Assessment of Negative Impact of Operating Environment of the Enterprise on Business Processes and Economic Security

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Abstract **– The article examines the peculiarities of influence of operating environment an enterprise on business processes. Considerable attention is paid to negative influence of external environment, in particular, seven factors in the process of growth of inertia are highlighted, namely: 1) fierce competition; 2) limited resources; 3) complexity and high cost of logistics operations; 4) institutional restrictions; 5) destabilization of financial system; 6) change of standards and norms; 7) reduction of target markets. The factors of negative influence of internal environment are singled out as a set of manifestations of economic security destabilization in order of increasing inertia, which are 1) ineffectiveness of research work at an enterprise; 2) problems of responsibility areas distribution; 3) problems of managing operational processes; 4) low efficiency of marketing system; 5) insufficient financial support; 6) absence of effective control system; 7) conflicts; 8) workers' opportunistic behaviour. The article assesses the deterioration of an enterprise business process, taking into account the listed factors of negative impact.**

Such assessment is carried out by experts, in particular, experts are asked to give corresponding percentage of decline in the assessment of the state of this process for each business process on a scale of 0, 25%, 50%, 75% or more. The testing was carried out at the "Khmelnitskhezelezobeton" enterprise with 34 experts being involved. The article provides a matrix of average percentages of decline during a month and a matrix of intensities of decline for the enterprise under study. The result of using the model is ensuring the economic security of the enterprise making effective management decisions for minimizing the negative impact of operating environment of the enterprise.

Keywords **– Business processes, economic security, factors of negative influence, factors of an external environment, factors of an internal environment, management decisions.**

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1. Introduction

Operating environment of an enterprise can have a significant negative impact on the state of an individual business process, depending on the enterprise's size, conditions it operates under, labour resources it attracts, use of its labour potential, investment potential, internal climate in an enterprise, etc. Initially, we can separate the external environment of the enterprise from the internal one. The latter is characterized by the fact that management of an enterprise can directly influence it, although this will require certain expenditures of both time and finances. The external environment is absolutely independent from enterprises in a particular industry, and an individual enterprise can (and, in some cases, is obliged) only to react to possible and actual manifestations of the negative influence of the external environment [4], [9].

One of the determining factors of the negative impact of the external environment is a decrease in competitiveness, a decrease in resource provision, as well as a complication of logistics (the last two factors are directly related to each other).

There are other factors, which impact is also negative, but less intense, characterized by a certain inertia in relation to the states of business processes as before they deteriorate as a result of the reaction to these factors, more time passes than in the case of a decrease in competitiveness and resource provision, a complication of logistics. Such inert factors are primarily related to the legal field, measures of the national regulator, and inflationary processes. The demand is also quite inert, if we are primarily talking about the enterprise with wholesale sales of manufactured products. In scientific papers [5], [10] the factors of the negative impact of the external environment were studied, and based on the analysis of scientific publications. We identified the following seven factors of the negative impact of the external environment, which are presented in order of increasing inertness:

1) fierce competition;
2) limited resources;
3)complexity and high cost of logistics operations;
4) institutional restrictions;
5) destabilization of financial system;
6) change of standards and norms;
7) reduction of target markets.

In contrast to this list, the components of which will be denoted as $\{f_j\}_{j=1}^{7}$, the inertness of the factors of negative influence of the internal environment is very variable. For example, in the same enterprise, inefficient management can affect the states of business processes in different ways (that is, with different speed of negative impact). Nevertheless, factors of ineffective management are relatively less inert than failures in work with personnel, because the latter are very changeable and unstable, situational phenomena (which, by the way, cannot be called processes). In scientific works [1], [6], the factors of negative influence of the internal environment were investigated, and based on the analysis of scientific publications, we formed a list of factors of negative influence of the internal environment in order of increasing inertness:

1) ineffectiveness of research and development (R&D) at the enterprise;
2) problems of responsibility areas distribution;
3) problems of managing operational processes;
4) low efficiency of marketing system;
5) insufficient financial support;
6) absence of effective control system;
7) conflicts;
8) workers' opportunistic behaviour.

These are eight additional components in a multitude of different potential manifestations of destabilization of economic security, which is also a consequence of these manifestations. Therefore, in the future, we will denote them respectively as$\{f_{j+7}\}_{j=1}^{8}$, finally forming a plural $\{f_j\}_{j=1}^{15}$ of 15 factors of negative impact of the environment of the enterprise. The numbers of these factors correspond to the above lists.

