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DYNAMIC MODELLING, EFFECTIVE VALUATION EQUIPMENT AND PROCESS RISK ADMINISTRATION

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Abstract: A contribution consists of authors knowledge from applying the dynamic modelling in valuation and risk management in a company. Dynamic modelling allows to catch a complex bond of processes in a company, complexly follow up their dynamic and stochastic attributes, including of economical factors and so to catch their influence on risk probability valuation. It allows also an optimization of process variants suggestions, process risk analysis and empirical analysis of sensibility, which allows to get another important information and relevant backups for valuation and leading the company risks. Dynamical modelling applying in chosen cases confirmed its necessity for ensuring the serious valuation and afterwards risk management in company processes.

1 INTRODUCTION

Today's changing conditions (changes) in the market create a need prudent allocation of resources in the most of enterprises, it means also all resources for an implementation of new projects and operations of its production processes. For managers, this means that it is necessary to pay greater attention to project management and also technological risks as a fundamental aspect of their overall management. It is actually barriers to assessing and managing risks as is usually the lack of successful risk management and the problem is not entirely comparable with other processes that affect the resource.

Risk Management provides project management role, or relationships between project processes and environment, it means by. suppliers and customers, in terms of time, cost, space and quality. Assesses the risks (threats and opportunities) in terms of economic, technological, social, environmental and sustainability project processes. All kinds of risks, whether internal or external origin are controlled risk management. Relations with the project environment is usually dynamic change and therefore risk management can be a single role but must constantly and continuously respond to the changing market conditions. Since the law of company offer no binding information on a draft risk management, it is appropriate to focus in this context, the commercial orientation of the company-defined corporate strategy. The company's strategy also defines what the goals (values), a company seeks in relation to current and potential customers.

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These objectives are transformed into proposed projects and also subsequently reimplemented in manufacturing companies. Usually when they are providing to the following types of risk:

- **Risks feasibility of the design processes** are directly influenced by management of the project as opposed to technological risk (eg. during re-production of the product).
- **Risk of the project.** The role of project management processes is a single project within the project structure to organize in such a time, and following a logical order to meet the planned objectives of the project. The processes of the project shall be designed to enable identify the simplest possible disagreements sources of risks (threats and opportunities). Usually in projects with high innovation process and a high degree of complexity of the process of the project is very difficult to identify possible future non-compliance and assess the reliability of the process of projects. To these, first stated problems before (changes) let ensure effective it is necessary to apply the proper selection of input data, indicators for evaluation.
- **Risks associated with providing manufacturing processes, manufacturing program.** During that occur mainly in the production process risks (threats, opportunities) occurring in non-conforming product supplied parameters (resulting parameters of the planned production process) and delivery of products to customers. It is necessary to take on the account of the emergency state of technology and the environment (suppliers of input materials, goods cooperation, outsourcing partners, customers).

2 SELECTIO OF INDICATORS FOR RISK ASSESSMENT OF BUSINESS PROCESSES AND APLICATION OF DYNAMIC MODELING

For risk assessment and design of technological processes, it is recommended to apply a set of risk indicators as one of their evaluation of effective procedures throughout the project life cycle and technological process [6]. This stems from the fact that a set of indicators allow transparent risk assessment, monitoring and ongoing evaluation of critical values and detect significant deviations (positive and negative) from the planned values for the parameters and builds on them to design efficient and effective proposals for action.

In the design phase of the project as recommended through dynamic modeling to evaluate project proposals, including variants of selected set of indicators of potential risks. To verify the feasibility of the project management of the company determines the project team, whose task is to develop a rule or an interim feasibility study of the project proposal. Pre-feasibility study is for simple projects, a sufficient basis for deciding whether to continue the investment phase. In the complex and special projects is essential for deciding to carry out preliminary feasibility studies or just feasibility studies.

