

Involvement of Employees in Increasing the Efficiency of Production Processes for SMEs in the Baltic States

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 <http://dx.doi.org/10.5755/j01.eis.1.16.31135>

In the current global market, companies are focusing on ensuring their competitiveness. In today's business environment, there are no uniform standards or models that would ensure business development and efficient use of the existing resources. There are different management support standards, models, systems, however, the unifying criteria of these systems are a satisfied customer and reduced costs, which will be the basis for ensuring long-term competitiveness. Thus, the involvement of employees in increasing the efficiency of production processes is essential and can be a decisive factor in ensuring the sustainable development of SMEs (small and medium-sized enterprises). In order to identify the factors contributing to the competitiveness of SMEs, the authors of this article have studied the nature of employee involvement in manufacturing companies. In order to achieve the set goals the monographic or descriptive method were used, the authors have studied the theoretical basis of employee involvement, analyzing the development trends of the SME sector in the Baltics and empirically studying the needs of employee involvement and influencing factors in the production of the SMEs in the Baltics. This study will provide companies with an understanding of the impact of employee involvement and the need to increase the efficiency of production processes. Analyzing the theoretical aspects, the authors have defined a unified approach to this situation from the point of view of its essence. Finally, the authors conclude that the involvement of employees in increasing the efficiency of production processes is one of the tools for ensuring the competitiveness of companies.

KEYWORDS: production, employees, process efficiency, competitiveness, SMEs.

At a time when the Covid pandemic is making it difficult for raw materials to be sourced globally in virtually all sectors, and demand is running short of supply and prices are rising, companies have to look for new solutions. In such circumstances, it is especially important to use the available resources rationally, improving product quality and reducing costs. Improving efficiency has always been an issue, and more and more companies are now raising the issue of how to increase productivity, reduce losses and create a system of the continuous improvement. Reducing the number of employees by reducing labor costs is not a long-term solution. In order to promote a more rational operation of the company, with the existing human resources, knowledge and equipment, companies need to find solutions that will ensure long-term development and competitiveness, involving all employees in the process. The aim of the research is to identify the influence factors for employee involvement to ensure the efficiency of the company's processes

EIS 16/2022

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Submitted 04/2022

Accepted for publication 06/2022

Abstract

Introduction



and to increase competitiveness. To achieve this goal, the following tasks are set: 1. To evaluate the theoretical aspects of increasing the efficiency of processes to ensure the successful involvement of the company's employees; 2. To find out the factors influencing employee involvement to increase production efficiency. Research period: January 1, 2021 to January 1, 2022. Limitations of the research: to ensure the objectivity of the research, only production processes will be studied. The monographic or descriptive method was used to analyze the theoretical basis, but a survey was used to increase the efficiency of employee involvement processes. This study will provide companies with an understanding of the impact of employee involvement and the need to increase the efficiency of production processes. The methodological basis of the research is the research of several scientists, such as A.K. Aletaiby, D. Besterfield, A.V.Jiju, Z. Driņķe et al.

Involvement of company employees in increasing the efficiency of processes

The goal of every business is to make a profit. In the current situation of the Covid pandemics, the resources are limited and it is therefore necessary to increase the return on these resources or work more efficiently. One of the most important resources is time. It is the most limited of all resources and at the same time the most important in the work process. However, time is also a unique resource, because if, for example, other resources such as money, labor, or raw materials can be found, then time cannot be rented, hired, or acquired in any other way (Drucker, 2017, 41-42).

The word efficiency has two meanings: Efficiency - doing the right things and Effectiveness - doing the things right. Researcher Koontz points out that efficiency is the achievement of a company's goals with the least possible resources (Koontz, 2010, 9). The authors agree with this definition, because in essence it brings together both doing the right things and doing the right things. In turn, researcher Robbins, explaining that efficiency is both to achieve the best results with the least resources, as well as to achieve the highest goals (Robbins, 2017, 9). Summarizing the two definitions, the authors believe that doing things right is related to the company's tactical or short-term goals, while doing the right things involves a long-term strategy, and both of these factors are equally important.

The company has two parties involved in achieving its goals - management and employees.

