

ANALYSIS OF DEVELOPMENT PROCESSES EFFECTIVENESS USING KPI

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Purpose: The purpose of the study was to show the importance of measuring the effects of the execution of personnel processes within the framework of personnel function management in manufacturing enterprises.

Design/methodology/approach: The development of the article required a critical analysis of the literature on the subject. A literature study of scientific publications, a survey, and face-to-face interviews were performed.

Findings: Thanks to the realization of the survey it was found that, despite such high awareness of the importance and effectiveness of the use of KPIs, only less than 28% of the respondents declared the use of HR function measurements in a systematic way, and only 53% use only a few indicators, in an active way and not fully coordinated.

Research limitations/implications: Future directions of activities will concern the realization of research in another research group (increased number of analyzed production and service enterprises) from the area of the southern part of Poland and the comparative analysis of obtained results. The limitation of the research may be the unwillingness of enterprises to cooperate.

Practical implications: The results of the study indicate the possibility and at the same time recommend the implementation of KPIs for monitoring the effectiveness of development processes in enterprises. The obtained results will contribute to the implication of more KPIs and thus increase the level of effective management.

Originality/value: Filling the research gap in the field of measuring the effects of personnel function with the use of selected KPIs. The study is addressed to the management staff of enterprises.

Keywords: key performance indicators, development processes, management and quality, process management.

Category of the paper: research paper.

1. Introduction

Currently, the increasing intensity of competition and threats related to crisis phenomena, as well as dynamically changing environment and progressing globalization require the creation and implementation of innovative management systems. To gain and then maintain a stable competitive advantage means for manufacturing companies to focus their management system on increasing efficiency and innovation. The literature on the subject widely describes the types of management strategies and activities implemented in this field (Fredriksson and Larsson, 2012; Wilczarska, 2012; Downarowicz, 2000; Antosz and Ciecńska, 2011; Kaźmierczak, 2000; Legutko, 2009; Antosz et al., 2013).

In the current phase of the development of management science and economic development, the issue of corporate efficiency, its complexity and multidimensionality is becoming increasingly important. Increased interest and consideration of this topic resulted in the formulation of the concepts of a balanced scorecard (Pacana and Czerwinska, 2021) and high-performance organization (HPO) (Pyszka, 2015). In the process aspect, the topic of performance measurement becomes crucial, which is captured not so much as financial efficiency but also process efficiency in the context of cost, time and quality. Key performance indicators (KPIs) are the answer to the arising demand. These indicators make it possible to control the processes occurring in a company without time delay.

Given the above, the aim of the study was to show the importance of measuring the effects of the execution of personnel processes within the framework of personnel function management in manufacturing companies. The empirical part of the study presents the results of the research in which secondary sources and partial results of the primary research were used. The research was carried out on a group of 50 manufacturing enterprises located in the south-eastern part of Poland, using a questionnaire survey and face-to-face interviews.

2. Employee and HR process effectiveness vs. key performance indicators

Corporate efficiency is a complex and multidimensional construct that must be considered and measured with its complexity, which is influenced by non-financial forward-looking factors as well as subjective assessment (Zbierowski, 2011). A significant number of studies indicate that modern systems on performance measurement and supervision consider tangible and intangible factors as well as profitability and growth (McGree et al., 2005; Pearce and Robinson 2005).

Work efficiency is the ratio of the value of intangible and tangible effects, which are obtained thanks to human work, to the amount of intangible and tangible expenses, which were incurred because of this work (Jasiński et al., 2002). When considering the issue of the effectiveness of work teams, it is often understood as efficiency – "effective teams or teams with high efficiency" (Jedrych, 2007). In the literature, we can find a definition of effectiveness as the ability to achieve certain (usually complex) goals while focusing on the maximum reduction of activity costs, i.e. the ability to work productively and generate the lowest costs (Padzik, 2002). Moreover, the formulation of the effect of work is of paramount importance here, which is understood as a direct result - in non-material terms (intangible benefit or service) and material terms (value and/or quantity of work) – of activities performed by employees. Considerations of the terms efficiency, effectiveness, and productivity of work show that a narrower approach prevails, which identifies effects with the results of work (Listwan, 2005). There are also studies that indicate that work results can also be understood as directly achieved work effects, as well as behaviors. In this view, the work effect is behavior leading to a certain result, but also the direct result of this work. Behaviors represent the results of both physical and mental efforts put into the realization of tasks, so they can be assessed independently of the results, but it should be remembered that without certain activities there will be no results. Therefore, work is a physical and mental effort that results in the completion of tasks and the achievement of desired outcomes (Amstrong, 2005).

