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Fuzzy Evaluation of Change Management Processes in the Context of Enterprise Sustainability

Tetiana Vlasenko [1], Anatolii Hatsko [1], Tetiana Larina [1], Yevhen Hryn [1], Dalia Streimikiene [2] and Tomas Balezentis [2,*]

[1] Kharkiv Petro Vasylenko National Technical University of Agriculture, Alchevskykh St. 44, 61002 Kharkiv City, Ukraine; tatyanavlasenko2011@gmail.com (T.V.); afhatsko@gmail.com (A.H.); ltf-2010@ukr.net (T.L.); hryn.evhen2014@gmail.com (Y.H.)

[2] Lithuanian Institute of Agrarian Economics, A. Vivulskio Str. 4A, 03220 Vilnius, Lithuania; dalia@mail.lei.lt

* Correspondence: tomas@laei.lt

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Abstract: Enterprise sustainability can only be ensured by taking into account the dynamics of the environment, which requires effective implementation of changes. Organizational change management is seen as the interaction of the groups of processes: direct implementation and the processes of managerial influence on their implementation. The article seeks to develop a framework for evaluation of change management processes based on the fuzzy logics. The expert analysis was carried out to develop fuzzy rules based on the linguistic terms (high, medium, and low). The database of rules for assigning an enterprise to the appropriate level of organizational change management has been developed (243 rules). The proposed model was applied to the case of Ukrainian agricultural machinery companies. The results allowed identifying the bottlenecks for the companies under analysis in seeking sustainable change management.

Keywords: enterprise sustainability; fuzzy logics; change management; Ukraine

1. Introduction

The enterprise must maintain market share, which requires the creation of stable competitive advantages in order to ensure the sustainability [1,2]. The source of competitive advantage is the core competences, which are rapidly being changed under the influence of external factors, especially technical and technological ones, that requires the appropriate reaction of the company, which must implement the changes. Effective implementation of organizational change is only possible through the proper management of the entity. In the last century, change management has gained considerable popularity both in practice and in the field of research. The change management studies are widely used in addition to economics, in the fields of sociology, psychology, law, cultural studies and more. The economic interpretation of this phenomenon seeks to find new methods and means of influence to ensure the achievement of the tasks. Accordingly, in the context of efficiency, this achievement must be weighed against the amount of costs incurred in its implementation. The complexity of measuring and ensuring efficiency is that a modern enterprise is a system of interaction of numerous tangible and intangible factors of production, which together with the human component in the appropriate management create outputs in the form of products, works or services for sale on the market and with a proper level of competition [3]. The cost of the enterprise is to ensure the flow of all processes: both the process of creating the final product, and the implementation of functions to manage the processes of product creation. Administrative and sales costs allow the enterprise to carry on current production activities. The question of the appropriateness of these costs remains open because of the inability to isolate their contribution to the final result.

Management processes are costly in themselves, they influence the creation of the final product, the quality of which determines the level of income of the enterprise. The use of information technologies in planning business activities and increasing its sustainability has become extremely important [4–12]. Thus, their indirect impact on the direct processes of the main activities on the one hand does not allow the direct method to take into account the costs incurred, and on the other requires an assessment of the quality level of the impact to highlight the bottlenecks in the main processes. In accordance with the methodology of organizational change management, it is necessary to distinguish directly managerial influence as a set of functions performed by the management of the enterprise in relation to the processes of changes implementation. Thus, by assessing the effectiveness level of organizational change management, the company receives leverages of this process improvement. As a result, changes implementation is more efficient, costs are reduced, and new core competences are created. The company receives competitive advantages by implementing the core competencies. Reducing costs and creating competitive advantage are the keys to enterprise sustainability in the long run.

Ukraine's economy is developing in line with global trends under the influence of globalization and integration in an open economy [13], which increases the level of competition in the market due to the presence of powerful foreign corporations. Agricultural machinery enterprises were selected for analysis. It is this industry that should provide Ukrainian farmers with quality machinery that will increase their productivity, given the strategic importance of the agricultural sector for the state due to the demand for its products in the foreign market. At the moment, this market is occupied by imported manufacturers. Only one Ukrainian company, «HTZ», increased the volume of sales in 2018 on the tractors market with capacity from 100 kW company, received 4.6% of the market. Therefore, there is a need for identifying possibilities for sustainable change in Ukrainian agricultural machinery companies.

This paper seeks to develop the fuzzy rule database for analysis of sustainable change in the Ukrainian enterprises. The developed model is then applied for a sample of Ukrainian agricultural machinery producing enterprises to identify their bottlenecks in regards to sustainable change. The paper proceeds as follows: Section 2 reviews the relevant literature. Section 3 presents the methodological issues. Section 4 presents the results.

2. Literature Review

Organizational change management issues have been addressed in a number of studies that traditionally combine into a number of approaches: context, contextual, process, behavioral, systemic, adaptive, situational, psychodynamic, humanistic, and competent. In addition, there are a number of common models that address the nature of change.