Leadership - An effective leader practices the following: asks what needs to be done; asks what is right for the company; develop an action plan; take responsibility for their decisions; takes responsibility for communication; looking for solutions rather than problems; leads productive meetings and uses We instead of Me. The first 2 points provide the necessary knowledge, the next 4 help to turn knowledge into action, while the last 2 involve the whole company and make them feel responsible (Drucker, 2017, 12). The task of management is to create an appropriate environment, because it promotes the responsibility of employees, then the company is likely to achieve its product quality goals, because each of the employees will be involved in running the company (Mrotek, 2014). The authors agree with these points, as it is important that responsibilities and tasks are delegated and that the employee is provided with the necessary management support to perform their duties.

Employees are at the heart of every business and are undeniably its greatest asset. Therefore, it is important to motivate employees accordingly, as well as to pay regular attention to the company's microclimate. In order to be effective, it is important that every employee is aware of their goals and objectives. Because if the goal is not set, then the employee's productivity decreases. Accordingly, employees play a huge role in the company, because through their direct actions, using their knowledge and skills, they influence the achievements of the whole company (Kaļķis, 2014, 30).

In order for employees to be able to perform their duties qualitatively, it is necessary that the company's internal standards and processes are clearly defined. They help maintaining order and make daily work easier by reducing losses, which is important for efficiency gains. By the quality we mean a great product or service that meets or exceeds customer requirements (Besterfield & et al., 2021, 7).

Researcher Z. Driņķe has conducted a detailed study of quality definitions, and considering that the study is conducted on the possibilities of improving production efficiency, the most appropriate definition of quality would be that quality / compliance is a set of characteristics defined by an individual, company or other organization. used in the evaluation of the production process of the product and / or service and / or the value in use of the manufactured product (Driņķe&Bruksle, 2018, 85-72).

The employee involvement is one of the approaches to improve quality and productivity. It promotes the employee loyalty and sense of belonging to the company, which motivates to increase quality indicators at all levels of the company. Therefore, managers should motivate employees to take responsibility and communicate effectively to improve the quality of all aspects of their work. This will improve employees' sense of belonging to the company (Aletaiby, 2017, 12).

A process is any activity that requires resources and is managed to convert input values to output values (Driņķe, 2019, 61). In essence, a process model can be represented in the following diagram (see Figure 2), where a process can be defined as the interaction between people, materials, methods, procedures, and the environment to create either the final product or a new resource for the next process. Such a process must be efficient, controlled and adaptable, subject to certain conditions imposed by policies, restrictions or regulations (Besterfield, 2021, 123).

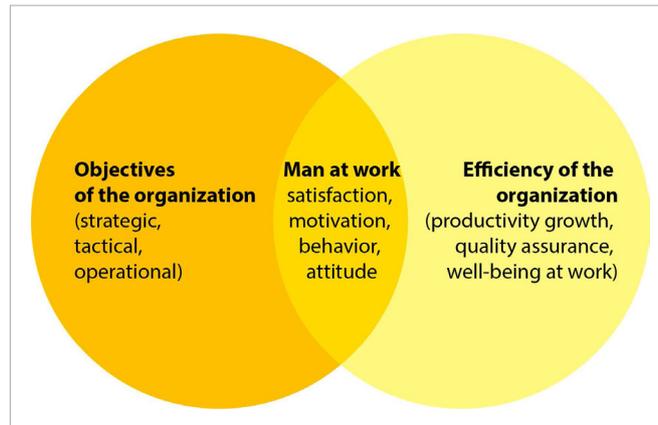


Figure 1

Relationship between the human factor and the organization's goal and operational efficiency (Kaļķis, 2014, 30)s

