improvement of the performance management system, including listing the strength of the given factor's influence. Most of the respondents did not list other specific internal factors. The remaining respondents most frequently listed the following internal factors: employee competence, access to good employees, motivational policies, process organization, top management's interest, IT system level and quality, and internal company communication. Unfortunately, the near majority of the respondents did not list the strength of influence for their proposed internal factors; it can be assumed that they consider them to be significant.

As part of the survey, these key internal factors influencing the implementation and continual improvement of a performance management system were analyzed in detail on account of their comprehensive and complex nature.

Regarding the factor of corporate culture, the specific aspects of corporate culture that the respondents believe have the strongest influence on the implementation and continual improvement of the performance management system were determined. Figure 1 lists the specific aspects of corporate culture that the respondents consider to be the most important.

From the results, it is clear that most of the respondents (ca. 70%) consider the following to be the most important aspects of corporate culture: top management's support, company communication, and engaging and training employees. In [29] also demonstrates the importance of the aspect of top management's support. Next, half of the respondents attribute the strongest influence to the following aspects: company strategy, management style, and interconnection with a rewards system. Moreover,

Statement	Percentage of Respondents
We regularly review the configuration of performance processes and criteria as a part of our processes.	49,4 %
We conduct systematic review of our processes and performance criteria to align them as much as possible with our set strategic objectives and strategy.	53,1 %
Performance criteria focused on improvement are integrated into our processes.	42,0 %
Studying and understanding our company processes helps us manage them effectively and helps us identify internal and external triggers for change.	25,9 %

TABLE 2: The percentages of respondents who agreed with particular statement.

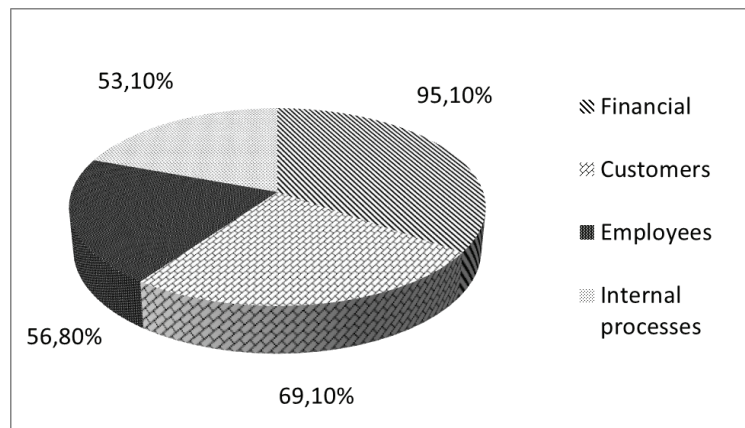
a number of studies indicate that integration with a rewards policy is important for employees' direct performance and that benefits result from this [26, 41, 43]. On the other hand, only one third of the respondents thought that the following aspects of corporate culture had a fundamental influence on the implementation and continual improvement of the performance management system: individual employee competence and innovation culture.

The next factor, process quality, was analyzed in more detail for the companies being studied using statements that are typical for the processes of measuring and managing the performance of individual company activities. The respondents were asked to mark only the statements that were typical for the processes taking place at their company (see Table 2).

On the basis of the respondents' answers, it is possible to state that roughly only half of the companies conduct systematic review of their processes and performance criteria to align them as much as possible with set strategic objectives; they also conduct regular review of the set processes and performance criteria as a part of their processes. However, correctly defining, establishing, and reviewing performance measurement and management processes and performance criteria is the key prerequisite for effectively managing the internal factor of process quality. It can be further stated that only 42% of the companies have performance criteria focused on improvement integrated into their internal processes and systems that can be described as "balanced" [27]. A somewhat shocking finding is that only 25.9% of the respondents think that studying and understanding company processes can lead to these processes being effectively managed and can help identify internal and external triggers for change.

For the IT systems factor, it was determined whether implementing a sophisticated information system for measuring and managing performance provides the companies with sufficient information for management and whether it corresponds to requirements. Of the respondents, 72.8% listed that they were satisfied with their IT system, it provides them with sufficient information crucial for managing the company, and it corresponds to their needs. The remaining respondents most frequently see the following problems with their IT system: insufficient flexibility, heavy procurement costs, insufficient dynamics, not being interconnected with employee evaluation and a





**Figure 2:** The percentage of areas in which is companies' IT system capable monitor performance.

rewards system, duplicity in data collection, incompatibility with company subsystems, integrity problems, and being user-unfriendly.

Despite the fact that 72.8% of the respondents listed that they were satisfied with their company's IT system, closer examination on whether they considered this system flexible showed that a distinct number of them consider it inflexible. Specifically, an IT system is flexible when this system makes it possible to review set processes; strategic, tactical, and operative objectives; target values, including their measurement and evaluation; etc. In other words, it describes whether input attributes or their requirements for the mode of output data can be easily changed. Of the overall number of respondents, 61.7% think that their IT system can be considered flexible; the remaining 38.3% consider it inflexible.

Furthermore, it was interesting to note which specific key areas (financial, customers, employees, or internal processes) were integrated into the companies' IT system to the degree that it is capable of data collection, analysis, reporting, and evaluating operational objectives and the use of resources for these areas (see Figure 2).

It is clear from Figure 2 that the companies' IT systems are capable of data collection, analysis, reporting, and evaluating operational objectives and the use of resources primarily for finances (95.1%) and customers (69.1%). A surprising positive finding is that more than half of the companies have an IT system that is capable of data collection, analysis, reporting, and evaluating operational goals and the use of resources concerning internal processes and employees.

