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Methodology for Managing Employee Performance in Modern Commercial Organizations

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ABSTRACT

The purpose of this study is to create a method for managing the productivity of employees of a commercial organization and assess its potential effectiveness through theoretical modeling of the result. The principle of the method is based on the iterative redistribution or reallocation of the employees among the company's departments or structural units taking into account the current and potential changes in order to increase their labor productivity. Modelling analysis was performed using the retrospective data of the commercial organization — the period under consideration was equal to 39 months. The calculation assessed the dependence of changes on two indicators that noticeably affect the results: the number of cities where the company is present and the number of positions available in the company; it also determined the likely effect of the increase in labour productivity of employees when using the method. The influence of quantity of job positions and cities where company operates on the final result was also determined. The modeling carried out allows to draw a conclusion about the potential effectiveness of this approach, especially for organizations with one or in the same location and/or employing a large number of people performing similar functions, as it does not require significant financial outlays. The content and the results of the work presented in the article will be of interest to both HR practitioners and representatives of the scientific sphere.

Keywords: team; division; key performance indicators; labor productivity; organizational changes

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INTRODUCTION

The purpose of this article is to present an approach to solving the problem of automating the process of re-grouping work units/teams within a company in order to maximise the level of their fulfilment of key performance indicators (KPIs). Despite the fact, that the modelling carried out is mainly theoretical, it is based on real data from the functioning of a commercial entity over a period of 39 months. The calculation of the method was based on conditions close to reality (for example, restrictions were introduced regarding the frequency of changes, employee locations were taken into account, etc.).

Three areas of research under consideration can be distinguished in relevance to the issue of generating conditions to make high-performing work units. The first one examines approaches to arrange/build organisational structures, the second one explores teams and the work of employees in them, and the third one analyses organisational behaviour.

Nowadays, there are relatively few studies published regarding organisational design. They can be separately grouped as follows [1].

Research work that examine the conformity between existing organisational structures and workers' tasks and skills, using a decision-theory approach that focuses on providing an efficient assignment of tasks among multi-agent team members. The main problem of such models is that, although organisational members need to coordinate their actions, each member has to deal with different tasks and skills to make decisions.

The research of decision rules, which analyses the impact of various organisational structures and their internal rules regarding the quality of outcome results, as well as the role of hierarchies in the emergence of psychological biases in decision making. Such a research seeks to find out the answer to the question: how it is possible to change the structure of a company in order to minimise the effects of the employees' mistakes?

Studies were accomplished to explore the mechanism of adaptation and recovery for companies operating through learning by trial and error.

Analysis of the influence of a company's structure on information processing examines the interrelationship between its organisational structure, the cognitive behaviour of individual employees and decision making process. This specific research is based on the motivation, that managers apply a few simplified models to the problems they identify, to the feedback they receive, and to the solutions they implement.

Scientific studies also compare the effectiveness of various principles of business development, such as State entities, private companies and voluntary/non-profit entities. The studies come to the conclusion that the private sector is most focused on the results of its activities, meanwhile voluntary and non-profit entities are far less focused on such targets [2].

Researchers also draw attention to the issues related to the impact of digital transformations on the construction of an organisational structure that at the same time keep changing, ensuring the company's non-stop adaptation to market requirements [3]. Transformations require companies to change their locations depending on new, dynamically emerging and disappearing perspectives, as well as also an all-round integrity of environmental turbulence, IT systems and organisational potential. Some authors call this a 'digital ecodynamics' — the phenomenon that "does not separate the three main elements, but manifests the integrity of the interactions between them" [3].

Due to the growing influence of digital transformation, companies increasingly avoid keeping to traditional bureaucratic structures and switch to new relevant forms of organisation [4].

From a scientific perspective, it is also of considerable interest to assess the impact on organisational structures by external shocks, such as the COVID-19 pandemic. Researchers categorise these impacts into short-term and long-term effects, depending on the consequences [5].

Short-term effects include shifting a substantial proportion of work to online remote modes and delegating certain tasks to managers operating locally. These changes may be accompanied by adjustments in remuneration practices, with a greater emphasis on performance-based rewards, as well as increased formalisation of processes aimed at maintaining control over employees and reducing information asymmetry. In the long term, the pandemic's effects will lead to a growing reliance on technological solutions in work organisation and organisational structures, a decline in interdependence and coordination between company divisions, an increase in remote working and a greater prevalence of temporary employment.

Researchers also study the work groups' productivity by means of identifying several key factors which influence outcomes [6], including team management approaches, cohesion, feedback, internal support, and adaptability. However, if an entity is scritinised as a whole, HR departments play a definite role in shaping labour productivity through such areas as training and development, compensation and benefits, work schedule management and employee onboarding [7].

Thus, in both approaches, the following principle holds true: fostering conditions that positively influence team productivity is essential at both the departmental and organisational levels. This conclusion is confirmed by research works which examine the impact of working conditions on employee productivity [8].