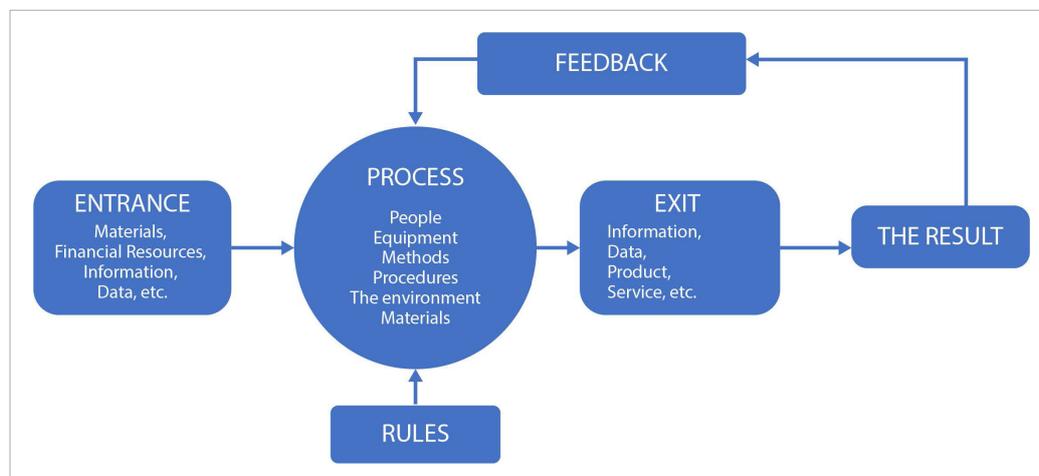


Figure 2

Process scheme (Besterfield 2021, 123)

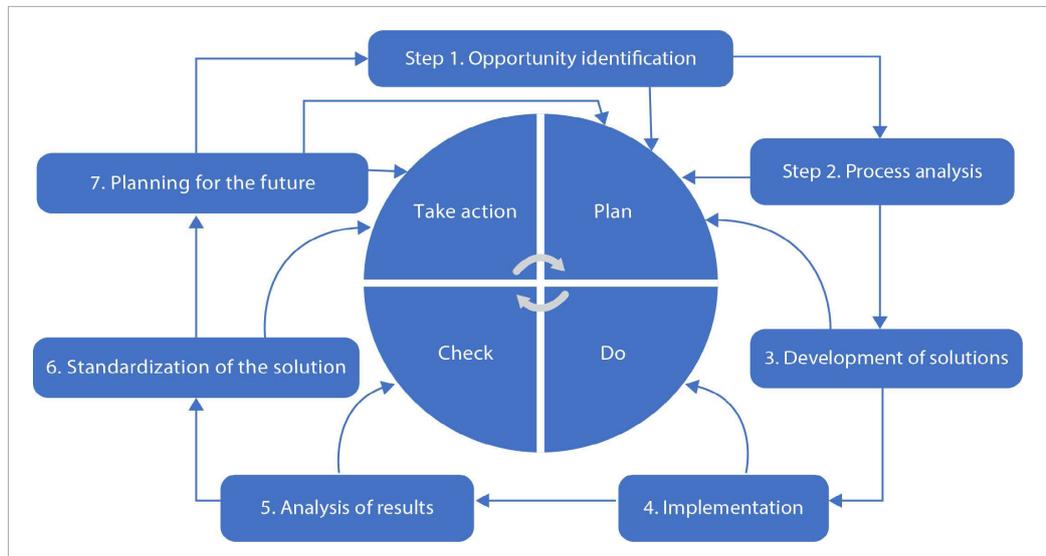
The end result of this process model is a customer satisfaction, or, if not achieved, a feedback to improve the process. Before starting the process, it is necessary to set goals and develop a strategy, which should include the information about the type of process, the time when the activities will be performed and the required resources (Kaçkıs, 2014, 11). The authors would like to point out that this is a continuous process of improvement.

D. Besterfield points out the steps that should be taken to improve the operation of system processes: every operation of a system should be considered a process; all processes must be efficient and adaptable; anticipate changes in customer needs; manage ongoing processes by reducing production waste, cycle time, etc.; maintain the ability of employees to critically evaluate performance; reduce or eliminate the production of defective products; evaluate activities that do not add value to the product or service and prevent them; eliminate irregularities at all stages of the process; apply standards to enhance a company's competitive advantage and innovate to achieve quality breakthroughs (Besterfield, 2021, 121).