Concerning external factors, it was determined which specific external factors influence the implementation and continual improvement of the performance management system as well as the strength of this influence. The specific external factors are as follows: cultural differences (needs concerning cultural differences in subsidiary companies in individual countries governed by a parent company using a universal performance management system), increasing customer demands, increasing competition, and the development of information technologies.

All the respondents consider the external factors listed above to be factors influencing the implementation and continual improvement of the performance management system. The following table (Table 3) lists the percentages of respondents' answers

External factors	Intensity of influence				
	1	2	3	4	5
Cultural differences	27,16	19,75	29,63	17,28	6,17
Increasing customer demands	3,70	4,94	14,81	35,80	40,74
Increasing competition	3,70	4,94	22,22	32,10	37,04
Development of IT	4,94	8,64	23,46	43,21	19,75

TABLE 3: The influence intensity of particular external factors.

concerning the strength of influence for individual external factors. The strength of influence is evaluated on a scale of 1–5, with 1 being the weakest degree of influence, 2 weaker, 3 medium-strong, 4 stronger, and 5 the strongest degree of influence.

From the results concerning individual external factors’ strength of influence, it is clear that respondents attribute the greatest importance (stronger and the strongest influence) to increasing customer demands (76.54% of respondents), increasing competition (69.14%), and the development of information technologies (62.96%). On the other hand, the external factor of cultural differences was judged to have the weakest influence on the implementation and continual improvement of the performance management system (stronger and strongest influence was assigned to this factor by only 23.45% of the respondents).

In conclusion, respondents were also able to list other external factors that they believed influence the implementation and continual improvement of the performance management system, including listing the strength of the given factor’s influence. Most of the respondents did not list any additional internal factors. The remaining respondents most frequently listed the following external factors: legislative changes, the labor market, and pressure to lower costs while retaining quality. Unfortunately, the near majority of the respondents did not list the strength of influence for their proposed external factors; it can be assumed that they consider them to be significant.

#### 4. Conclusion

In order for companies to better orient themselves within today’s dynamic business environment, they need an effective performance management system based on systems dynamics, sustainability, and a simulated perspective on performance [46]. The design, creation, and implementation of such a system is essential; naturally, the subsequent continual improvement of this system is no less important. Monitoring the development of performance management systems, reveal factors and contexts that influence the implementation and continual improvement of a performance management system, should be a company priority. Companies should thus include processes in their performance measurement and management systems that make it possible to continually revise and improve them [34]. These should be able to reveal and identify

external and internal factors that influence their performance management systems. They should primarily pay attention to the internal factors' stage and recognizing these factors, because it is possible to manage and influence them to the company's benefit.

The goal of this paper was to identify and analyze internal and external factors that influence the implementation and continual improvement of a performance management system, including the strength of their influence. The results of the survey show that companies consider key factors to be company culture, organizational structure, process quality, and IT system level and quality. A number of other studies also confirm the significance of these key internal factors. In [11, 30], and others support corporate culture as a factor; process quality is supported by [28], for example; and [31] conducted a study on IT system level and quality. Other factors that have been proposed can be considered individual aspects of these key internal factors. Detailed investigation of the aspects of the individual internal factors uncovered a number of interesting findings. The following aspects of corporate culture are considered the most important: top management's support, company communication, and engaging and training employees. The significance of engaging and training employees has been proved by a number of studies, e.g., [18] or [11]. On the other hand, the least significant aspects are considered to be individual employee competence and innovation culture. However, a number of studies [10, 40], etc. prove the influence of innovation culture on improving the effectiveness of performance measurement and management systems.

Closer investigation of the process quality factor points to the fact that roughly only half of the companies examined conduct systematic review of processes and performance criteria to make sure they correspond as much as possible with set strategic objectives and that they also regularly review their configuration. Of the companies investigated, 42% have performance criteria focused on improvement integrated into their processes, and their systems can be described as "balanced". Only 25.9% of the respondents think that studying and understanding company processes can lead to their effective management.

When investigating the factor of IT system level and quality, it was found that nearly three-quarters of the respondents are satisfied with their IT system. The remaining respondents see a number of problems with the system, among which is inflexibility. Nearly 40% of all respondents consider their IT system inflexible. The problem of system inflexibility was also addressed in a study by [29].

Considering the fact that it is possible to consider a performance management system balanced by determining which specific areas are monitored for company performance, the paper also determined whether the companies' IT systems were capable of data collection, analysis, reporting, and evaluating operational objectives and the use of resources for specific key areas. The results show that the companies' IT systems are capable of these activities primarily for finances (95.1%) and customers (69.1%). A surprising positive finding is that more than half of the companies also have this capability for internal processes and employees.

In terms of external factors, respondents thought the following were key: cultural differences, increasing customer demands, increasing competition, and the development of information technologies. They also listed these external factors: legislative

changes, the labor market, and pressure to lower costs while retaining quality. Next, the respondents assigned the greatest importance to increasing customer demands, increasing competition, and the development of information technologies. Barely one-quarter of the respondents credited cultural differences with significance.

This research, as conducted using a questionnaire, has a number of limitations, e.g., the simplification of questions, the absence of the option to ask additional questions, etc. Moreover, it is difficult to determine the causal relationships between variables when using this approach. Therefore, future studies will be conducted using semi-structured interviews with the goal of determining presumptive associations and revealing the causal relationships between variables.

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