The assumption of a broader approach to work effects draws attention to the subjective dimension of work effects – it is created as a result of the efforts of individual workers or their teams. As a result, the concept of performance management was formed, originally strongly oriented on continuous growth of work results of individuals and teams. Currently, there are many terms "performance management" or "highly effective work systems", which refer to the above mentioned broader concept of work effect (Lewicka, 2010; Borkowska, 2007; Milmore et al., 2007), which means:

- a coherent and integrated set of human resource management processes that support each other and contribute to increasing company performance; the idea is to implement a high-performance culture in which individual units and teams take responsibility for the systematic development of employees and their level of commitment and for improving business processes, provided that such activities are linked to corporate strategy
- an organisation of work which creates opportunities for obtaining the best possible results;
- a strategy that relates to each activity within the company in terms of its established culture, personnel policy, style and communication system;
- a specific combination of work organisation and HR processes and practices that maximise employees' skills, knowledge, flexibility and commitment.

From the above assumptions, it becomes important to place emphasis on inputs and thus on maintaining results and improving the efficiency of input rationalization activities.

From a pragmatic point of view, the concept of using key performance indicators (KPIs) seems to be useful and at the same time scientifically valuable in terms of analyzing the effectiveness of employees and processes. This is also indicated by the fact that more effective are those companies that pay attention to the measurement of activities carried out in them. Performance measurement can have various forms. It can be manifested as an annual analysis of financial results or the implementation of a set of KPIs used for ongoing supervision.

KPIs are used to measure, fundamental in economic, technical and organizational terms, the parameters that characterize the functioning of the enterprise, allow not only to determine the values of the KPIs used, but also to identify selected factors that affect their values (Bartecki et al., 2018; Hollender, 2016). KPIs are defined as a set of measurable and strategic parameters depicting the operational achievements of an enterprise, playing a key role in the creation of a measurement (achievement) system (Kang et al., 2015). Achievement measures identify (system) events reflected in the KPI formula and prove that something happened, such as a failure or success in a specific (network) procedure (Czerwinska and Pacana, 2020). In the broadest sense, a key performance measure provides the most important information about performance that allows organizations or their stakeholders to know whether the organization is on the right track. Key achievement measures are used to simplify organizational characteristics to a small number of key metrics to increase organizational effectiveness (Marr, 2010).

KPIs are one of the tools of Business Performance Management, i.e. a group of concepts in the field of operations management, promoting the improvement of the efficiency of the organization's functioning using metrics, processes, monitoring systems, and managing the organization's performance (Grycuk, 2010; Piasecka-Głuszak, 2017; Parmenter, 2016).

3. Research Methodology

The research methodology adopted in the study consists of a survey questionnaire. The first stage of work consisted of the analysis of the literature in the field under study and the isolation of an appropriate group of key performance indicators. The pilot stage of research was aimed at a group of 50 manufacturing enterprises. The study was aimed at checking the knowledge of selected KPIs – a set of current and forecasting indicators established on the basis of two perspectives: finance and development. The target group of respondents was people employed in HR departments and departments cooperating with them.

The next stage of the research was connected with the analysis of the knowledge of KPIs within the specified groups among manufacturing entrepreneurs. The respondents who answered were selected purposively – just as it was done in the first stage of the research. Figure 1 presents a diagram of the research presented in the study.