D. Besterfield supplemented the scientist's Deming circle with 7 steps (see Figure 3).

Figure 3

Continuous process improvement cycle (Besterfield 2021, 130)



The process involves the following steps: 1 - identification of an opportunity, 2 - process analysis, 3 - solution development, 4 - implementation, 5 - result analysis, 6 - solution standardization, and 7 - future planning (Besterfield 2021, 137). The introduction of continuous improvement provides the company with innumerable benefits (Driņķe, 2019, 68).

Entrepreneurs always have to make decisions: either to develop new business opportunities or goals, or face the consequences of external circumstances when a decision has to be made. Typically, the risk factors are analyzed at senior management meetings and they are based on the factual evidence. The facts may be the result of the internal audit of the quality system, customer claims or complaints, etc. (Driņķe, 2019, 69).

There is another side to the company's processes - suppliers. The company and the supplier are interdependent because they have the same goal - to satisfy the end consumer. Given that both the supplier and the buyer have limited resources, they need to work together to increase the return on investment (Besterfield 2021, 149). The authors believe that this increases the opportuni-

ty for both parties to optimize resources and costs, and create value. Thus, the authors conclude that relationship management is an important factor in improving the efficiency of the company.

Analyzing the theoretical approach to achieving the efficiency, the authors consider two methods – the LEAN and the Six Sigma. The LEAN's philosophy is to create the highest quality products at the lowest cost and on-time delivery (Jiju, 2016, 23; Linina, Vevere & Zvirgzdina, 2018, 602-611).

In order to achieve this, the following basic principles of economical production and the sequence of their implementation must be observed: the value of the product / service to the customer must be determined, the organization's internal flow value map must be developed, the process value chain, traction effect and radical process improvement must be created (Babris, 2016, 26).

The process identification and visualization are important (the technological companies use technological process flows, the service companies use process schemes) (Babris, 2016, 29). It is a scheme that includes all the activities that create value for the customer and that are necessary for the production process to go through the entire flow - from development and production to the delivery of the product or service to the customer (Dunska, 2018, 191). The authors agree that the LEAN is a process of endless improvement that needs to be streamlined to create more added value for the customer, as well as a motivating work environment for employees involved in generating ideas and business owners, as such a company will always be one step ahead of competitors, quality of profitability and innovation (Babris, 2016, 30).

The key performance indicators (KPIs) - improve work efficiency, both individually and at the company level. These indicators serve as a tool for evaluating employees, but it is important whether these indicators are in line with the principles of the LEAN ideology, so it is important which performance indicators are used: they must be visualized and located in the workplace of a particular group or team; they must be simple and comprehensible to all employees; they must be vulnerable; they must be followed by the entire team at the operational meeting; at any deviation, the problem must be analyzed, the cause found, and the problem solved (Babris, 2016, 66). According to the philosophy of the LEAN, it can be said that the company achieves the best results if the remuneration of employees is related to both the individual goals and the overall goals of the company (Linina & Zvirgzdina, 2018, .

The Competence Matrix, on the other hand, is a method of reflecting the existing and required skills of each employee to perform key responsibilities and replacing other colleagues in the event of absence or increased workload. Comparing the existing skills with the required ones, it is determined what skills the employee must acquire, and an individual development plan is drawn up for their acquisition (Babris, 2016, 70). In general, the authors conclude that the LEAN philosophy includes a variety of efficiency tools aimed at reducing losses and increasing material flow and traction.

The Six Sigma is both a statistical concept that measures the number of non-compliances in a product or service and a methodology for improving quality. Sigma is the Greek symbol for σ , which means standard deviation. In the 6sigma process, there are six standard deviations (sigmas), which means that the chance of non-compliance is 3.4 per million. (Besterfield, 2014, 14). According to the authors, this means that in order to achieve the quality of 6 sigma, there must be no more than 3.4 cases of non-compliance per million cases.

In order for a company to implement the 6 sigma method, it must meet the following criteria: the company must have result-oriented management and problem-solving methods and capabilities. 6 Sigma's ideology is based on the following factors: critical aspects of quality; error; process capacity; variation and 6 Sigma development (Janeska, 2018, 7). According to the authors, the

goal of 6 sigma is to implement a strategy to improve processes and eliminate defects. To do this, 6 sigma offers a range of tools that fall into the following categories: tools for generating ideas and gathering information; data collection tools; tools for data and process analysis and tools for statistical analysis (Pande, 2002).