2. Research Method

Assessments of the states of business processes are static, that is, they represent a kind of "screenshots" of assessments of development and change processes. Instead, the assessment $\tilde{a}_i$ will change under the influence of one or more factors from the set $\{f_j\}_{j=1}^{15}$. As a rule, this change is inert, not instantaneous. The most relevant model of inertial changes is the exponential curve, since it contains the base of the natural logarithm [7], [8], [11]. In addition, this corresponds to many other, less significant, negative impact factors, after which, according to the law of large numbers [2], [3], [7], the total result will approach a normal distribution. Let $\tilde{a}_i(t)$ is an estimate of the state of the i-th business process at a moment in time t, and $\tilde{a}_i(t+\Delta t)$ – assessment at the next point in time that follows the period of duration Δt. Usually, such a time step is equal to several weeks or a month (much less often - a quarter or six months). Then:

$$\tilde{a}_i(t+\Delta t) = \tilde{a}_i(t)e^{-\left(\sum_{j=1}^{15}\lambda_{ij}\cdot m_j(t)\right)\cdot\Delta t} \quad (1)$$

according to our exponential model, where λ_{ij} is the intensity of deterioration of the i-th business process due to the negative impact of the factor f_j, and $m_j(t)$ – presence of manifestation of this factor at the moment of time t, $mj(t) \in \{0,1\}$. Certainly $\lambda_{ij} \geq 0$. In particular, if $m_j(t)=0$ for the rest $j=1,2\ldots,15$ (this is a kind of borderline, marginal case, which probability under current market conditions is low), then this means that at the moment of time t, there are no signs of the manifestation of the factors $\{f_j\}_{j=1}^{15}$ being recorded, and then:

$$\tilde{a}_i(t+\Delta t) = \tilde{a}_i(t)e^{-\left(\sum_{j=1}^{15}\lambda_{ij}\cdot 0\right)\cdot\Delta t} = \tilde{a}_i(t)e^{-0\cdot\Delta t} = \tilde{a}_i(t),$$

that is, the state of the i-th business process does not change. On the other hand, if $\lambda_{ij}=0$ for the rest $j=1,2\ldots,15$ and every $i=1,2\ldots,7$, then in this limiting case there are also no changes:

$$\tilde{a}_i(t+\Delta t) = \tilde{a}_i(t)e^{-\left(\sum_{j=1}^{15}0\cdot m_j(t)\right)\cdot\Delta t} = \tilde{a}_i(t)e^{-0\cdot\Delta t} = \tilde{a}_i(t)$$

Thus, our model (1) satisfies the limiting conditions. Moreover, the duration Δt can be considered as a unit of time ($\Delta t = 1$) and then it will become somewhat simpler:

$$\tilde{a}_i(t+1) = \tilde{a}_i(t)e^{-\sum_{j=1}^{15}\lambda_{ij}\cdot m_j(t)} \qquad (2)$$

(for the rest i=1,2…,7).

But where do we get intensity failure rates $\left\{\{\lambda_{ij}\}_{i=1}^{7}\right\}_{j=1}^{15}$? As might be expected, they can be calculated based on observations (i.e. multiple assessments) of states, if at some period only one of the 15 factors $\{f_j\}_{j=1}^{15}$ manifests itself. Let us assume if it is the factor f_i^*, then, using the ratio of the two values $\tilde{a}_i(t)$ and $\tilde{a}_i(t+1)$ from (2), we get:

$$\frac{\tilde{a}_i(t+1)}{\tilde{a}_i(t)} = e^{-\sum_{j=1}^{15}\lambda_{ij}\cdot m_j(t)} = e^{-\lambda_{ij*}},$$

where $m_{j*}(t)$=1 and $m_j(t)$=0 for the rest j=1,2…,15, except j=j^*. Next we take the logarithm of the last expression:

$$\ln\frac{\tilde{a}_i(t+1)}{\tilde{a}_i(t)} = \ln\left(e^{-\lambda_{ij*}}\right) = -\lambda_{ij*},$$

from which we get:

$$\lambda_{ij*} = -\ln\frac{\tilde{a}_i(t+1)}{\tilde{a}_i(t)}.$$

However, observation of such special cases is limited and sometimes impossible.

Therefore, the best approach here is an expert assessment of the deterioration of the business process per unit of time.