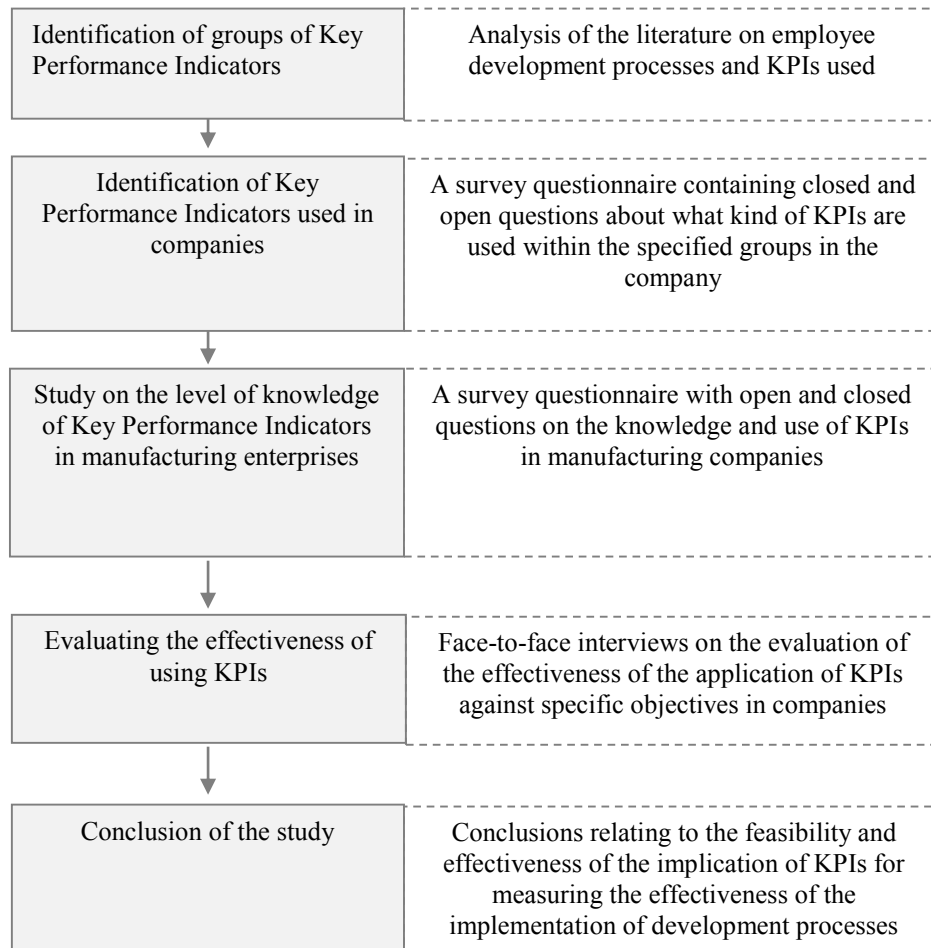


Figure 1. Research methodology

In the study, through face-to-face interviews with respondents, respondents were asked to express their opinion on the effectiveness of using KPIs against the goals established in their companies.

4. Research findings and analysis

Through various forms of stimulating development and further training, employees achieve a certain level of performance and competence, which is required for a given or higher position. This opens the way for further professional promotions. Therefore, the study analyzed the indicators that manufacturing companies use to monitor and evaluate the effectiveness of development processes.

The study began by examining the level of awareness of the need to measure the results of the HR function (Figure 2).

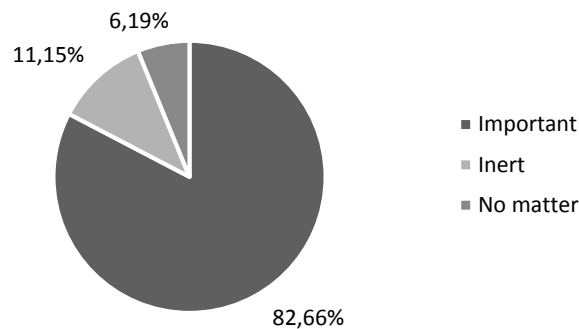


Figure 2. The importance of monitoring HR processes as part of business management

An important fact observed is the high level of respondents' awareness of the importance of measuring the personnel function as part of the business management process. The vast majority (82.66%) of respondents believe that the use of these indicators is an important and even key task from the perspective of the organization.

The study identified nine most commonly used indicators. A common feature of the listed metrics is their numerical nature. Basically, only two - ROI and BCR, answer the question about the business effects of investments in employee training and development, according to the model of J.J. Phillips (Phillips, 2010). The author of the model was based on D. Kirkpatrick's four-level model of training effectiveness evaluation (Kirkpatrick, 2001) extending it, however, by the level of indicator calculation. Two measures that are usually calculated in the model are ROI (return on investment) and BCR (benefits/ costs ratio). The calculation of ROI and BCR is presented in formulas (1) and (2).

$$BCR = \frac{\text{Sum of benefits from investments}}{\text{Sum of investment benefits}} \quad (1)$$

$$ROI = \frac{\text{Net benefits from investments}}{\text{um of investment benefits}} \cdot 100\% \quad (2)$$

Indicators (1) and (2) provide an answer to how much money the company will gain in relation to those that have been allocated to finance a specific training or other personnel management project.

The results of the research on the application of indicators of effectiveness of development processes are presented in Table 1.

