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THE USAGE OF THE COGNITIVE MODELING TECHNOLOGY FOR THE FINANCIAL ANALYSIS OF THE (CREDIT) ORGANIZATION

The globalization acts as a difficult systemic phenomenon, having a significant influence on the social-economic and scientific-technical formations of a modern post-industrial society: it coming through in technics as the informatization of the various spheres of activity of the social subjects and in the economics as the global economic integration of economy subjects.

The developed cognitive modeling technology is used for the system analysis of the difficult objects, processes and phenomena, in particular: the apparatus for the system analysis of the information-educational environments has been created, the apparatus for the financial analysis of the organization as a property complex is proposed, which is reflected in the primary registers of accounting.

The apparatus of the cognitive modeling technology for the realization of the financial analysis of the organizational structure includes: the technique of its use, the algorithm of formation of the structure of the cognitive model, the innovative models of presentation of the structure of the cognitive model (the oriented graph combining, the theory of sets, the multilevel structural scheme and the calculus with using of the corteges on domains), the technique of formation of the normative-legal base of for the financial analysis, the technique of formation of the information basis of the financial analysis, the technique of the additional check of the information basis, the technique of formation of the working plan of accounts and the working model of accounting, the technique of carrying out of the horizontal, vertical and trend financial analysis based on the analytical coefficients system, the parametrical cognitive models block for the carrying out of the vertical, horizontal trend financial analysis of the given organization, the technique of research of the parameters of the cognitive models and the algorithm of processing of a posteriori data of the financial analysis of the organization.

The technique of use of the technology reflects the stages of the financial analysis.

The algorithm of formation of the structure of the cognitive model realizes the possibility of formation of the cognitive models based on the classical (the logical, productive and frame model, the semantic network and ontology) or the innovative models of presentation of the structured data.

The technique of formation of the normative-legal base of the financial analysis allows to realize the analysis of a set of existing laws, the decrees of government and normative acts, relating to the federal level, the level of the subject of federation or the body of the municipal entity, which have been ratified and put into action at the territory of RF.

The technique of formation of the information basis of the financial analysis allows to analyze the main registers of accounting and financial reporting-documentation for the realization of formation of the conclusions about the financial condition, tendencies and regularities of the development of the organizational structure.

The technique of formation of the working plan of accounts allows to develop and analyze the plan of accounts of the accounting based on the charter, the type and kind of activity, the form of ownership by means of an exhaustive necessary list of synthetical accounts of the first and second order, which are sufficient for the formation of the work plan of accounts.

The technique of formation of the model of accounting allows to realize the analysis of the input and output flows of the financial-material assets and the sources of their attraction, and also the efficiency of placement of the assets and the algorithms of formation of the primary reporting documents of the organization.

The technique of carrying out of the vertical financial analysis allows to realize the comparison of nominal values of the items and aggregates, which are obtained in the course of the synthetical and analytical accounting on the basis of the primary registers of accounting on a certain date with the purpose of revealing of the main ratios of different items and aggregates.

The technique of carrying out of the horizontal financial analysis allows to realize the comparison of nominal values of the items and aggregates, which are obtained in the result of the synthetical and analytical accounting of the organization on the basis of the primary registers of accounting at the different moments of time for the revealing of the main tendencies and regularities of carrying out of the financial-economy activity of a certain organization.

The technique of carrying out of the trend financial analysis based on the previously formed analytical coefficients system allows to realize the calculation of nominal values of the coefficients, reflecting the ratios of items and aggregates in the primary registers of accounting and financial reporting-documentation on the different date by means of the cognitive model.

The algorithm of processing of a posteriori data allows to form the interval scale and the function of estimation, to select the analytical coefficients for the comparing of the managing subjects on the fact of the vertical, horizontal and trend financial analysis.

The parametrical cognitive models block acts as the information basis for the financial analysis of the managing subject and includes the cognitive models for the vertical, horizontal and trend analysis.

The cognitive model directly represents the reconstructed repertoire of parameters in width and depth, which is layered on a row of portraits with the certain scientific justification and stratified on a row of sets, located at two levels of the selected hierarchy: a set of portraits with a given scientific justification, sets of the kinds of properties and the elementary properties, sets of the vectors of parameters and the elementary parameters.

The cognitive model of the financial condition of the organizational structure is presented by means of the calculus with using of the corteges on domains, contains three independent various portraits (PR_i) with the kinds of properties (KP_j), properties (Pr_k), the vectors of parameters (VP_l) and parameters (P_m) [not reflected].

PR₁ “The vertical analysis” = { $KP_1, KP_2, KP_3, KP_4, KP_5$ }.

KP_1 “The ratios of the elements of the accounting balance” = { Pr_1, Pr_2, Pr_3 }.

Pr_1 “The ratios of the aggregates and items of the active” = { VP_1 “The ratio of current and non-current assets” }.

Pr_2 “The ratios of aggregates and items of the passive of the accounting balance” = { VP_1 “The ratio of capital and reserves to the long-term liabilities”, VP_2 “The ratio of capital and reserves to the short-term liabilities” }.

Pr_3 “The ratios of aggregates and items, located in the active and passive” = { VP_1 “The ratio of capital and reserves to the short-term liabilities” }.