The congruent model of D. A. Nadler and M. L. Tushman [14], where active interaction with the external environment is considered: the enterprises involve the strategy, resources and conditions of this environment, which is reflected in the corresponding efficiency at the individual, group, and organizational levels. R. Eisenstat and M. Beer [15] offered to evaluate the readiness of the organization to implement the strategy based on a number of assumptions. W. Krüger [16] proposed a change-management model, called «Iceberg», highlighting some of the problems on the surface, which he attributed to cost, quality and time management, and the underwater part represented by perceptions and beliefs management, own and political powers.

The behavioral approach to understanding organizational change is presented in the concept of J. D. Duck [17], which states that emotional aspects of change must be given as much attention as productive ones. This concept is known as the «change curve», which includes the relevant phases. H. J. Harrington [18] proposed in the project implementation the steps of change management: clarifying the content of the project, announcing the project, conducting diagnostics, developing a project implementation plan, executing the plan, monitoring the progress of the project and problems arising, evaluating the final results.

In contrast to the mechanistic concepts of understanding the enterprise and continuing to search for similarities between the enterprise and the person, F. J. Gouillart, J. N. Kelly [19] have proposed a biological model that provides an understanding of the organization as an organizational genome, whose conceptual scheme is due to 12 chromosomes as a kind of software that carries information about the enterprise structure. The dynamic model was proposed by R. Beckhard and T. H. Reuben [20] as a formula of change, where the change is equal to the product of the level of dissatisfaction with the current state, the desired end state and the practicality of the changes, and this result must exceed the cost of the change.

The most widespread process models of change are given in the works of L. Greiner [21], P. M. Senge [22], K. Lewin [23], A. Judson [24], J. Kotter [25], T. Galpin [26], and A. Armenakis, S. Harris, and H. Feild [27], where individual processes of organizational change management are distinguished at different stages. The disadvantage of existing approaches and models is the lack of evaluation of organizational change management processes directly, which requires their separation from the overall process of their progress and further evaluation.

Developing a methodology of sustainability for business activity is in the process of active growth, considering the growing influence of the environment on activity of economic entities. Fundamentals of sustainable business are given in [28] include selecting a design consultant, greasing the cognitive skids, and foundations of for-profit companies and non-profit organizations.

The role of creating strategies of sustainability are discussed from different point of view in such works (e.g., Dyllick and Hockerts [29], Schaltegger [30], Steger [31],). An integrated framework for the business case for sustainability by combining strategies, the degrees of business model innovation and business case drivers is proposed in (Schaltegger, Lüdeke-Freund, and Hansen [32]), where three types of strategies can be implemented: defensive, accommodative, proactive, which can be used for changes implementation at enterprises.

3. Methodology

The purpose of the study is to evaluate the processes of managing organizational change. To achieve this goal it is necessary to solve a range of tasks: to justify the list of organizational change management functions, to isolate the processes of organizational change implementation, to propose a methodological approach to assess the level of implementation of the management function, to implement the developed methodological approach in the studied enterprises and to suggest ways of improvement.

The need to monitor the factors of the internal and external environment is a preparatory stage before determining the need for change, their type, and nature. Depending on the level of influence of the external environment, the company implements forced or provoked changes, the level of interaction with the environment determines their reactivity or activity, and the monitoring of the internal environment, which is presented as an analysis of the change potential, allows to determine the purpose of their implementation. During the monitoring process, diagnostics are performed, the results of which define a range of problems or tasks, which should be defined as another planning process at the initiation stage, which involves setting goals for implementation of changes and decomposing them to specific tasks. On this basis, such a step as realizing the need for changes in the form of diagnostics and identifying specific problems is not appropriate to distinguish as a direct process. The same thing should be emphasized in predicting changes, this component is highlighted in only one of the sources studied. In general, this component requires clarification.

Forecasting represents the specific intention to take actions with a possible deviation from the level of the planned indicators contrary to planning and is a formalized idea of a possible development with a statistically defined range of deviations from the proposed values of the key indicators. In economic science, we believe that forecasting is appropriate for describing trajectories of the environment. It is advisable to consider changes in the context of long-term strategic planning in the context of the

enterprise's activity in relation to its internal environment on the basis of forecasting the dynamics of key environmental factors.