One of the popular approaches in the research work of team performance involves the analysis of the effectiveness of units operating in synergy with autonomous computer systems. In the future, it turns out quite possible that numerous business processes become completely autonomous, eliminating the human involvement. However, currently, scientists claim, that interaction between people and autonomous agents, ('autonomous agent' herein relates to autonomous computer systems) will require to reach shared objectives [9–11]. The following research areas dealing with this subject are outlined in scientific sources [12].

- The impact of an agent's autonomy level on the performance of employees organisational settings. The findings indicate, that as the autonomy level increases, the work becomes less irksome, it enhanced efficiency in communication, coordination and overall productivity.
- Variations in the interaction of autonomous agents and people, in interdependence of the individual characteristics of the latter. For instance, team members with a low spatial ability level and their colleagues with the highest level of attention exhibited the most significant increase in productivity with increasing agent autonomy. Conversely, employees with high spatial abilities demonstrated lower situational awareness.
- The impact of the degree of "transparency of thinking" in an autonomous agent on the work process revealed, that high transparency is often beneficial: it elucidates the agent's decision-making approach. However, it should be noted, that high transparency can lead to an increase in the employee's workload and a subsequent feeling of complacency, which in its turn can result in a reduction of vigilance when monitoring the work of an autonomous agent and it can potentially cause a critical error.
- The choice of mixed teams with employees and autonomous agents. During the study period, all-human teams proved to be of higher efficiency [13]. However, the progress of modern technologies (for example, the use of generative neural networks) may potentially transpose this trend.
- The effectiveness in solution of different objectives. The research work proved positive results of mixed work teams dealing with solution of interdependent and not very complicated objectives.
- In general, preparation for the work in mixed teams has been found quite effective for all participants of the teams.

As to the organisational behaviour, several areas have been identified as potential venues to enhance labour productivity. Among the related scientific works, some of them analyse the use of feedback as a tool to augment the employee efficiency [14], or development of labour relationships among employees, or fostering a high-level consciousness and commitment to the organisational values, that constitute its corporate culture [15]. These factors have been found to influence significantly on the outcomes and efficiency of employees' work [16].

The findings of many research works (including some of them obtained by the author of this article) confirm the considerable impact on labor productivity in general by means of the accepted behavioral norms and organizational behavior.

METHODOLOGY

The database and regression coefficients utilized in the present research work were drawn upon the author's earlier research [17]. It provides an analysis of the personnel data of an outsourcing company,[1] within which some of the employees with monthly key performance indicators (KPIs) were acknowledged for the period from January 2020 to March 2023 (39 measurement points; annual and quarterly KPIs were not considered). The total number of observations was 27.859. KPIs were determined within a month for each position, and the maximum and minimum values were elaborated (within the range from 100 to 0). The remaining values were calculated proportionally to these regulations.

KPIs of the employees were re-grouped into three categories:

- Group 1 is directly related to the state of the country's economy (e.g. revenue, profitability, etc.);
- Group 2 is indirectly related to the state of the country's economy (e.g. number of selected

[1] Henceforth, the information of strictly personal matter shall be kept in confidence to prevent the disclosure of commercial secrets.

employees, duration of customer debt under contracts, etc.);

- Group 3 is not related to the state of the country's economy (e.g. number of errors in reporting, percentage of trained employees in the department, etc.).

Following the aforementioned preparatory calculations, the assessment method to evaluate panel regression was employed to identify the factors influencing the level of KPI achievement. Among the latter, both organisational parameters were taken into account (for example, the staff number of employees' colleagues in the department), as well as personal characteristics (for instance, the gender, level of education, marital status, etc.).

The analysis yielded the following parameters for this study within the framework of all three KPI groups:

- Average value of colleagues' KPI. An increase in this factor by one unit will result in an increase in the employee's value for the first KPI group by 0.328; for the second group, such an increase in the KPI of colleagues by 1 unit leads to an increase in the employee's KPI by 0.268, and for the third group, by 0.588.[2]
- The number of colleagues in the department is only relevant for the first group of KPIs. This parameter exerts a negative influence for the first group: one extra person in the number of colleagues results in a reduction of each employee's KPI values by 0.737.

The aforementioned results were obtained based on the analysis of data from one single entity. Therefore, they may be different for other companies.

The characteristics of the quantitative variables are represented in *Table 1*.

This article analyses the potential for using the results obtained to improve organisational productivity. The only tool used here is the organisational change: transfers of employees between departments according to a specific algorithm. This approach enables to increase potentially employees' productivity without a significant increase in costs and expenses. The data on the impact of the average KPI of colleagues and their number in a department helps to make a model, that reflects the potential for improving labour productivity by changing the values of these factors.

The objective of such algorithm is to maximise the mean KPI of employees. The calculations were made through the following Steps:

Step1. Calculating the mean KPI of departments in the month under consideration.

Step 2. The department with the highest mean KPI is selected.

Step 3. The employees from the remaining departments are selected on the basis of the following condition: replacing them with the lowest-performing employees from the department with the highest mean KPI. This would result in an increase in the final average KPI of the leading department. It should be noted that such replacement means swapping two employees between departments, without any increase in the number of employees from either department.