It would be inappropriate to immediately ask experts to indicate ratings or intervals for failure rates $\left\{\{\lambda_{ij}\}_{i=1}^{7}\right\}_{j=1}^{15}$. First, not everyone clearly imagines the economic meaning of these parameters. Secondly, their number is quite large. Thirdly, these parameters will acquire values within a non-linear scale, which is, moreover, inconvenient to use. For example, if in a unit of time the state of some business process (let it be the i-th business process) worsened twice under the influence of the factor f_j^*, then:

$$\lambda_{ij*} = -\ln\frac{\tilde{a}_i(t+1)}{\tilde{a}_i(t)} = -\ln 0{,}5 = -(-0{,}6931) = 0{,}6931.$$

An approximate deterioration of two times (that is, by 50%) is a fairly common estimate. Therefore, the value 0.6931 should be on the scale of possible values of λ_{ij*}. And although it can be rounded up to 0.7, which would correspond to a 49.66% deterioration, it is still better to deal with percentages. Thus, experts will be offered to fill out a questionnaire (Table 1), in which it is necessary to insert the corresponding percentage of decline in the assessment of the state of each business process. The scale here is 0, 25%, 50%, 75% or more. Such a four-step gradation is the most rational, considering the scope of the assessment.

*Table 1. An expert's questionnaire for assessing the intensity of deterioration of business processes by the percentage of decline per unit of time **

		Number	1	2	3	4	5	6	7
		The name of the business process	research and product development	material and technical support	production	logistic support	marketing maintenance	financial support of activities	quality management
External environment	competition	f_1							
	limited resources	f_2							
	logistics	f_3							
	institutional restrictions	f_4							
	destabilization of financial system	f_5							
	change of standards and norms	f_6							
	reduction of target markets	f_7							
Internal environment	inefficiency of the R&D	f_8							
	responsibility areas distribution	f_9							
	management of operational processes	f_{10}							
	ineffective marketing systems	f_{11}							
	insufficient financial support	f_{12}							
	absence of effective control system	f_{13}							
	conflicts	f_{14}							
	opportunism	f_{15}							

* compiled by the author

Let us denote $spad_{ij}$ the percentage by which the value $\tilde{a}_i(t)$ falls per unit of time, which is caused by the influence of only one factor f_j. Other factors also, most likely, have some influence, but we believe m_j=1 and m_l=0, if $l\neq j$. Let k-th expert provides an estimate $spad_{ijk}$ of this percentage, where $spad_{ijk} \in \{0,25,50,75\}$. Then:

$$spad_{ij} = \frac{1}{K}\cdot\sum_{k=1}^{K} spad_{ijk} \tag{3}$$

(for the rest i=1,2…,7, j=1,2…,15).

Provided that the experts' evaluations are consistent, the average value (3) means that:

$$\tilde{a}_i(t+1) = \tilde{a}_i(t) - \tilde{a}_i(t)\cdot\frac{spad_{ij}}{100} = \tilde{a}_i(t)\cdot\frac{100-spad_{ij}}{100}$$

that is, relative deterioration of i-th business process is calculated as follows:

$$\frac{\tilde{a}_i(t+1)}{\tilde{a}_i(t)} = \frac{\tilde{a}_i(t)\cdot\frac{100-spad_{ij}}{100}}{\tilde{a}_i(t)} = \frac{100-spad_{ij}}{100}.$$

Hence, the intensity of deterioration:

$$\lambda_{ij} = -\ln\frac{\tilde{a}_i(t+1)}{\tilde{a}_i(t)} = -\ln\frac{100-spad_{ij}}{100} = -\ln\left[10^{-2}\cdot\left(100-spad_{ij}\right)\right] =$$
$$= -\ln 10^{-2} - \ln\left(100-spad_{ij}\right) = 2\ln 10 - \ln\left(100-spad_{ij}\right).$$

