Measuring black-swans of IT projects: A socio fuzzy consensus approach for benefit management

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Background

Benefits are the strategic project value that flows from an organizational asset that is either cost-oriented or good-will. Benefit process consists of four phases namely benefit identification, realization planning, monitoring and measuring and benefit realization which occurs sequentially [5]. This accounts to processual benefit management and evaluation. The scope of the study is mega IT projects facilitating operational automation. Benefits of organizational projects are either targets or outcomes. Postmodern automation focus on long term outcomes and short-term targets. However, the leap in scope from outcomes to targets is challenging because the measuring techniques are not accurate nor it is systematical or unified to tech projects. Ninety percent of projects benefits are short term but non-quantifiable like customer value, investor relationship, employee satisfaction etc [1]. These intangible targets cost about seventy-eight percent project failure or mal-functioning and dying projects [4]. Benefits are fuzzy in nature and hence vague and ambiguous with difficulty to identify and measure. The project losses that are unmeasured lead to mismanagement of the project lifecycle and post governance. The study objectives were motivated by the benefit realization policy that is lacking in most organizations. Study presented a novel fuzzy framework to measure the extent to which project targets are realizable. Also, the framework incorporated fuzzy approach to analyze the stratification of benefit from target(T), through incremental enlargement(I) to target reach (TR).

Methods

The study administered a survey among nineteen IT managers and four interviews to collect and analyze through data simulation and socio fuzzy consensus. The benefit realization (BR) framework was devised using five intangible benefit factors known as project component variables (PC var). These were customer(C), cost savings(CS), stakeholder value(S), Operation Automation (OA) and HR cost(HC). Novel fuzzy inference approach was used with fuzzification, inference (FIS) and defuzzification [3]. The benefits were pairwise input to FIS that generated five variances of BR. The managers' (ITM) views were obtained to generate nine fuzzy rules for BR simulations. Socio fuzzy approached adopted opinions from four managers pertaining to the agreement and level to which benefits are realized through opinion sourcing method. Approximate reasoning and rational logic utilized in this method [2].

MATLAB and NVIVO were used for analysis. The benefit was dissected to elucidate the T. Hence, targets are intangibles PC variables which are subject to progressive target achievement levels or strata in the different project phases from initiation, growth and end. Finally, the benefit realization extents and levels were ascertained. The unit of analysis was the ITM and embedded unit of analysis was the individual project subject to BR analysis. The data was validated through a site triangulation. The trustworthiness was ensured by the cross-survey between IT and HR, finance department managers. Since automation is cross-functional IT can be correlated with the strategic fields where managers are witnesses for BR.

Results and Conclusions

(C), (S), (OA),(HC) and (CS) are intangible auxillary long-term oriented project outcomes. The classification of intangibility is based on organizational performance, measurability and quantification. The FIS results show that BR has five linguistic hedges which has quantification computational numbers .FIS generated five variances of BR namely- always, on most occasions, sometimes, seldom and never. The socio simulated sentiments revealed that benefits are achieved fully, partially or not at all as conceded by most ITM. The study established that there are intangible uncalculable benefits that are fuzzy and have a positive relationship with total BR.

Rule 1: If OA is "low" and CS is "high" then; BR is "sometimes" Rule 2: If OA is "low" and CS is "medium" then; BR is "seldom" Rule 3: If OA is "low" and CS is low then; BR is "never". Rule 4: If OA is "medium" and CS is "high" then; BR is "on most occasions". Rule 5: If OA is "medium" and CS is "medium" then; BR is "sometimes" Rule 6: If OA is "medium" and CS is "low" then; BR is "seldom" Rule 7: If OA is "high" and CS is "high" then; BR is "always". Rule 8: If OA is "high" and CS is "medium" then; BR is "on most occasions". Rule 9: If OA is "high" and CS is "low" then; BR is "sometimes".

The study implies a systematic BR framework that has utility and functional value. Extending policy implications, project owners and developers can use the benefit framework to classify and measure BR. Most of the project benefits are rather intangible. Hence, it is challenging to monitor BR unless a systematic science can be adopted. Hence BR framework is calculating and quantifying the nonprofit good of projects. The project managers can find the accountability towards investors and future stakeholders as the framework will help quantification of non profit targets and outcomes. The strategic value measured will forecast the project decisions of managers as well. The nonprofit short termed benefits of Automation has futuristic utilitarianism effect on society and stakeholders from rhetoric perspective. Future studies to explore the fuzzy benefit realization with the application of socio fuzzy consensus to ascertain clarity of vague non-calculable short term benefits. The systematic approach will increase the return on investment gained by non-monetary factors.

Keywords:

Benefits, FIS, Intangibles, IT, Socio-fuzzy consensus

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