Step 4. One of the employee swapped in Step 3 is selected due to his/her most beneficial average KPI for both departments (which he/she left or entered). The effect is defined as max (A–B), where A is the prognosed amount of the average KPI of the two departments after the transfer, and B is the current amount of the average KPI of the two departments.

Step 5. The calculation of the new KPI of these two departments after the transfer (these mean KPIs of the departments) will be used in the following Steps.

Step 6. Thereafter, the cycle is repeated over again (starting with Step 2) for the department selected in Step 2 and all the remaining employees.

Step 7. If none of the remaining employees meets the specified condition, the cycle is repeated for the next department (for example, not with the highest average KPI, but with the next to one) until all the departments' indications are analised. The employees are not taken into consideration for the

[2] For all of the aforementioned changes, the p-value is less than 0.01.

Table 1

Characteristics of quantitative variables

Variable	Number of observations	Average	Standard deviation	Minimum	Maximum
Group 1 KPI	12.468	43.06976	25.69342	0	100
Group 2 KPI	20.494	50.54844	30.51438	0	100
Group 3 KPI	19.132	73.02558	32.6866	0	100
Average KPI of colleagues (Group 1 KPI)	7.734	37.88897	20.14089	0	100
Average KPI of colleagues (Group 2 KPI)	13.047	51.7782	25.61921	0	100
Average KPI of colleagues (Group 3 KPI)	13.131	72.63441	30.9533	0	100
The amount of colleagues	27.859	4.562619	9.254274	0	48

Source: compiled by the authors based on [17].

calculations, if they were transferred within the framework of the previous steps of the algorithm count.

Step 8. To bottom-line, the result is saved and the process is repeated all over again using the data of the next month.

Besides, the algorithm includes a number of conditions determined to enhance realistic features of the model:

1. An employee is permitted to be transferred no more than only once within each three months.

2. The swap of an employee between departments is permissible only if the employee geographically lives in the same city as the target department. This condition is intended to limit unrealistic transfers of a significant number of employees between locations. The remote work factor is not taken into account in this modelling.

3. The employees must be swapped if they have the same job positions. The rationale behind this condition is to preserve the organisational structure, which depends on the business objectives of the enterprise. Notably, the replaced employees must not be the only individuals in equivalent job position within their respective departments. It is imperative, that each of them has at least one more colleague of the same joи position, otherwise, the transfer would make no sense.

4. To maintain the organisational structure, the number of departments must be the same as initially. This is why, the replacement of employees is permitted exclusively between individuals in equivalent positions, without increasing or reducing the total number of employees.

5. Any employee is involved as participant in the algorithm count, only if he/she is of a KPI value.

Some other factors of the model should be noteworthy:

1. The number and composition of personnel are saved as settings by default and correspond to real data (the staff turnover should be reflected).

2. All changes are based only on the data of the month in question: the calculation does not take into account information on which employee will quit next month: in reality, it is often hard to predict such information.

3. Within the framework of this model, a secondary goal is aimed to preserve the productivity level of the best teams and avoid gross damage to the functioning of the company. Thus, the algorithm used may not be the optimal solution to the problem of maximising the average KPI of the company. The

task is rather to simulate possible changes with minimal risk to the business processes of the company.

4. The impact of such factors as remuneration level and managerial influence is beyond the evaluation scope of the model. The appointment and transfer of top managers is hardly possible to realistically assess within the framework of the model due to many complex subjective or objective reasons. Moreover, the level of remuneration significantly depends on market conditions, therefore it is beyond the scope of this analysis.

In view of the aforementioned factors, the research work eventually developed two options of the algorithm:

- Option 1. The calculation is made on the monthly basis. The algorithm optimises the data for month X, the next one is for month X+1, and optimises the values all over again, without reference to previous results. The final graph reflects the potential for changes within a short period of time (one month). Another words, the analysis for each month is carried out, so to say, "from scratch", without any reference to the results obtained for previous time-frame periods.
- Option 2. Accumulated difference between the original average value of the company's KPI and its value after optimisation is added to the calculation results for Option 1. Thus, the obtained graph, which is based on the results, reflects the cumulative-change effect over the period under review. This version assumes that, the results of the analysis indicate, that each time, appropriate personnel changes are made, and the actual data are updated by the amount of the productivity's cumulative change.

RESULTS AND DISCOURSE

The following results were obtained on the basis of the use of the original data set *(Fig. 1):*

Detailed results of this and subsequent calculations of values are presented in *Tables 2–7.*

It is evident, that the enhancements are quite slim: the difference between the mean KPI value, as well as per the initial data and its post-algorithmic mean value ranges from 0 to 0.49 points per month. An average difference is 0.087 points per month.