Research

Surveys of users in the field are used to study people's attitudes and behavior. In the framework of this study, in order to directly and indirectly find out the involvement of production company employees in the assessment of the involvement of company processes in the Baltic States, a traditional method was used - a survey with the help of a questionnaire (Rust et al., 2004). The survey was conducted in all three Baltic countries to identify problems in employee involvement in increasing the efficiency of production processes. Preparing to use this method involves several steps. Taking into account the purpose of the survey and the characteristics of the respondents, the authors of the paper chose a standardized open questionnaire. This means that all respondents were offered the same questions in the same order, which ensures an objective comparison of answers. The questions were selected with one answer variant according to the Likert scale in a 5-point system, where 1 is the lowest rating and 5 is the highest rating. The survey was created on the Google Forms website and translated into Lithuanian and Estonian to reduce the possibility of misunderstandings. The questionnaire with the improbable random snowball method (Kristapsons, Kamerāde et al. 2011, 71), using the author's personal contacts, was sent via e-mail to the respondents, who further shared this link. The questionnaires were also distributed through various industry associations in all three Baltic States. The questionnaires filled in by 1248 respondents were recognized as valid for the research, including 673

from Latvia, 388 from Lithuania, and 385 from Estonia. Residents of all three Baltic States were included as a general group on January 1, 2020. At the 95% confidence level and the 5% margin of error, the minimum sample size in each country was calculated - 385 respondents (Arhipova & Bāliņa, 2006, 98–104). In all three Baltic countries, the general set was reached. The characteristics of the respondents are summarized in [Table 1](#).

The main questions of the survey were focused on the employees' understanding of the company's processes, the involvement of employees in these processes from the employees' point of view, as well as on ensuring and increasing the efficiency of the company's business processes. The questions were summarized in 4 blocks - employee self-assessment in managing direct work responsibilities, employee interest in increasing company efficiency, company motivation system evaluation in increasing efficiency and employee awareness of company values, goals, mission and vision. The answers were compiled and the results were calculated with the SPSS program.

Table 1

Socio-demographic indicators of the survey respondents (created by the authors)

No.	Socio - demographic indicators of respondents	Number
1.	Gender	
	women	542
	men	706
	In total	1248
2.	Age	
	0–25	106
	26–40	306
	41–55	532
	56–63	301
	64 >	3
	In total	1248
3.	Income after taxes	
	0–250	86
	251–500	218
	501–750	376
	751–1000	433
	1001 >	135
	In total	1248

After summarizing the calculations, it can be concluded that the assessment of the block of questions about the employee's self-assessment in the management of direct work responsibilities is assessed quite high - 3.97 ($\bar{X} = 3.97$; Me = 4.00; Mo = 4.00), but not 5 points, which indicates a small but possible lack of knowledge, skills or competencies in the self-assessment of employees. In the block of questions about the employee's interest in participating in the company's

Involvement of employees in the company's processes to ensure efficiency	Arithmetic mean	Arithmetic mean standard error	Median	Moda	Standard deviation	Dispersion	Variation
Employee self-assessment in managing direct work responsibilities	3.97	0.04	4.00	4.00	0.75	0.57	0.04
Employee self-assessment of interest in increasing the efficiency of the company	2.88	0.04	3.00	3.00	0.94	0.89	0.07
Motivating the employee to increase efficiency	2.72	0.05	3.00	3.00	1.10	1.21	0.09
Employee awareness of the company's goals, mission and vision	2.48	0.05	3.00	3.00	1.08	1.16	0.09

Table 2

Evaluation of employee involvement in the company (created by the authors)

efficiency improvement processes, the evaluation was slightly above average ($\bar{X} = 2.88$; Me = 3.00; Mo = 3.00). It is this in-depth understanding of the issue that will allow a full understanding of the nature of the problem and is the aim of the next study. One of the reasons for employees' above average ($\bar{X} = 2.72$; Me = 3.00; Mo = 3.00). But in the block of questions about employee awareness of the company's values, goal, mission and vision, the average rating is the lowest only 2.48 ($\bar{X} = 2.48$; Me = 3.00; Mo = 3.00), which indicates a deep problem in this question.