As well as in the case of business process states, the issue of consistency of expert judgments on percentages $\left\{\{spad_{ij}\}_{i=1}^{7}\right\}_{j=1}^{15}$ is also fundamental, because too scattered estimates will give unreliable averages (4), which use will increase the total systematic errors of the model of management decision-making processes for optimizing business processes. However, there will be a lot of such assessments here, even taking into account the fact that some adjacent lines in the questionnaire are in the form of a Table 1 will have many similar values (or will simply be the same, as was already indicated above before Table 1). Therefore, limiting the maximum difference in estimates within one business process and one factor is an equally reliable method of checking consistency. This approach should take into account the non-linearity of the change in the state of the business process according to relation (2). This approach is effective and the most rational, since the number of experts and their availability in time is, as a rule, limited. In particular, if at least one of the experts indicated a 25% decline, then the presence of 75% in at least one of the experts means a gap of three times, which is unlikely. In this case, the estimates are not consistent. If at least one of the experts assumes that there is no decline (i.e., 0% is indicated), then the presence of 50% for at least one of the experts, which means a two-fold gap, is acceptable. On this basis, the condition for the consistency of expert estimates of percentage $spad_{ij}$ is the fulfilment of these two inequalities:

$$\max_{k=1,2,\dots,K} spad_{ijk} - \min_{k=1,2,\dots,K} spad_{ijk} \le 25, \text{ if } \min_{k=1,2,\dots,K} spad_{ijk} \ge 25 \tag{4}$$

$$\max_{k=1,2,\dots,K} spad_{ijk} - \min_{k=1,2,\dots,K} spad_{ijk} \le 50, \text{ if } \min_{k=1,2,\dots,K} spad_{ijk} = 0. \tag{5}$$

As soon as the inequalities (4) and (5) are checked and fulfilled, the intensity of the decline of the state of the i-th business process under the influence of the factor f_i is calculated as follows:

$$\lambda_{ij} = 2\ln 10 - \ln\left(100 - spad_{ij}\right) \tag{6}$$

(i=1,2…,7, j=1,2…,15)

using substitution of means (3).

Generally, the situation where all $\lambda_{ij}>0$ for an i-th business process is quite possible. In the most favourable case, when each factor causes a decline of 25%, we will have:

$$spad_{ij} = 25,$$

$$\lambda_{ij} = 2\ln 10 - \ln\left(100-25\right) = 2\ln 10 - \ln 75 = 0{,}2877.$$

Hence according to (2) provided $m_j(t)$=1 for the rest j=1,2…,15 we get:

$$\tilde{a}_i(t+1) = \tilde{a}_i(t)e^{-\sum_{j=1}^{15}\lambda_{ij}} = \tilde{a}_i(t)e^{-\sum_{j=1}^{15}0{,}2877} =$$
$$= \tilde{a}_i(t)e^{-15\cdot 0{,}2877} = 0{,}0134\cdot\tilde{a}_i(t),$$

that is, even in such a "favourable case", the state of the i-th business process deteriorates 75 times. Of course, this is impossible. This means that the pointers $\left\{\{m_j(t)\}\right\}_{j=1}^{15}$ are interdependent despite the fact that seven factors of negative influence of the external environment and eight factors of negative influence of the internal environment are independent. The explanation for this is as follows. Assume that there are competition and limited resources. Here it is clear that competition is a derivative factor, the influence of which, in particular, increases when resources are limited. In turn, limited resources can be (and usually are) caused by the deterioration of logistics, institutional restrictions, destabilization of the financial system, and changes in standards and norms. The decrease in the volume of target markets is also manifested under the weight of increasing competitive processes. In general, the last ones (factor f_1) are closely related to the factor f_7. Thus, the manifestation of one external factor "overshadows" others. Hence the group of pointers $\left\{\{m_j(t)\}\right\}_{j=1}^{7}$ should be such that only one of them will be equal to 1 and the rest will be equal to 0, since their influence is somewhat smaller, so it is encapsulated in that factor f_{j*} from $m_{j*}(t)$=1. So, the formula for calculating a group of pointers $\left\{\{m_j(t)\}\right\}_{j=1}^{7}$ of manifestation of the influence of external factors is as follows:

$$m_{j*}(t) = \begin{cases} 1, \ \lambda_{ij*} = \max\limits_{l=1,\,2,\,\dots,\,7} \left\{ \max\limits_{q=1,\,2,\,\dots,\,7} \lambda_{lq} \right\}, \\ 0, \text{ for the remaining six factors.} \end{cases} \quad (7)$$

According to (7), factor f_{j*} with the pointer $m_{j*}(t)$=1 corresponds to the largest value among the failure rates $\left\{\{\lambda_{ij}\}_{i=1}^{7}\right\}_{j=1}^{7}$, moreover, it occurs for the first time in the list of all maximum values of these intensities (and there may be several such values). That is, if, we λ_{52} and λ_{36} are maximum failure rates, then:

$m_2(t)$=1 and $m_j(t)$=1 for the rest j=1,3,4,5,6,7.