When designing various kinds of projects eg. investment, production, logistics, there is a lot of problems and risks. A large number of variants and the complexity of evaluation do not use the traditional tools the designer or manager of the space to choose the optimal alternative solutions, including evaluation of potential project risks. Majority of projects are implemented on the basis of narrow views and criteria. If the project is very costly to carry out the adjustment so that they can not be implemented. In the uncertainty of future requirements, the time pressure, bounded by the unavailability of funds and modern design tools can be difficult to talk about the overall project process optimization and risk management processes of the project. It often happens that the project has shortcomings, which then allows full use of all its possibilities. During the operation are solved problems of additional design modifications, what usually means a further costs increase.

Employing dynamic modeling in the design of management and to create some certainty that the planned tasks can be in a period of time actually implemented, the animation course of the project can serve to explain and help predict the behavior more thoroughly verify the results of the process of projects. At the same time thus revealing potential risks in the processes of the project before its implementation. Dynamic process modeling project are actually "business test" on the computer where

verify various and numerous variants of the solutions proposed projects, including a set of values of risk indicators project processes.

To evaluate design options and a set of indicators of the project risk in the project is appropriate to apply such simulation as Project Management Forecast (PMF), which provides a relatively easy way of a comprehensive evaluation process of projects, including variants of selected indicators of the proposal. The simulation also provides a means of risk analysis process of the project, with different variants of the processes in the project value in terms of [5]:

- variability of process parameters,
- cycles in the process of projects,
- branching processes,
- dynamic processes,
- process, time and financial implications,
- operational and strategic change processes and
- independent reps.

The result of a risk analysis process of projects is a common risk analysis report, which contains comprehensive data on all indicators proposed project, a form of statistical monitoring data, minimum, maximum, average and current value. The individual process and project of selected indicator available histograms and graphs showing the resulting set of values in the studied intervals. Part of the simulation output is also monitoring of the box, that serves to monitor the values of selected process parameters over time. Following view of all process parameters can be shown that were monitored, or within its average. Such a comprehensive risk analysis process of the project can often uncover hidden risks and whose removal is time consuming and is often high costs. Importantly, so as to accommodate the operational and strategic change processes that fundamentally affect the emergence of risks and the risk of the value of the damage, but also that the current aggregate value of the potential risks of the project, which mapped authoritative "potentially real" situation and evaluating the risk of the project.

Along with checking the values of risk indicators project processes are optimized and variants of the project. Optimization is a process whose aim is to find those values of process parameters of the project or the overall design of the project to a sufficiently high probability achieve optimized resulting observed value according to specified criteria. Such experiments are impossible in practice. The usual procedure of the project, without the simulation variants that are below the results, respectively. evidence to quantify the probability of risk of the project. It is another dimension to a project that allows engineers in particular to identify risk of the project and subsequently analyzed, resulting in many cases, the proposal can be completely new variants of the project or at least you better awareness of possible values for the risk of the project and the resulting consequences.

PMF automatically provides outputs as standards [5]:

- value of cumulative costs | COST \$,
- the cumulative value of cash - flow,
- discounted value of the cumulative discounted costs | DOST \$,
- the cumulative value of sales | GAIN \$,
- the discounted value of cumulative discounted revenues |DAIN\$,
- discounted value of the cumulative discounted cash - flow it means to the value of | \$ NPV (net present value).

In addition, it is possible to build a model to follow any necessary variable or set of risk indicators project processes. The program includes a module system PMF empirical analysis of the sensitivity of the project variables, which allows the user to follow the graphic dependence of one variable on another. Meaning of the word "empirical" in this context is that the PMF does within that module dependence of one variable to another variable is not evaluated, but only displays the graphic and the assessment remains the user. This module allows one to graphically display the main

variables and six dependent variables [5]. Six variants of these permutations has a pretty good plastic provides an overview of everything that could happen. They make it possible to compare the magnitude of the change indicators such as assessment results. risk factors and also find the so-called. turning value, respectively. resistance to the risk. This value represents an abrupt change in the maximum possible risk factor for maintaining the effectiveness of the project

PMF allows to verify a set of indicators for risk assessment of several parallel projects (project portfolio) whether the design phase of the project, but also in various stages of project life cycle.