The logical continuation of the problem statement is to form a general vision of the results of organizational changes. We support the priority of the project approach, where the vision of the desired state of change is to formulate a description of it as a product of the project, which is necessary and fundamentally important in the early stages of its initiation. But unlike researchers, we believe that the formation of this vision, which determines the future desirable state of organizational change as the ultimate goal of their implementation, as a process must be separated from its dissemination in the enterprise due to the need for prior coordination with all stakeholders, which is consistent with the concept of performance from the standpoint of stakeholder theory. Change initiation, and especially change planning, which is shared by almost all researchers, should be considered as correct but aggregate components, where the first relates to the stage and the second to the management functions. It is necessary to justify the allocation of funding to their implementation with regard to creating and investing in a change program. But this stage should be preceded by the development of a set of alternatives to achieve the goals and objectives. This reflects the stage of justification for the methods of implementation of change. Depending on the nature of the alternatives, possible budgets are evaluated by performance criteria: efficiency, cost effectiveness, quality and quality of life, profitability, productivity and innovation. It is possible to use the method of analysis of T. L. Saaty [33] hierarchies at this stage of evaluation, which allows to take into account the influence of all criteria in choosing the best alternative.

The stages of preparation for the changes and their registration are generalized and require clarification. They integrate all the planning, organizing, and motivation processes and the initiation stages. The next group of processes is united by organizational. Researchers highlight the formation of an initiative group whose task is to plan changes directly after determining the method for implementing them. This process requires the identification and assignment of functions and powers to this group with the possible separation of units.

Much attention is given to the process of experimentation, which involves the implementation of organizational changes in particular areas of activity or units. Thus, it is possible to identify bottlenecks in the preparation and implementation of changes across the enterprise. You need to create an appropriate communication system to get constant feedback on the progress of changes in the enterprise regarding the organization's function, to maintain a high level of efficiency.

Another important element is the realization of the motivation function during the implementation of the change stages. This change-level process is recognized by all researchers, confirming its importance and urgency. Accordingly, at the initiation stage, an appropriate motivation environment should be created and an improved system of motivation tailored to the needs for commitment to change should be developed. The motivation system is needed at an early stage to determine its value in the budget of the change project, and the relevant environment is relevant at the institutionalization stage to maintain an adequate level of staff interest in maintaining activities at a new level. It is in this functional section that such a phenomenon occurs as resistance. The most important of these are determining staff readiness for change and identifying potential resistance. Much attention should also be paid to staff training, since in the process of introducing innovations, which are often a form of change, as in other forms, it is important to create new competencies in the personnel, which requires the organization of advanced training, and sometimes retraining depending on the needs of the enterprise.

Accordingly, in the context of control at the initiation stage, it is important to identify the key indicators that should determine the onset of change and to identify the processes that must be monitored during the implementation of organizational change. It is envisaged to establish control activities and to organize monitoring and coordination of performers at the implementation stage. The latter process links the organization's function to change.

At the institutionalization stage, control involves the implementation of control measures, which allows to establish compliance with the values of key indicators determined at the initiation stage and to detect deviations of actual values from the planned ones to take corrective action within the next adjustment function.

Once the data-based controls have been implemented, regulatory processes must be done: these processes take place in the implementation and institutionalization stages, because unlike the previous stage, the processes of compliance without the target values of the key indicators cannot determine the regulatory processes. The development of corrective actions as a regulatory process implies an impact based on the control results on the change processes. Considering that the described processes take place on several cycles, including the experiment, it is in the regulation that changes are spread to the activity of the whole enterprise after the experiment.

After completion of the changes at the enterprise, a final description of all procedures should be provided, specifying the level of planned targets met, explanations in case of non-compliance, and the budget execution report. Thereafter, changes to the rules should be recorded in the applicable regulations of the company, which include staffing, description of the organizational structure, key values embodied in the mission of the enterprise, if necessary, in the collective agreement, and in all other internal regulations. The completion of the organizational change project is a stakeholder report.

Thus, described processes of organizational change management, which reflect the implementation of these functions in separate stages should be presented as a matrix in Table 1. As we can see from this matrix, the processes from the beginning to the end of the changes are distributed from their concentration at the initiation stage to the transition to the institutionalization stage, which reflects the interdependence of the stages in the life cycle of the change project. It should be emphasized that all these processes are not exclusively sequential or parallel. The implementation process begins before the completion of the initiation, and the institutionalization processes begin immediately after the completion of the individual processes at the implementation stage. To fix them in a timely manner, it is advisable to develop pre-network schedules, which are used to build the calendar plans and Gantt charts. All of these tools are project management and enable to achieve the highest level of change effectiveness.

Table 1. Matrix of organizational change management processes.