The obtained results are attributable to the characteristics of the data, related to the limitations within the calculation algorithm. The primary obstacles to obtain enhanced optimisation values are the following prerequisites of initial data obtained:

- due to a particular distribution of personnel by cities (50 per cent of employees are con-

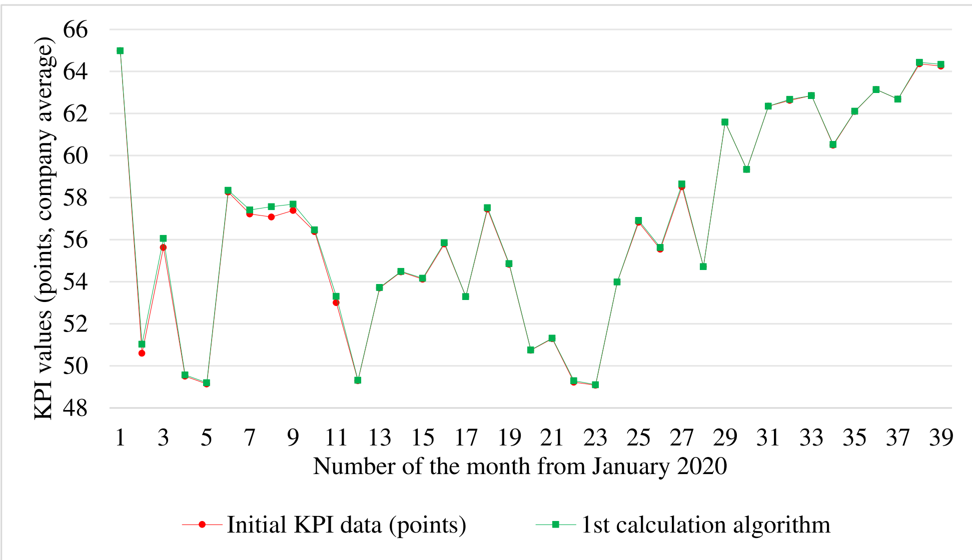

Fig. 1. **The 1st calculation algorithm**

Source: compiled by the author.

Table 2

First calculation algorithm values

Number of the month (from January 2020)	Initial KPI values	Results of the first KPI calculation algorithm	Difference
1	64,983	64,983	0,000
2	50,604	51,037	0,434
3	55,629	56,059	0,430
4	49,514	49,569	0,055
5	49,139	49,199	0,060
6	58,269	58,348	0,080
7	57,230	57,415	0,185
8	57,079	57,573	0,494
9	57,396	57,694	0,298
10	56,388	56,472	0,084
11	53,004	53,313	0,309
12	49,295	49,318	0,023
13	53,703	53,728	0,025
14	54,470	54,495	0,025
15	54,121	54,173	0,051
16	55,805	55,860	0,056
17	53,292	53,292	0,000
18	57,459	57,529	0,070
19	54,827	54,869	0,042
20	50,742	50,763	0,021
21	51,293	51,324	0,031
22	49,226	49,301	0,075
23	49,085	49,109	0,023
24	53,986	53,986	0,000
25	56,832	56,912	0,080
26	55,546	55,627	0,081
27	58,522	58,653	0,131
28	54,726	54,726	0,000
29	61,597	61,597	0,000
30	59,350	59,350	0,000
31	62,357	62,357	0,000
32	62,625	62,673	0,049
33	62,859	62,859	0,000
34	60,497	60,533	0,036
35	62,103	62,108	0,006
36	63,144	63,144	0,000
37	62,693	62,693	0,000
38	64,362	64,431	0,068
39	64,259	64,345	0,087

Source: compiled by the author.

centrated in 10 per cent of the cities of presence, with a substantial number of the latter);

• due to job positions (61 per cent of employees are employed in 4 per cent of positions, meanwhile the rest of them are spread across a broad range of job positions).

These factors in combination significantly reduces the efficiency of the algorithm: the majority of the personnel potentially can't be eligible for transfer, since employees could be transferred only if they take the same job position and work in the same location.

The second algorithm reflects the cumulative effect of changes (see *Fig. 2*) and it will lead to an effect of 3.4 points in the 39th month.

At the same time, even in view of specified limitations, the potential economic effect can be quite tangible: a medium-sized company will show the overall increase in employee's productivity of by 3.4 points, which 39 months later could reach, for example, 2 million Rubles (if we reduce the fulfilment of each average KPI point to 10.000 Rubles with a personnel of 200 employees [the number is given as an example and does not correspond to this indicator of the company under consideration]). Most importantly, the implementation of this method results in a negligible increase for organisational costs.

For a territorially stand-alone company, the effect can be considerably higher.

Let us analyse the algorithm applied to a modified data set to assess the impact of reducing the number of cities and company positions.

To start with, regarding the change in conditions for the number of locations in different cities, let us assume that the number is limited to one (stand-alone location), meanwhile the total staff number is maintained as before. Thus, we obtain the following result (*Fig.* 3).

The graph illustrates a substantial growth for the efficiency of the algorithm, as a follow-up of the alteration in conditions. The difference in each month ranges from 1.4 to 4.05 points, and the mean value for all these months is 2.53 points. Hence, one can come to the conclusion, that the efficiency of the method will be considerably elevated for geographically stand-alone companies (or departments located in single plots of the territory).