KP_2 “The ratios of the elements of the report about profits and losses” = { Pr_1 }.

Pr_1 “The ratios of the aggregates and items of the report about profits and losses” = { VP_1 “The ratio of profit to expenses”, VP_2 “The ratio of profit to incomes”, VP_3 “The ratio of profit to liabilities”, VP_4 “The ratio of profit to other incomes” }.

KP_3 “The aggregates of the (consolidated) report about the change of capital” = { Pr_1 }.

Pr_1 “The dynamics of capital” = { VP_1 “The increasing of capital”, VP_2 “The decreasing of capital”, VP_3 “The size of capital”, VP_4 “The size of net profit of the organization” }.

KP_4 “The aggregates of the report about the movement of monetary means” = { Pr_1 }.

Pr_1 “The income monetary flow” = { VP_1 “The amounts of receipts”, VP_2 “The amounts of deductions”, VP_3 “The amounts of residues” }.

KP_5 “The ratios of the elements of the appendix to the accounting balance” = { Pr_1 }.

Pr_1 “The ratios of aggregates and items of the active to the appendix to the accounting balance” = { VP_1 “The ratio of intangible assets”, VP_2 “The ratio of fixed assets”, VP_3 “The ratio of profitable investments into the tangible assets”, VP_4 “The ratio of expenses on SRW and ECW”, VP_5 “The ratio of aggregates and items of the financial investments”, VP_6 “The ratio of aggregates and items of the accounts receivable and payable”, VP_7 “The ratio of aggregates and items of the expenses on the taxable kinds of activity” }.

PR₂ “The horizontal financial analysis” = {KP₁, KP₂, KP₃, KP₄}.

KP₁ “The aggregates of the (consolidated) accounting balance” = {Pr₁, Pr₂}.

Pr₁ “The dynamics of active operations” = {VP₁ “The intangible assets”,
VP₂ “The fixed assets”, VP₃ “The profitable investments into the tangible assets”,
VP₄ “The financial investments”, VP₅ “The stocks”,
VP₆ “VAT paid”, VP₇ “The accounts receivable”,
VP₈ “The investments into the charter capital”, VP₉ “The monetary means in circulation”}.

Pr₂ “The dynamics of passive operations” = {VP₁ “The capital and reserves”,
VP₂ “The undistributed profit of the organization”,
VP₃ “The long-term liabilities”, VP₄ “The short-term liabilities”,
VP₅ “The accounts payable”, VP₆ “The incomes of future periods”}.

KP₂ “The aggregates of the (consolidated) report about profits and losses” = {Pr₁}.

Pr₁ “The dynamics of profit (loss)” = {VP₁ “The revenue from sales (the gross income)”}.

KP₃ “The aggregates of the report about the movement of monetary means” = {Pr₁, Pr₂}.

Pr₁ “The input monetary flow” = {VP₁ “The amounts of receipts”}.

Pr₂ “The output monetary flow” = {VP₁ “The amounts of deductions and expenses”,
VP₂ “The residue of monetary means on the settlement account”}.

BC₄ “The aggregates of the (consolidated) report about the change of capital” = {Pr₁}.

Pr₁ “The dynamics of change of the capital” = {VP₁ “The increasing of capital”,

VP₂ “The decreasing of capital”, VP₃ “The dynamics of change of the charter capital”}.

PR₃ “The trend analysis based on the previously formed analytical coefficients system” = {KP₁, KP₂, KP₃, KP₄, KP₆, KP₅}.

KP₁ “The financial stability of managing subject” = {Pr₁}.

Pr₁ “The property status” = {VP₁ “The concentration of capital”,

VP₂ “The financial dependence”, VP₃ “The financial and operational leverage”,

VP₄ “The presents to pay”, VP₅ “The amount of charter and reserve capital”}.

KP₂ “The investment attractiveness of the managing subject” = {Pr₁}.

Pr₁ “The property status” = {VP₁ “The incomes and expenses”}.

KP₃ “The liquidity and solvency of the organization” = {Pr₁}.

Pr₁ “The liquidity” = {VP₁ “The liquidity of the organization”, VP₂ “The liquidity of bank”}.

KP₄ “The business activity of the managing subject” = {Pr₁, Pr₂}.

Pr₁ “The stocks” = {VP₁ “The provision of reserves”, VP₂ “The turnover of reserves”}.

Pr₂ “The means in calculations” = {VP₁ “The turnover means in calculations”,

VP₂ “The duration of the operational cycle”}.

KP₅ “The yield of organization and credit organization” = {Pr₁, Pr₂}.

Pr₁ “The return” = {VP₁ “The return”}.

Pr₂ “The profitability” = {VP₁ “The return of sales”}.

KP₆ “The market activity of the organization and credit organization” = {Pr₁}.

Pr₁ “The shares” = {VP₁ “The yield of share”, VP₂ “The value of share”}.

The software for the tasks of automation is being developed.

In the process of SRW I prepared: the personal scientific monography “The cognitive modeling technology for the financial analysis and audit of the organization” and the personal scientific trilogy from three scientific-pract. monographies “The calculation of the analytical coefficients system of for the vertical, horizontal and trend financial analysis and audit based on the cognitive modeling technology”.