Stages / Functions	Initiation	Realization	Institutionalization
Planning	1. Monitoring of the state of the external and internal environment. 2. Setting goals and objectives of organizational change. 3. Formation of a future vision and coordination with stakeholders	4. Development and evaluation of alternatives by criteria 5. Formation of an initiative group	
Organization	1. Dissemination of future vision among staff 2. Formation of communication policy	3. Definition and assignment of functions and powers 4. Conducting the experiment 5. Involvement of new participants in the implementation	
Motivation	1. Development of an improved system of motivation	2. Analysis of staff readiness for change 3. Assessment of possible resistance to change 4. Implementation of training	5. Creating an appropriate motivational environment
Control	1. Definition of key indicators 2. Identification of the processes to be monitored	3. Establish control actions 4. Organization of monitoring and coordination of performers	5. Carrying out measures of new processes control
Regulation		1. Development of corrective actions after the experiment 2. Spread change across the enterprise	3. A detailed description of the results obtained 4. Fixing the changed rules in the regulations of the enterprise 5. Report to interested parties

In our study, assessing the level of implementation of these processes is important. To accomplish this task, its necessary to determine the tools of analysis. First of all, it should be emphasized that this assessment is advisable to carry out using expert methods, since in the overwhelming number of enterprises there are no statistical observations with quantification in the form of relevant indicators of organizational change management processes. Expert assessment is based on the judgment of persons who are engaged in the relevant field of research. The method of examination means the organizing work with specialists in a particular field of knowledge and processing the results of expert evaluation [34,35].

The level of implementation of organizational change management functions can be determined based on the totality of the process values using a model built according to the principles of fuzzy logic. The advantage of using fuzzy logic is the ability to solve the problem of complexity for experts in determining the appropriate qualitative level of evaluated processes implementation, functions or actions.

In general, the evaluation of organizational change management using a process-functional approach based on the isolated processes by matrix (Table 1) should be presented as an appropriate sequence (Figure 1).

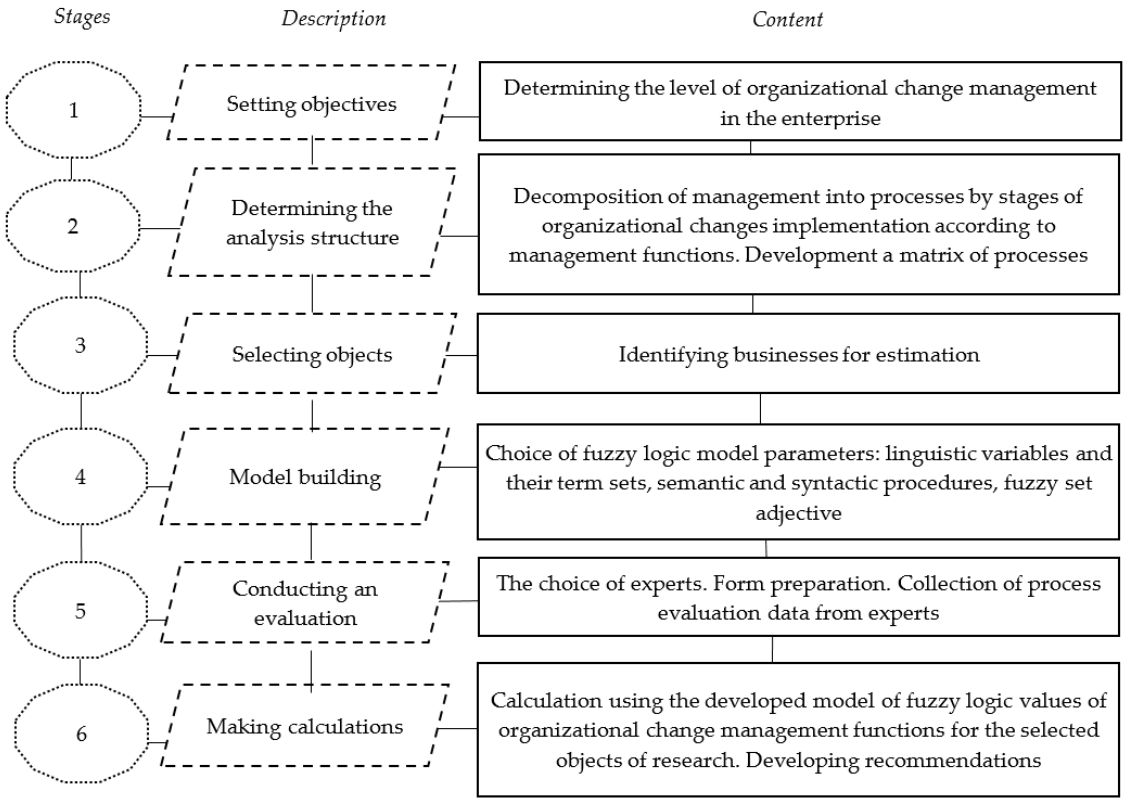

Figure 1. Methodical approach to determining the level of organizational change management in the enterprises.

Consider in more detail the content of the developed methodical approach.

The objects of evaluation are the processes of Table 1. Each organizational change management function has five processes that reflect the implementation of changes. Each process should be evaluated by an expert using a point scale of up to 100 points. The range of values obtained distinguishes three levels of implementation of the corresponding processes: «high», «medium», and «low». By entering the values obtained in the model of fuzzy logic, the evaluation of each process is also determined on a 100-point scale, which is assigned to the corresponding level: «high», «medium», and «low». In our research, the number of experts is 30 persons. The experts include managers of all levels with

experience of three years at least and a higher professional education in management or economics. They are given the opportunity to evaluate the processes presented in the matrix in Table 1 on a 100-point scale. To determine the consistency of expert opinions, coefficients of variation should be calculated as the ratio of the standard deviation to the mean and should not exceed 20% to establish the similarity of the judgments and their suitability for use as analysis results [36].