Choosing a set of indicators for evaluating the design and technological risks depends on how the evaluation is chosen. In terms of efficient use of assets, which is the main role of company management, are important indicators of activity. For banks and creditors are important indicators of liquidity. Long-term creditors are mainly concerned about debt ratios and profitability indicators of the shareholders. All the previously mentioned groups of indicators are "accounting". If it wants to cover the full range of requirements, then you need to be addressed before all these groups of indicators.

As a rule when evaluating proposals and re-production (technology) is most often applied in some indicators of activity, profitability, liquidity, and also indicators of performance, cost and value in terms of strategic and operational objectives of the company. This is because "accounting" group variables "can not" adequately taken into account risk of the project and re-production.

3 ENTERPRISE RISK MANAGEMENT PROCESSES AND APPLICATION OF DYNAMIC MODELING

Risk magement of the enterprise is focused mainly on the competitive value creation for the enterprise goods supplied and the customer, which is evaluated by performance, cost and value indicators, return on capital, efficiency of resource consumption, including those of employees and social activities. The main objectives of management is to ensure sustainable development and building company. Project management and technology risk management process applied to enterprise companies account besides the generally characterized by sets of indicators also ecological and social objectives and the resulting set of indicators. It is recommended that a risk management process to extend the analysis of situations, they can design and develop process technology risks in relation to possible changes due to the increasing complexity of products increasing, turbulence and unpredictable business environment, which often manifests in the form of strategic surprises.

By applying of dynamic modeling, "can" just such changes quite plausible values, obtained very valuable and worthwhile comprehensive information on aggregate risks at the project level, or re-production in the form of general protocols, histograms, graphs, windows and monitoring of the empirical analysis depending on the monitored variables that have very high explanatory power and form a set of scenarios about the potential risks. Such scenarios of potential risks is essential for designing effective and efficient measures to eliminate risks. Because the effectiveness of risk managers for solutions to situations of risk depends on how quickly and flexibly to the individual can respond to real situations. Therefore, risk managers must have at least an overview of all major and operational risks, for example. obtained through dynamic modeling as well as procedures to deal with (the draft measures) for each individual and aggregate risk and the draft strategy, how to handle these situations and minimize the consequences of risk incurred.

Appropriate tool for comprehensive analysis of potential risk situations in the enterprise, dynamic modeling, which allows in advance of project and operational risk of the documents with the necessary follow-up information for a manager just before the start of the project and re-production, but also within their solutions, thereby updating the conditions for an risk situations and updated time horizon and scope of the scenarios of potential risk of the enterprise. Enterprise risk management processes are set individually for each firm. Its integrated deployment in the enterprise management risk assessment enables a transparent manner to address the risk arising from the situation and it also provides necessary monitoring of deviations between planned and actual outcomes and indicators of risk of the files across all dimensions of sustainability risk of the enterprise.

4 CONCLUSION

Aim of this contribution is to present a new approach to assessment and management processes of a business that not only can improve the estimates and a way of monitoring and evaluation of risks (known and also hidden). Importantly, it allows to enrich the risk management system for scenario analysis of aggregate risk situations not only current conditions but also in future conditions, with a time horizon of several years in advance. Risk manager must have a range of risk indicators of processes that it provide comprehensive assessment of possible situations, which must have designed policies and strategies to deal with them, to eliminate. It is important to apply them in real time as the development risk is a dynamic process. Risk managers in companies are responsible for ensuring that the company manages the risks incurred and has them under constant surveillance. Risk Manager must therefore be constantly monitored, and mitigated to hedge against it. Application of dynamic modeling in selected projects in the field confirmed its validity and effectiveness of the risk assessment process of projects.

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