This rule is due to the fact that our list of factors $\{f_j\}_{j=1}^{7}$ sorted in order of increasing inertia of their negative impact.

Considerations for pointers $\{m_j(t)\}_{j=8}^{15}$ of manifestation of the influence of internal factors are similar. A group of internal factors $\{f_{j+7}\}_{j=1}^{8}$ is sorted in order of increasing inertia of their negative influence, and, therefore, factors with a lower index encapsulate factors with higher indices. The formula for calculating a group of pointers $\{m_j(t)\}_{j=8}^{15}$ of manifestation of the influence of internal factors is as follows:

$$m_{j**}(t) = \\ = \begin{cases} 1, \ \lambda_{ij**} = \max\limits_{l=1,\,2,\,\dots,\,7} \left\{ \max\limits_{q=8,\,9,\,\dots,\,15} \lambda_{lq} \right\}, \\ 0, \text{ for the resting seven factors.} \end{cases} \quad (8)$$

According to (8), factor f_{j*} with pointer $m_{j*}(t)$=1 corresponds to the largest value among the failure rates $\left\{\{\lambda_{ij}\}_{i=1}^{7}\right\}_{j=8}^{15}$, moreover, it occurs for the first time in the list of all maximum values of these failure rates. For example, if the maximum failure rates are λ_{19} $\lambda_{2,11}$, $\lambda_{7,10}$, then:

$m_9(t)$=1 and $m_j(t)$=0

for the rest j=8,10,11,12,13,14,15.

When using (7), (8), formula (2) is simplified:

$$\tilde{a}_i(t+1) = \tilde{a}_i(t) e^{-(\lambda_{ij*}+\lambda_{ij**})} \quad (9)$$

(for the rest i=1,2…,7).

According to (9), the assessment of the state of the i-th business process at the next moment of monitoring is equal to the product of the current assessment and the inverse exponent, the degree of which is the sum of the two maximum failure rates according to (7) and (8).

3. Results

During the approbation at the "Khmelnitskhezelezobeton" enterprise experts when filling out a questionnaire of the Table 1 kind, should fill in only those cells where, in their opinion, a decline of 25%, 50% or 75% is possible. Zeros are generated automatically in the process of processing expert judgments. The first survey of 34 experts gave a positive result - conditions (4) and (5) proved to be valid for all estimates of the percentage of decline during the month. The average percentages (3) in the form of a 15×7 matrix are presented in the Table 2.

At the same time, the most intense factors are destabilization of financial system and the ineffectiveness of the R&D (Table 3, where the maxima are highlighted in italic bold).

*Table 2. Matrix of average percentages of decline during the month for the "Khmelnitskhezelezobeton" enterprise**

j \ i	1	2	3	4	5	6	7
1	12,5	30,882	28,676	31,618	11,029	17,647	14,706
2	30,147	30,882	30,882	12,5	9,559	13,971	8,824
3	7,353	26,471	27,941	48,529	14,706	11,765	10,294
4	16,176	10,294	30,147	9,559	7,353	13,235	11,029
5	13,235	10,294	11,765	14,706	4,412	50,735	11,765
6	8,824	14,706	27,206	7,353	12,5	11,029	13,971
7	33,824	29,412	28,676	33,824	7,353	30,882	8,824
8	50,735	8,824	9,559	14,706	8,824	7,353	53,676
9	12,5	8,088	18,382	16,176	11,029	13,971	32,353
10	9,559	20,588	8,088	8,088	28,676	19,118	27,206
11	16,176	11,765	10,294	10,294	25,735	8,088	12,5
12	12,5	13,235	12,5	9,559	15,441	52,206	9,559
13	13,235	13,971	9,559	4,412	13,971	14,706	29,412
14	27,206	11,765	12,5	13,971	28,676	6,618	11,029
15	25,735	8,824	13,235	8,088	29,412	19,853	30,882