To obtain a generalized assessment for each organizational change management function at the selected enterprises, we have, as indicated above, constructed a model of fuzzy logic, within which three linguistic terms were defined: «high», «medium», and «low» to obtain a general definition of each organizational change management function as the output variable for each enterprise. A general description of the model is presented in Figure 2. The advantage of the chosen symmetric Gaussian fuzzy set adjective is the ability to evaluate with its use such uncertainties as: «approximately in the range», «approximately equal», «approximately».

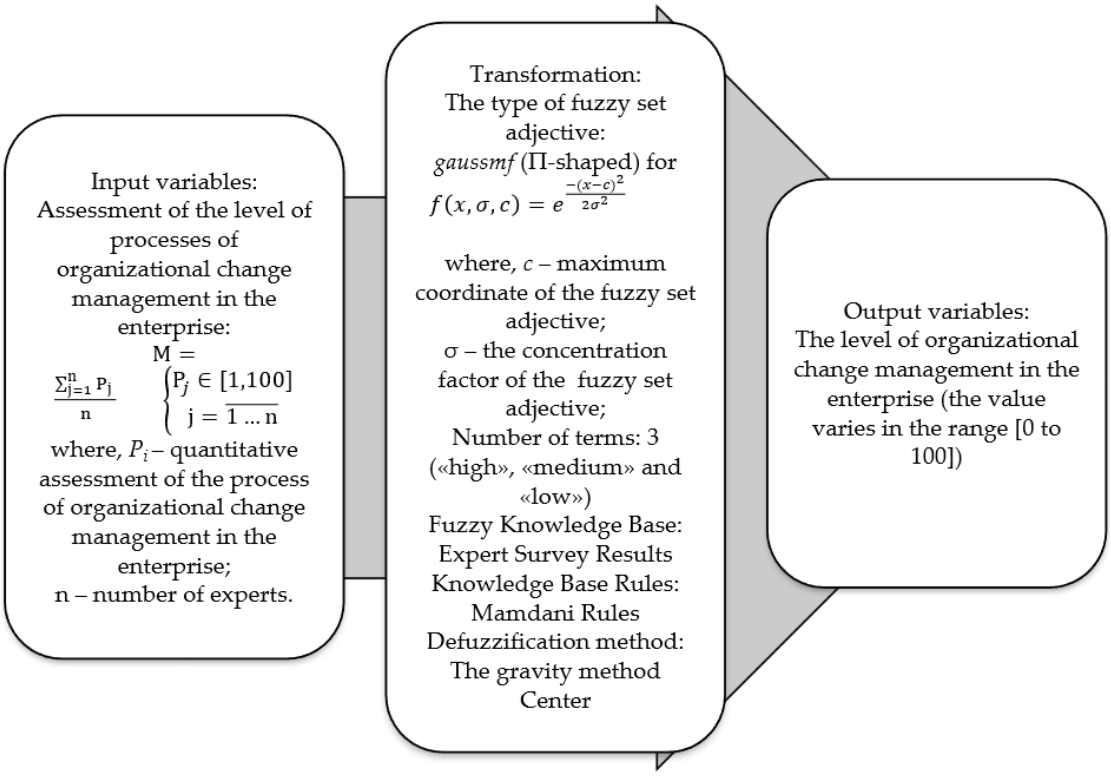

Figure 2. Parameters of a fuzzy system for determining the level of processes of organizational change management in the enterprise.

The parameter c in Figure 2 is assembly average and σ—variance.

An important element of the model is to perform the phasing and defuzzification of input and output variables according to the appropriate rule base, which should be represented for the planning function as follows:

If «external and internal environment monitoring» has A1 level, «setting goals and objectives for organizational change» has A2 level, «forming future vision and stakeholder agreement» has A3 level, «developing and evaluating alternatives by criteria» has A1 level, «Initiative group formation» has level A3, then «planning» has level A3.

Similarly, rules for all organizational change management functions have been developed. The number of rules depends on the number of terms—we have three: «high», «medium», and «low» and five inputs of each process within each function (Table 1). So, we have 3^5 = 243 rules.

There is a high level of uncertainty in assessing the level of implementation of a process or function, which, within fuzzy set theory, can be overcome by introducing appropriate linguistic variables as

subjective categories, which understand the individual characteristics of the values of the objects being evaluated using mathematical language. These variables make it possible to solve estimation problems when quantitative measurement is difficult or impossible at all [37].