Table 1.
The result of research in manufacturing companies

Indicator	Description	Responses [%]	
Cost of training as a total wage cost	$\frac{\text{Total cost of training}}{\text{Sum of total costs}} \cdot 100\%$	I use	22.59
		I intend to use	41.23
		I don't use	36.18
Cost of training per FTE	$\frac{\text{Total cost of training}}{\text{FTE total and broken down by internal and external training}}$	I use	28.04
		I intend to use	36.57
		I don't use	35.39
Cost of training as OPEX (expenses to maintain a full-time position)	$\frac{\text{Total cost of training related to product maintenance}}{\text{FTE}}$	I use	18.92
		I intend to use	51.71
		I don't use	29.37
Cost of training as CAPEX (capital expenditures per FTE)	$\frac{\text{Total cost of training related to product development}}{\text{FTE}}$	I use	16.13
		I intend to use	45.98
		I don't use	37.89
Total number of days, training hours for the entire organization	$\frac{\text{Total number of days, hours of training}}{\text{month, quarter, year}}$	I use	52.31
		I intend to use	17.44
		I don't use	30.25
Average number of days, training hours per FTE	$\frac{\text{Number of days, hours of training}}{\text{FTE (in terms of organization, divisions, cells)}}$	I use	42.01
		I intend to use	23.57
		I don't use	34.42
Share of costs of e-learning courses in total training costs	$\frac{\text{Sum of e-learning training costs}}{\text{Total training costs}}$	I use	49.91
		I intend to use	11.16
		I don't use	38.93
Return on investment (ROI) of employee training and development	$\frac{\text{Sum of benefits from investments}}{\text{Total costs from investments}}$	I use	13.54
		I intend to use	54.23
		I don't use	32.23
Benefit cost ratio for employee training and development (BRC)	$\frac{\text{Net benefits from investments}}{\text{Total costs from investments}} \cdot 100\%$	I use	19.47
		I intend to use	36.15
		I don't use	44.38

Source: own study.

The largest number of respondents indicated the use of the indicator of the total number of days, hours of training for the entire organization and, in turn, the indicators: "the share of e-learning training costs in the total training costs" and "the average number of days, training hours per FTE". In addition, a significant number of respondents indicate the willingness to introduce an indicator for the return on investment in training and development of employees (ROI) and the indicator for the cost of training as OPEX.

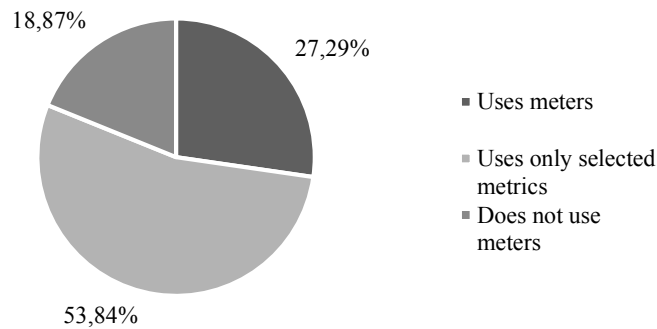


Figure 3. Using KPIs to monitor HR processes within business management

It has been observed that despite declaring a high level of awareness of the importance of KPIs in HR process management, the majority of respondents (just under 54%) replied that they only intend to introduce KPIs of this type in their enterprise. About 27% of the respondents use the surveyed indicators in a systematic way, while only (18.87%) of representatives of the surveyed companies answered that they do not use KPIs as part of the HR function.

In addition, the respondents indicated that the information value of the KPIs functioning in their enterprises, often analysed together with the results of internal quality audits, provides the management with a foundation for the current personnel management, as well as for planning future activities within the framework of strategic enterprise management.

It should be remembered that an effective indicator management system cannot function without a system of meticulously designed and interrelated databases. Without the accumulation of necessary data and without formalized procedures for carrying out measurements, the presentation of any information would lose its features of reliability. The way to efficiently manage indicators is to implement solutions linked to databases and then based on them define a strict research methodology and finally present and interpret the results.

Conclusions

In the prevailing market competition conditions and commonly occurring pro-client orientation, the success of companies mainly depends on the employees, their commitment and individual and group achievements. The basic determinant of the approach to the effective implementation of processes related to the company's personnel is the human capital management strategy, which is often based on KPIs.

The study observed the fact that despite the awareness of the importance of implementing KPIs to monitor the effectiveness of development processes in the vast majority of respondents (about 83%), only less than 27% declared their use. The vast majority of respondents use only selected KPIs. Among the surveyed metrics, the most popular was the indicator of the total number of days and hours of training for the entire organization, followed by the indicator of

the share of e-learning training costs in the total training costs and the average number of days and hours of training per employee. The survey showed that only (18.87%) representatives of the surveyed companies answered that they do not use KPIs in the implementation of human resources function.

When implementing systems of indicators in manufacturing enterprises, it is necessary to remember and relevance and function of the people who implement it. The personnel should have knowledge of the system and should be aware of the fact that it will be their task to achieve the goals set on the basis of the metrics.

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