Table 3. Matrix of recession of failure rates for the "Khmelnitskhezelezobeton" enterprise

j \ i	1	2	3	4	5	6	7
1	0,134	0,369	0,338	0,38	0,117	0,194	0,159
2	0,359	0,369	0,369	0,134	0,1	0,15	0,092
3	0,076	0,307	0,328	0,664	0,159	0,125	0,109
4	0,176	0,109	0,359	0,1	0,076	0,142	0,117
5	0,142	0,109	0,125	0,159	0,045	***0,708***	0,125
6	0,092	0,159	0,318	0,076	0,134	0,117	0,15
7	0,413	0,348	0,338	0,413	0,076	0,369	0,092
8	***0,708***	0,092	0,1	0,159	0,092	0,076	0,77
9	0,134	0,084	0,203	0,176	0,117	0,15	0,391
10	0,1	0,231	0,084	0,084	0,338	0,212	0,318
11	0,176	0,125	0,109	0,109	0,298	0,084	0,134
12	0,134	0,142	0,134	0,1	0,168	0,738	0,1
13	0,142	0,15	0,1	0,045	0,15	0,159	0,348
14	0,318	0,125	0,134	0,15	0,338	0,068	0,117
15	0,298	0,092	0,142	0,084	0,348	0,221	0,369

So, for the "Khmelnitskhezelezobeton" enterprise we have:
$m_5(t)=1$, $m_8(t)=1$, $m_j(t)=1$
for the rest $j=1,2,3,4,6,7,9\ldots15$,

whence the (forecast) updates for the next month regarding the states of business processes according to (4.9) are as follows:

$$\tilde{a}_i(t+1)=\tilde{a}_i(t)e^{-(\lambda_{i5}+\lambda_{i8})} \quad (10)$$

(for the rest $i=1,2,\ldots,7$).

Note that in formula (10) instead of values λ_{I5} and λ_{I8} we successively substitute the values of the fifth and eighth lines of the Table 3. As a result, the values of states are:

$$\tilde{a}_1=\tilde{a}_{\text{DRP}}=2{,}8499,\ \tilde{a}_2=\tilde{a}_{\text{MTZ}}=5{,}5532,$$
$$\tilde{a}_3=\tilde{a}_{\text{PV}}=4{,}1803,\ \tilde{a}_4=\tilde{a}_{\text{LZ}}=3{,}4841,$$
$$\tilde{a}_5=\tilde{a}_{\text{MS}}=2{,}3809,\ \tilde{a}_6=\tilde{a}_{\text{FZD}}=3{,}6546, \quad (11)$$
$$\tilde{a}_7=\tilde{a}_{\text{UY}}=3{,}4587.$$

are reduced to the following:

$$\tilde{a}_1(t+1)=\tilde{a}_{\text{DRP}}(t+1)=1{,}2182,$$
$$\tilde{a}_2(t+1)=\tilde{a}_{\text{MTZ}}(t+1)=4{,}542,$$
$$\tilde{a}_3(t+1)=\tilde{a}_{\text{PV}}(t+1)=3{,}3359,$$
$$\tilde{a}_4(t+1)=\tilde{a}_{\text{LZ}}(t+1)=2{,}5347, \quad (12)$$
$$\tilde{a}_5(t+1)=\tilde{a}_{\text{MS}}(t+1)=2{,}075,$$
$$\tilde{a}_6(t+1)=\tilde{a}_{\text{FZD}}(t+1)=1{,}6681,$$
$$\tilde{a}_7(t+1)=\tilde{a}_{\text{UY}}(t+1)=1{,}4137,$$

where the weighted average $\widetilde{a_{\text{BP}}}=3{,}8016$ is also predicted to decline during the month by 31,77 %: $\widetilde{a_{\text{BP}}}(t+1)=2{,}5937$.

4. Conclusion

The performed calculations allow us to draw conclusions, in particular, regarding the percentage decline of estimates (11) to the level (12), here the deepest decline is predicted in product research and development (57,26%), financial support of activities (54,36%) and quality management (59,13%). If effective measures are not taken, all these business processes can fall to a critical level. Material and technical support will decrease by 18,21%, moving to a satisfactory level. Production will fall by 20,2%, moving to a low level. Logistics will decrease by 27,25%, but will still remain at a relatively low level. Marketing support will remain at a critical level, although its decline is the smallest (12,85%). However, all these data are only forecasts that may come true if no management decisions are made (now or within a month) at the "Khmelnitskhezelezobeton" enterprise. Accordingly, the main result of using the proposed model is the justification of effective management decisions in order to ensure the economic security of the enterprise due to timely reaction to the negative impact of the operating environment of the enterprise. Prospects for further research consist in detailing the parameters of the negative impact of the environment in conditions of increased turbulence of the economic processes of the global economy.

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