In formalized form, linguistic change takes the form of the following tuple:

$$< \beta, T, X, G, M >$$

where:

B-the name of the linguistic variable;
T-the set of its values (linguistic term-set), which are the names of fuzzy variables, the area of definition of each of which is the set X; set T is called the base term set of the linguistic variable;
G-a syntactic procedure that allows to operate elements of the term T-set, in particular, to generate new terms (values);
M-a semantic procedure that allows each new value of a linguistic variable formed by procedure G to be transformed into a fuzzy variable, that is, to form a corresponding fuzzy set [38].

The fuzzy logic is operationalized by building a model in the Fuzzy Logic Toolbox on MATLAB. This package allows you to characterize the input variables, output, and fuzzy set adjective. A generalized score for each organizational change management function is defined as the arithmetic mean of all experts.

4. Results

The number of enterprises in the industry of agricultural machinery decreased for the period 2010–2018 from 468 to 209 units. The number of employed workers decreased from 24,892 to 20,838 people, while sales increased from UAH 3.74 billion to UAH 11.75 billion. In terms of net profit, this sector was unprofitable in 2010, 2012–2013, and 2015–2016. In recent years, a positive result was obtained: UAH 987.8 million and in 2017 and 590.6.

For the assessment of the proposed methodical approach, two enterprises (henceforth denoted as Company X and Y for sake of confidentiality) of the studied industry were selected. These enterprises meet the criteria of large enterprises, where the number of employees exceeds 250 persons, the assets' carrying value exceeds EUR 20 million and the turnover from sales—more than EUR 40 million. In addition, the size of the manager is large enough to carry out questionnaires for 30 people. The processes were evaluated using Google Forms, which were later summarized.

An example of calculating the value of the initial planning function for the studied enterprise—Company X—is presented in Figure 3. Summarized results of the analysis are given in Table 2.

Table 2. The results of evaluation of organizational change management functions in the studied enterprises by model.

Representatives	Level of Organizational Change Management Functions				
	Planning	**Organization**	**Motivation**	**Control**	**Regulation**
Company X	average	low	low	average	low
Company Y	high	high	average	high	low

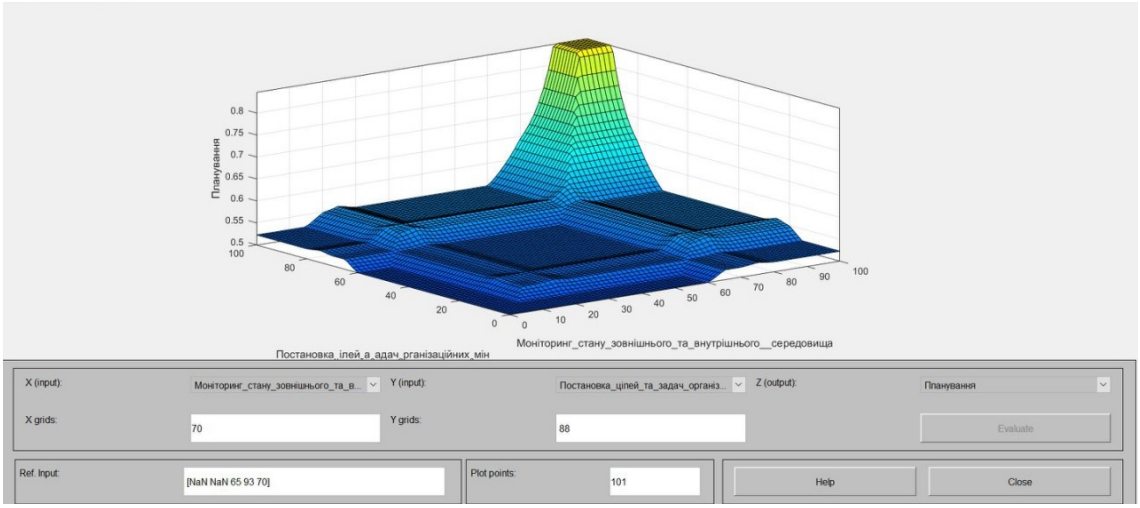

Figure 3. An example of calculation of the value of the initial planning function for the studied enterprise—Company X.

As a result of the study, the levels of implementation of change management functions were established at two analyzed enterprises of agricultural machinery. It is defined that the bottlenecks are the processes at the stage of change implementation, it was they who received mostly low levels, according to experts. The level of consistency of experts' opinions by the variation coefficient is in the range of up to 20%, which confirms a sufficient level of similarity of their judgments and allows to use the obtained values to improve the quality of change management. Thus, managers of this enterprises should pay priority to implementing such processes. The organization, motivation and regulation functions are at a low level at Company X, while the other two have an average level, which indicates a generally unsatisfactory state of change management at the enterprise. In order to solve this problem, it is necessary to distinguish these processes and distinguish them within the framework of general management functions, to determine the responsible for their implementation and to develop metrics for their evaluation.

