Risk analysis is an inevitable part of any project. It is required for identification of possible risks, their quantification, elaboration of risk response plans and risk response control sub processes. Absence of such analysis may lead to the situation when project actually could not be financed and made investment becomes ineffective. The process of risk analysis is rather complicated as several aspects shall be analyzed simultaneously with regard to their interaction.

Generally, there are two methods of risk analysis: qualitative and quantitative. It is obvious that the level and type of risk analysis shall be relevant to the specific project. For this purpose it is crucial for project managers to know the main peculiarities of qualitative and quantitative methods.

Qualitative method

Qualitative risk analysis is an assessment of the influence of the identified risk factors. The assessment is made by means of subjective indexes: low – medium – high or vital – critical – important. This method is often used for definition of the priority of risks, grouping of risks by categories, listing the risks requiring response in a short term, creation of watch list of low priority risks, and outlining of trends in risk development (Project Management Guide, 2009). Qualitative method sets priorities for further risk response plan and/or prepares ground for possible quantitative risk analysis. Qualitative method uses simple calculations. It is not required to determine the value of assets and the percentage of probability of any risk realization.

Quantitative method

The main peculiarity of quantitative method is numerical results that reflect the probability of each risk factor and its influence on the project. It deals primary with probability and statistics. Despite quantitative analysis often follows after qualitative analysis both of them may be conducted simultaneously (Mazareanu, 2007).

Quantitative method is considered to be friendlier for the management as it is easier to compare different risk factors on the base of their percentage probability than low – medium – high criteria common for qualitative method. Quantitative method may be performed in different ways. Single point estimation leads to the assignment of values for different scenarios (for instance best, worst and most likely scenario). Monte Carlo simulation additionally provides probability distribution of possible values.

Hence, qualitative and quantitative methods may not be considered as opposing but supplementing each other. Briefly, qualitative analysis allows identifying risk factors, their understanding and subjective measurement while quantitative analysis allows more precise assessment of risks and, consequently, their comparison and elaboration of specific solutions.

Risk analysis method applicable to the case

It seems to me that quantitative analysis may be applied to the project of upgrading legacy billing system. Knowing the available hours for project manager, staff, their hourly payment rates, cost of additional software and training material it is possible to assess the best and the worst scenarios with the minimum and maximum cost of the upgrade. Review of previous similar projects may give information about the probability of possible negative outcomes and their amount in the form of percentage of best scenario's cost. Consequently, such index may be used for calculation of the cost

of the most liked scenario of the current project. In case of availability of rich information concerning previous similar projects probability distribution of project's costs may be also created.