Using the second algorithm, the resulting difference over a period of 39 months is 98.93 points

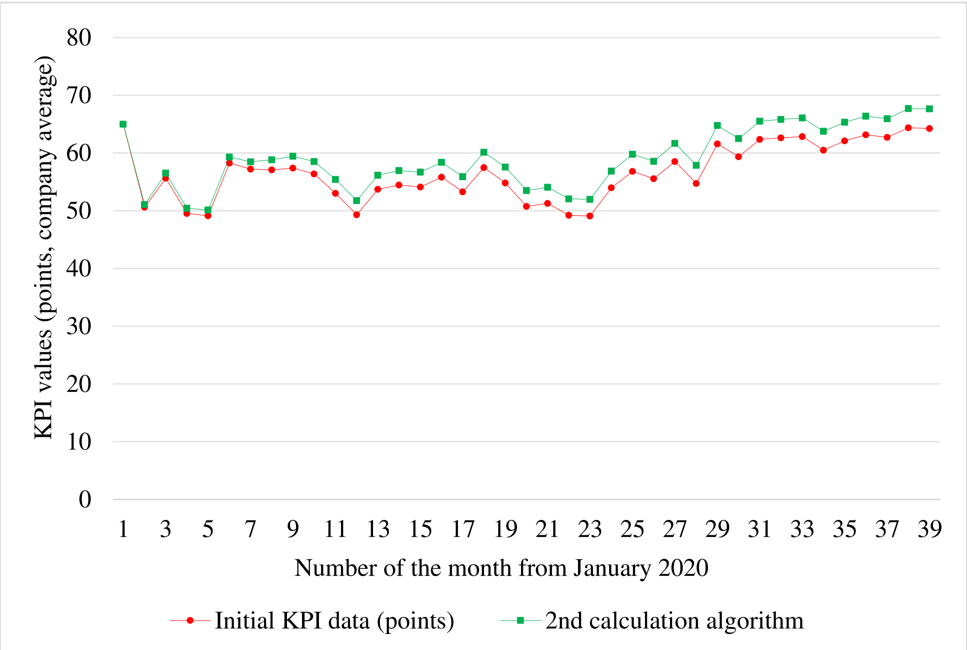

Fig. 2. **The 2nd calculation algorithm**

Source: compiled by the author.

Table 3

The 2nd calculation algorithm values

Number of the month (from January 2020)	Initial KPI values	Results of the second KPI calculation algorithm	Difference
1	64.983	64.983	0.000
2	50.604	51.037	0.434
3	55.629	56.492	0.863
4	49.514	50.432	0.918
5	49.139	50.117	0.978
6	58.269	59.326	1.057
7	57.230	58.473	1.243
8	57.079	58.816	1.737
9	57.396	59.430	2.035
10	56.388	58.507	2.118
11	53.004	55.432	2.427
12	49.295	51.746	2.451
13	53.703	56.179	2.476
14	54.470	56.971	2.500
15	54.121	56.673	2.552
16	55.805	58.412	2.607
17	53.292	55.899	2.607
18	57.459	60.136	2.677
19	54.827	57.547	2.720
20	50.742	53.483	2.740
21	51.293	54.064	2.771
22	49.226	52.072	2.846
23	49.085	51.954	2.869
24	53.986	56.855	2.869
25	56.832	59.781	2.949
26	55.546	58.576	3.031
27	58.522	61.684	3.162
28	54.726	57.888	3.162
29	61.597	64.759	3.162
30	59.350	62.512	3.162
31	62.357	65.519	3.162
32	62.625	65.835	3.210
33	62.859	66.069	3.210
34	60.497	63.743	3.247
35	62.103	65.355	3.252
36	63.144	66.396	3.252
37	62.693	65.945	3.252
38	64.362	67.683	3.321
39	64.259	67.666	3.407

Source: compiled by the author

Table 4

1st calculation algorithm values: stand-alone city location

Number of the month (from January 2020)	Initial KPI values	Results of the first KPI calculation algorithm	Difference
1	64.983	67.343	2.360
2	50.604	52.841	2.237
3	55.629	57.978	2.349
4	49.514	50.979	1.465
5	49.139	50.671	1.532
6	58.269	60.077	1.808
7	57.230	59.250	2.020
8	57.079	59.356	2.277
9	57.396	59.543	2.148
10	56.388	58.478	2.090
11	53.004	55.229	2.225
12	49.295	51.101	1.806
13	53.703	55.320	1.617
14	54.470	56.640	2.169
15	54.121	56.038	1.917
16	55.805	57.770	1.965
17	53.292	54.730	1.438
18	57.459	59.116	1.657
19	54.827	56.614	1.787
20	50.742	52.938	2.195
21	51.293	53.706	2.413
22	49.226	50.817	1.591
23	49.085	51.132	2.046
24	53.986	56.541	2.555
25	56.832	59.671	2.839
26	55.546	58.809	3.263
27	58.522	61.622	3.100
28	54.726	57.813	3.087
29	61.597	64.911	3.313
30	59.350	63.396	4.046
31	62.357	65.800	3.443
32	62.625	66.601	3.977
33	62.859	66.591	3.732
34	60.497	63.755	3.258
35	62.103	65.680	3.577
36	63.144	66.716	3.572
37	62.693	66.096	3.403
38	64.362	67.552	3.190
39	64.259	67.726	3.468

Source: compiled by the author.