The situation is positive at Public Joint-stock Company Y, which is confirmed by the high level of planning, organization and control functions. The average level of motivation function is due to lack of necessary staff training and lack of appropriate motivational environment. To address this, the company needs to make changes to its existing staff incentive system by establishing a direct link between training, the implementation of change functions and the results obtained. Low levels of regulation require measures to be taken: implementation of corrective actions after the change experiment, dissemination of changes to all units of the enterprise with a detailed description of the results obtained, organization of communication with stakeholders on the results of implementation of changes and approval of new rules and regulations of the enterprise.

5. Conclusions

The analysis of the level of implementation of organizational change management functions presented by the matrix of processes of planning, organization, motivation, control, and regulation at the stages of initiation, implementation, and institutionalization of changes is carried out. Assessment is proposed using fuzzy logic theory, which allows expert judgment to translate into qualitative categories the level of implementation of change management. Carrying out evaluations at the surveyed enterprises allowed to establish a low level of institutionalization of changes due to a significant decrease in employee motivation after the completion of the transformation process and the lack of securing new processes procedures at the enterprises. Regarding the function, an improvement is required by the function of motivation and regulation because of the level of underdevelopment of the general methodology of the organizational change management body at the studied enterprises.

The particular importance of the high level of implementation of the control and regulation function in change management is conditioned by the need for the enterprise to become stable after making changes in its activities, which is the key to sustainable development. The proposed model can be extended and used by other enterprises in planning the change implementation. The sectors requiring attention in regards to sustainable change management could be identified in Ukraine or other countries, and the fuzzy rule bases could be developed for particular sectors.

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References

1. Song, M.; Fisher, R.; Kwoh, Y. Technological challenges of green innovation and sustainable resource management with large scale data. *Technol. Forecast. Soc.* **2019**, *144*, 361–368. [CrossRef]
2. Rostamzadeh, R.; Esmaeili, A.; Nia, A.S.; Saparauskas, J.; Ghorabaee, M.K. A Fuzzy Aras Method for Supply Chain Management Performance Measurement in SMEs under Uncertainty. *Transform. Bus. Econ.* **2017**, *16*, 319–348.
3. Feng, J.; Zhao, L.; Jia, H.; Shao, S. Silk Road Economic Belt strategy and industrial total-factor productivity: Evidence from Chinese industries. *Manag. Environ. Qual.* **2019**, *30*, 260–282. [CrossRef]
4. Ahmed, F.; Qin, Y.J.; Martínez, L. Sustainable Change Management through Employee Readiness: Decision Support System Adoption in Technology-Intensive British E-Businesses. *Sustainability* **2019**, *11*, 2998. [CrossRef]
5. Park, K.O. The Relationship between BPR Strategy and Change Management for the Sustainable Implementation of ERP: An Information Orientation Perspective. *Sustainability* **2018**, *10*, 3080. [CrossRef]
6. Yuan, H.; Yang, Y.; Xue, X. Promoting Owners' BIM Adoption Behaviors to Achieve Sustainable Project Management. *Sustainability* **2019**, *11*, 3905. [CrossRef]
7. Pohludka, M.; Stverkova, H.; Ślusarczyk, B. Implementation and Unification of the ERP System in a Global Company as a Strategic Decision for Sustainable Entrepreneurship. *Sustainability* **2018**, *10*, 2916. [CrossRef]
8. Bilan, Y.V.; Nitsenko, V.S.; Samoilyk, I.V. Conceptual modeling of agri-food market development under economy's globalization. *Sci. Bull. Polissia* **2017**, *3*, 54–61. [CrossRef]
9. Kim, S.-D.; Jeon, I.-O. Effects of Global Capabilities of Small and Medium Businesses on Their Competitive Advantage and Business Management Performances. *Int. J. Fuzzy Log. Intell. Syst.* **2017**, *16*, 52–58. [CrossRef]
10. Grzegorzewski, P. On Separability of Fuzzy Relations. *Int. J. Fuzzy Log. Intell. Syst.* **2017**, *17*, 137–144. [CrossRef]
11. Barba-Sánchez, V.; Calderón-Milán, M.J.; Atienza-Sahuquillo, C. A study of the value of ICT in improving corporate performance: A corporate competitiveness view. *Technol. Econ. Dev. Eco.* **2018**, *24*, 1388–1407.
12. Kozlovskyi, S.; Mazur, H.; Vdovenko, N.; Shepel, T.; Kozlovskyi, V. Modeling and Forecasting the Level of State Stimulation of Agricultural Production in Ukraine Based on the Theory of Fuzzy Logic. *Montenegrin J. Econ.* **2018**, *14*, 37–54. [CrossRef]
13. Oleinik, A. Open Economy or Protectionism: Ukraine's Dilemma. *Montenegrin J. Econ.* **2018**, *14*, 109–128. [CrossRef]
14. Nadler, D.A.; Tushman, M.L. A congruence model for organization problem solving. In *Managing Strategic Innovation and Change: Organization, Architectures and Managing Innovation*; Oxford University Press: Nueva York, NY, USA, 1997; pp. 159–171.
15. Eisenstat, R.; Beer, M. *Strategic Changes: How to Transform an Organization for Strategy Implementation*; Alpina Publischer: Moscow, Russian, 2002; p. 608.
16. Krüger, W. *Excellence in Change: Wege zur Strategischen Erneuerung*; SGO Stiftung: Wiesbaden, Germany, 2000; p. 186.
17. Duck, J.D. *The Change Monster: The Human Forces that Fuel or Foil Corporate Transformation and Change*; Crown Business: Boston, MA, USA, 2002; p. 304.