Based on the analysis of theory and empirical research, the authors propose a combined LEAN Six Sigma (LSS) method, which will cover all aspects of employee involvement to increase efficiency. The LEAN Six Sigma (LSS) approach is based on a methodology that increases the value of a company by providing rapid improvements



Result

Figure 4

Benefits of LEAN Six Sigma (created by the authors)

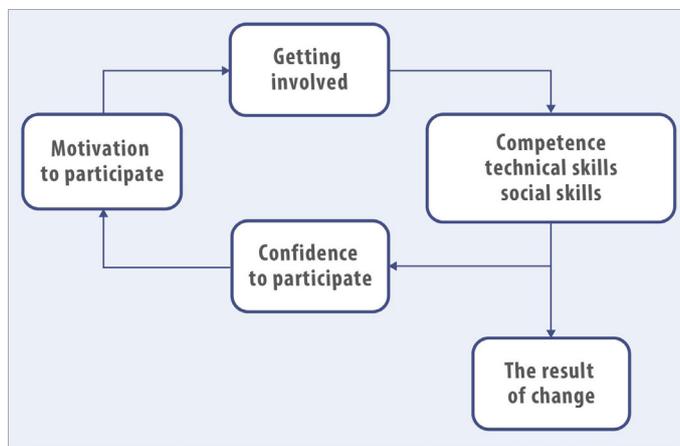
to increase customer satisfaction, reduce operating costs, increase process speed and operational excellence (Tetteh, 2015, 13). Each of these methods has its strengths and weaknesses, so it would be appropriate to use synergies between the two methods, as LEAN cannot provide statistical control of processes, but Six Sigma cannot significantly improve process speed to achieve excellence.

The authors conclude that combining the data-based method of the Six Sigma data with the Lean loss prevention tools provides a highly effective tool for faster efficiency improvements. To solve process-related problems and find the causes, the LSS uses a five-step methodology - (DMAIC) Detect, Measure, Analyze, Improve Control.

By using LEAN and Six Sigma efficiency solutions, a company can improve production efficiency, and it is important to outline the steps why and in what order the company should take to achieve increased production efficiency.

Figure 5

Result of employee involvement (created by the authors)



Involving employees in the processes of increasing the efficiency of production processes is the most difficult, but at the same time the most important point, because everyone must be involved in the processes in order to jointly search and implement the best solutions, which will essentially lead to changes in the company's culture. Because a

person by nature employees are not interested in changing their habits and resist change. So we expect the resistance. But real change can only begin if the employee understands what it would bring to him, the customers and the company as a whole. Involving all employees in solving problems will allow finding a solution faster.

The LEAN is a process of endless improvement that needs to be refined to create more added value for the customer. Therefore, the goal is to introduce a culture of continuous improvement, which will be based on improvement planning, implementation of improvements, analysis of results; and strengthening the processes resulting from improvements. The authors believe that if the company's management, in the current situation, implements these Lean Six Sigma tools to increase production efficiency and be able to persuade employees to use them, then the company's production efficiency will be increased and the company will ensure competitiveness.

Conclusions

- 1 In today's current situation, when resource prices are rising, increasing the efficiency of production is the basis for ensuring competitiveness.
- 2 In order for the employees of a manufacturing company to be interested in ensuring and increasing the efficiency of the company, it is important to communicate the company's values and goals to each employee and to develop a motivation system that encourages employees to participate in the company's processes.
- 3 In order to assess the abilities, skills and competences of employees and compare them with those required, manufacturing companies must develop an evaluation matrix and an individ-

ual development plan that also allows employees to replace each other during absenteeism or increased workload. The evaluation matrix will make it possible to see gaps in the knowledge and skills of employees and will allow targeted training to address them.

- 4 Summarizing the theoretical findings on efficiency and its provision to increase the efficiency of the production company's production processes, the implementation of the combined LEAN Six Sigma methodology would be more appropriate, which would comprehensively cover all processes in the company and focus on ensuring its development and increasing competitiveness.

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