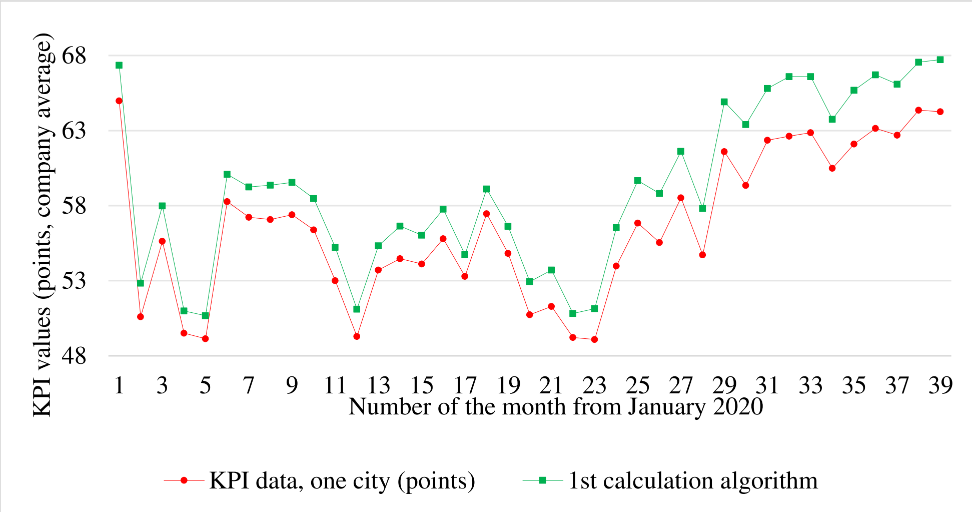

Fig. 3. **1st calculation algorithm: one city**

Source: compiled by the author.

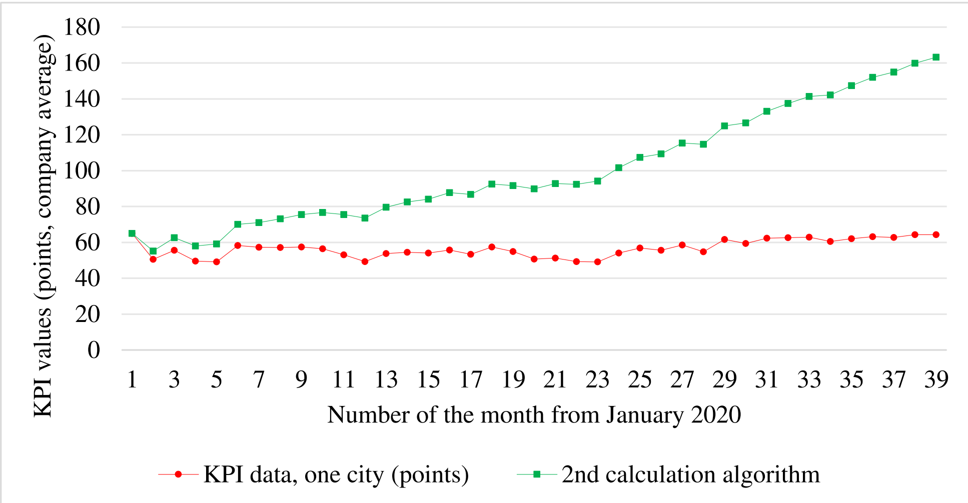

Fig. 4. **2nd calculation algorithm: one city**

Source: compiled by the author.

(*Fig. 4*), and the overall increase (relative to the original version of the data) is 98.93–3.4 = 95.53 points. Subsequently, we present the application of the algorithm to a data set, in which the number of positions was significantly reduced (*Fig. 5*). The data was re-grouped into three categories, comprising 53.6 per cent, 28.3 per cent, and 18.1 per cent of the staff, respectively. Notably, the number of cities remained unchanged compared to the original analysis.

The observed difference in each months ranges from 0.097 to 0.693 points and an aggregate mean difference throughout all months is 0.412 points. This indicates that a reduction of the number of job positions leads to a substantially smaller outcome, rather than reducing the level of territorial distribution of workers. Never the less, the overall impact has increased proportionally to the implementation of the algorithm on the original data.