18. Harrington, H.J. *Change Management Excellence: The Art of Excelling in Change*; Paton Press: Chico, CA, USA, 2006; p. 156.
19. Gouillart, F.J.; Kelly, J.N. *Transforming the Organization*; McGraw-Hill: New York, NY, USA, 1996; p. 323.
20. Beckhard, R.; Reuben, T.H. *Organizational Transitions: Managing COMPLEX Change*; Addison–Wesley Pub. Co.: New York, NY, USA, 1987; p. 117.
21. Greiner, L. Evolution and Revolution as Organizations Grow. *Harv. Bus. Rev.* **1972**, *50*, 37–46. Available online: https://ils.unc.edu/daniel/131/cco4/Greiner.pdf (accessed on 17 August 2019).
22. Senge, P.M. *The Fifth Discipline: The Art & Practice of The Learning Organization*; Crown Publishing Group: New York, NY, USA, 2010; 464p.
23. Lewin, K. Frontiers in group dynamics. *Hum. Relat.* **1974**, *1*, 5–41. [CrossRef]
24. Judson, A. *Changing Behavior in Organizations: Minimizing Resistance to Change*; Basil Blackwell: Cambridge, MA, USA, 1991.
25. Kotter, J. Leading change: Why transformation efforts fail. *Harv. Bus. Rev.* **1995**, *73*, 59–67.
26. Galpin, T. *The Human Side of Change: A Practical Guide to Organization Redesign*; Jossey-Bass: San Francisco, CA, USA, 1996.
27. Armenakis, A.; Harris, S.; Feild, H. Paradigms in organizational change: Change agent and change target perspectives. In *Handbook of Organizational Behavior*; Golembiewski, R., Ed.; Marcel Dekker: New York, NY, USA, 1999.
28. Tueth, M. *Fundamentals of Sustainable Business*; A Guide to the Next 100 years; World Scientific Publishing Co.: Hackensack, NJ, USA, 2009; p. 220.
29. Dyllick, T.; Hockerts, K. Beyond the business case for corporate sustainability. *Bus. Strategy Environ.* **2002**, *11*, 130–141. [CrossRef]
30. Schaltegger, S. Sustainability as a driver for corporate economic success. Consequences for the development of sustainability management control. *Soc. Econ.* **2011**, *33*, 15–28. [CrossRef]
31. Steger, U. *The Business of Sustainability*; Building Industry Cases for Corporate Sustainability; Palgrave Macmillan Houndmills: London, UK, 2004.
32. Schaltegger, S.; Lüdeke-Freund, F.; Hansen, E. Business cases for sustainability. the role of business model innovation for corporate sustainability. *Int. J. Sustain. Dev.* **2012**, *6*, 95–119. [CrossRef]
33. Saaty, T.L. *The Hierarchon: A Dictionary of Hierarchies*; RWS Publications: Pittsburgh, PA, USA, 1992; p. 496.
34. Kurach, T.M. Examination methods. *Cartography Magazine* **2014**, *10*, 19–27. Available online: http://nbuv.gov.ua/UJRN/ktvsh_2014_10_5 (accessed on 15 September 2019).
35. Chukurna, O.; Nitsenko, V.; Kralia, V.; Sahachko, Y.; Morkunas, M.; Volkov, A. Modelling and Managing the Effect of Transferring the Dynamics of Exchange Rates on Prices of Machine-Building Enterprises in Ukraine. *Pol. J. Manag. Stud.* **2019**, *19*. [CrossRef]
36. Grigan, A.M. *Management Diagnostics: Theory and Practice: Monograph*; Publishing House of the RSEI: Rostov N/A, Russian, 2009; p. 316.
37. Lysychenko, G.V.; Zabulonov, Y.L.; Khmil, G.A. *Natural, Technogenic and Ecological Risks: Analysis, Evaluation, Management*; Scientific Thought: Kiev, Ukraine, 2008; p. 542.
38. Mahovikova, G.A.; Kasyanenko, T.G. *Analysis and Risk Assessment in Business: A Textbook and Workshop for Academic Undergraduate Studies*; Publishing House Yuryt: Moscow, Russia, 2014; p. 464.