Table 5

2nd calculation algorithm values, stand-alone city location

Number of the month (from January 2020)	Initial KPI values	Results of the second KPI calculation algorithm	Difference
1	64.983	64.983	0.000
2	50.604	55.201	4.597
3	55.629	62.575	6.946
4	49.514	57.925	8.411
5	49.139	59.082	9.943
6	58.269	70.021	11.752
7	57.230	71.002	13.771
8	57.079	73.127	16.048
9	57.396	75.591	18.196
10	56.388	76.674	20.285
11	53.004	75.515	22.511
12	49.295	73.612	24.317
13	53.703	79.637	25.934
14	54.470	82.573	28.103
15	54.121	84.141	30.020
16	55.805	87.790	31.985
17	53.292	86.715	33.423
18	57.459	92.538	35.079
19	54.827	91.693	36.866
20	50.742	89.804	39.061
21	51.293	92.768	41.475
22	49.226	92.292	43.066
23	49.085	94.197	45.112
24	53.986	101.653	47.667
25	56.832	107.338	50.506
26	55.546	109.315	53.769
27	58.522	115.392	56.870
28	54.726	114.683	59.956
29	61.597	124.867	63.270
30	59.350	126.666	67.316
31	62.357	133.116	70.759
32	62.625	137.361	74.736
33	62.859	141.327	78.468
34	60.497	142.223	81.726
35	62.103	147.406	85.303
36	63.144	152.019	88.876
37	62.693	154.971	92.278
38	64.362	159.831	95.468
39	64.259	163.195	98.936

Source: compiled by the author.

Table 6

First calculation algorithm values: 3 job positions

Number of the month (from January 2020)	Initial KPI values	Results of the first KPI calculation algorithm	Difference
1	64.983	65.432	0.449
2	50.604	51.260	0.656
3	55.629	56.142	0.513
4	49.514	49.687	0.173
5	49.139	49.353	0.214
6	58.269	58.520	0.251
7	57.230	57.785	0.554
8	57.079	57.686	0.606
9	57.396	58.028	0.632
10	56.388	56.694	0.305
11	53.004	53.646	0.642
12	49.295	49.578	0.283
13	53.703	53.949	0.245
14	54.470	54.568	0.098
15	54.121	54.249	0.128
16	55.805	55.917	0.113
17	53.292	53.480	0.189
18	57.459	57.635	0.176
19	54.827	55.233	0.406
20	50.742	51.008	0.266
21	51.293	51.514	0.221
22	49.226	49.417	0.191
23	49.085	49.465	0.380
24	53.986	54.231	0.245
25	56.832	57.322	0.490
26	55.546	56.067	0.521
27	58.522	58.980	0.458
28	54.726	55.012	0.286
29	61.597	62.071	0.474
30	59.350	59.996	0.646
31	62.357	62.901	0.544
32	62.625	63.192	0.567
33	62.859	63.503	0.644
34	60.497	61.190	0.693
35	62.103	62.589	0.486
36	63.144	63.801	0.657
37	62.693	63.302	0.609
38	64.362	64.779	0.417
39	64.259	64.922	0.664

Source: compiled by the author.

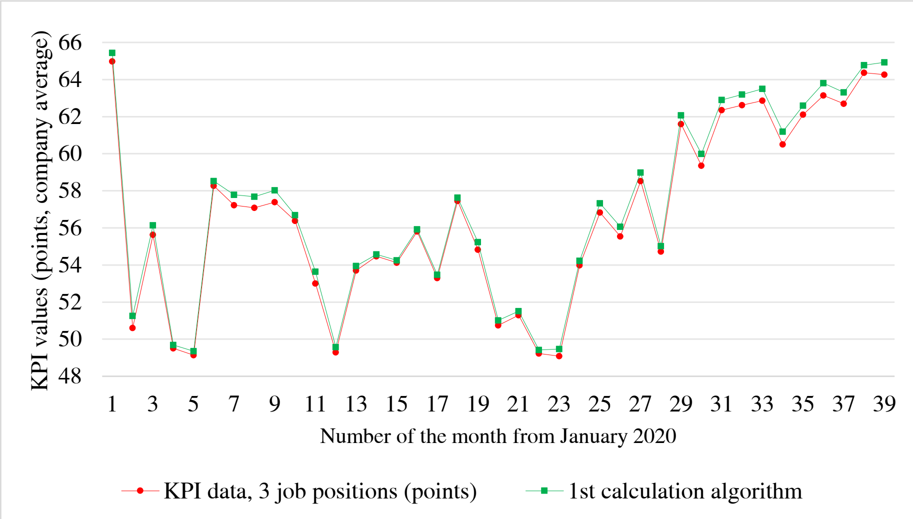

Fig. 5. **1st calculation algorithm: 3 job positions**

Source: compiled by the author.

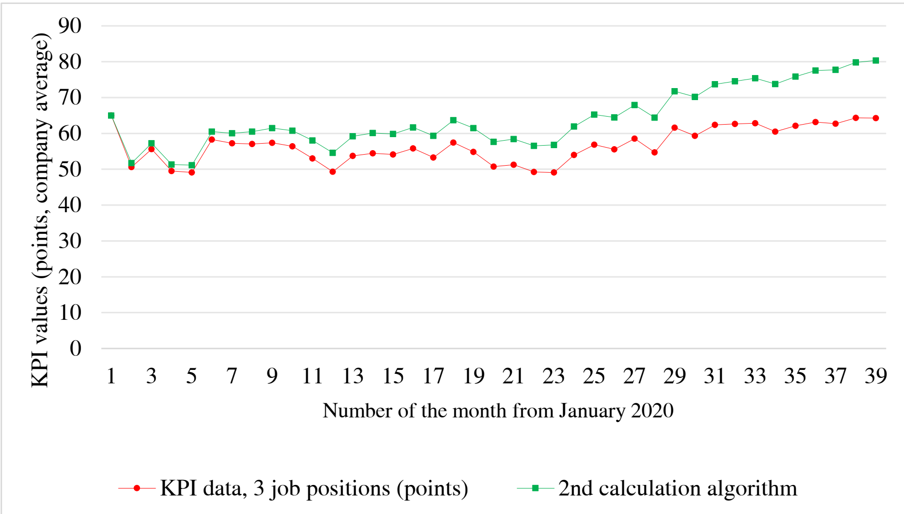

Fig. 6. **2nd calculation algorithm values: 3 job positions**

Source: compiled by the author.

The difference between the mean KPI of the original data and the result of the algorithm application is 16.09 points (*Fig. 6*). The overall increase (relative to the original version of the data) is 16.09–3.4 = 12.69 points.

As a summary of the abovementioned, the findings of this research work reveal, that the most effective application of the algorithm will be used for the enterprises with compact locations and no geographical spread, or for companies with employees who quite welcome any relocation (if their presence at the workplace is mandatory). The application of the algorithm is also rational in remote work settings, where the physical location of the employee is less mandatory, however, with a significant impact of colleagues on productivity [17]. The implementation of this instrument is also beneficial for companies with a numerous labour force involved and doing the same job operations.

Table 7

Second calculation algorithm values, 3 job positions

Number of the month (from January 2020)	Initial KPI values	Results of the second KPI calculation algorithm	Difference
1	64.983	64.983	0.000
2	50.604	51.708	1.104
3	55.629	57.247	1.618
4	49.514	51.304	1.790
5	49.139	51.143	2.004
6	58.269	60.524	2.255
7	57.230	60.040	2.810
8	57.079	60.495	3.416
9	57.396	61.444	4.048
10	56.388	60.742	4.354
11	53.004	58.000	4.996
12	49.295	54.573	5.278
13	53.703	59.227	5.523
14	54.470	60.092	5.621
15	54.121	59.870	5.749
16	55.805	61.666	5.862
17	53.292	59.342	6.050
18	57.459	63.685	6.226
19	54.827	61.459	6.632
20	50.742	57.640	6.898
21	51.293	58.412	7.119
22	49.226	56.536	7.310
23	49.085	56.775	7.690
24	53.986	61.920	7.934
25	56.832	65.256	8.425
26	55.546	64.491	8.946
27	58.522	67.926	9.404
28	54.726	64.416	9.690
29	61.597	71.761	10.164
30	59.350	70.160	10.810
31	62.357	73.711	11.354
32	62.625	74.545	11.921
33	62.859	75.424	12.565
34	60.497	73.755	13.258
35	62.103	75.847	13.744
36	63.144	77.546	14.402
37	62.693	77.704	15.011
38	64.362	79.790	15.428
39	64.259	80.350	16.091

Source: compiled by the author.

As a whole, this approach can be categorised as incremental and used for the companies operating in the conditions of maintaining organisational structure and business processes. It is quite possible to assume, that such an approach will primarily trigger to boost high productivity by means of a rapid diffusion of best practices of skills among the staff. For this reason, such a method rendered is incompatible with major transformations and significant changes in business processes. Quite possibly, this effect may also be related to psychological factors: when a high-performance environment would motivate employees to improve their labour productivity.

In any case, further research is required in order to determine the consequences and evaluate the effectiveness of the proposed methodology. This should also include exploring alternative approaches to team optimization in view of alterations in the prerequisites and particularities of organisational work. Such alterations may be relevant in such instances as the following:

• lower sensitivity to the frequency of relocations;

• relocations aimed at increasing labour productivity in a distinct department of the company (for example, establishing multiple distinct competence centres with a high level of efficiency), or in the case of the lack of attention to other structural units; or, on the contrary, under the conditions of focusing on higher productivity of mid-level employees;

• mathematical change in the algorithm for the sake of redistributing employees in order to increase efficiency, etc.

CONCLUSIONS

The considered research work proposes algorithms to generate high-performance units. It also analyses potential effects based on the prerequisites obtained by the author in his previous works. The considered model contributes to estimate the potential growth of the level of accomplishments of key performance indicators in the case of using the revealed impact of high team productivity on an employee's indicators. The findings of the research work also draw the conclusion, the company's territorial unity could potentially lead to a substantial growth of labour productivity.

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