Tianjin Daxue Xuebao (Ziran Kexue yu Gongcheng Jishu Ban)/
Journal of Tianjin University Science and Technology
ISSN (Online):0493-2137
E-Publication: Online Open Access
Vol: 56 Issue: 04: 2023
DOI10.17605/OSF.IO/AYDZP

AN EVALUATION FRAMEWORKFOR PROJECT RISK MANAGEMENT SYSTEMS

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Abstract

Project Risk Management Systems aim at mitigating the various risks that may adversely affect the project prospects. Effectiveness of any Risk Management System in fulfilling its objectives is to be determined in order to make improvements in that system. At present there is no such evaluation system at vogue, nor was much effort made so far in the knowledge area to develop an evaluation framework suitable for performance assessment of project risk management systems. This paper proposes a new framework for evaluating the performance of Project Risk management systems by adopting an evaluation system from the analogous area of protected areas management system, and tailoring it to suit the texture and fabric of project risk management systems. Also the approach to conduct the evaluation and the governing standards to which the evaluation should comply were developed with the knowledge available in literature and were integrated into the said framework. The framework so developed is capable of being used widely with ease, helps in objective evaluation of the performance, is in compliance to all relevant standards and suggests the corrective and preventive actions to continually improve the Project risk management systems or any other risk management system equally.

Keywords: Risk, Project Risk Management, Performance evaluation, Management Cycle, PDCA, Capacity to Manage, Risk management system, Sustainable evaluation , Evaluation Framework

INTRODUCTION

Project Risk management is the process of mitigating the various risks that can adversely affect the fulfilment of project objectives. Risks originate from uncertainty. (Mehwish Majeed, n.d.) Observes that, “Although, the extent of these risks may vary but risks in general affect the productivity of your project. Risk management is the only way to remain safe from adverse effects of project risks

All Projects are executed within an ever changing turmoil caused by external and internal factors. Saving the projects from the harmful effects of financial, social, cultural, environmental, regulatory, and similar forces, and at the same time fulfilling all objectives of the project in time, within budget, and with the envisaged quality are the prime concerns for any project management team. They dread those uncertain events or conditions that if occurred, impact the project objectives adversely. Such uncertain events and conditions are collectively called as Risks. Rather Risks are connected with uncertainty as indicated by (David Hillson, 2003) .

(Mehwish Majeed, n.d.**)** Observes that, “Although, the extent of these risks may vary but risks in general affect the productivity of any project. Risk management is the only way to remain safe from adverse effects of project risks. (Tucci, n.d.) Defines Risk management as the process of identifying, assessing and controlling threats to an organization's capital

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and earnings. It is basically an approach in which the risks that can affect a project are explored, identified, analysed and then appropriately dealt with. Risk management includes all the tools and processes employed by an organization to manage and control risks. Appropriate dealing strategies are adopted for each risk, depending on the context, nature and criticality of the risk, and the cost benefit considerations. Avoidance, Reduction, Acceptance, and Transfer are the commonly practised strategies.

Several bodies have laid down the principles and guidelines for the process of risk management, which are more or less same, except for some small variations involved in the cycle. To run any process that aims at achieving management objectives, associated Policies, and procedures are required. The set of Policies, processes and procedures used by an organisation to ensure that it can fulfil the tasks required to achieve its objectives is a 'management system'. So an organisation which desires to build capability for appropriate management of risks should have an effective Risk management system. Currently the practice of risk management is reactive, semi-permanent, casual and unstructured within the construction industry, resulting in a lack of capacity to manage risks appropriately. The reason is ineffectiveness of risk management systems. (Choudhry & Iqbal, 2013) have observed that "the main barriers that were found for the implementation of an effective risk management system are the lack of formality of the system and the lack of integrative mechanisms of risk management among the parties involved in the project". In addition, risk management is not applied with the same rigor as other topics of the project management process (Miao Fana et al., 2008) .

Risk management systems may differ from organisation to organisation. But all of them strive to assess, control, finance and monitor risk from all corners for the purpose of increasing the organizations short-term and long-term value to its stakeholders. So all risk management systems have a more or less common objectives. No risk management system can be perfect. The system needs improvement if the desired objectives are not achieved. This calls for determining the effectiveness of the Risk Management System against the minimisation of all adverse effects on the Project caused by various Risks.

(Sanders, 1994) in "the Program Evaluation standards" defines 'evaluation' as the systematic investigation of the worth or merit of an object (here Risk management system) and 'assessment 'as the act of determining the standing of an object on some variable of interest (here appropriate management of Risks). So the Risk management system should be continuously evaluated and appropriate measures to improve effectiveness should be adopted on a continuous basis. Unfortunately, in the present day scenario, such an evaluation of Risk Management systems is not in vogue. This study aimed at developing a framework for evaluating the Risk management systems deployed at Project Management domains that could help in improving the system continuously.

METHODOLOGY

A thorough literature survey was made to gather the developments occurred in the field of performance evaluation of Risk Management Systems in Project Management domain , and related domains like disaster management, Enterprise management etc.

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A research gap was evident as no significant works were found in the literature related to evaluation of Risk management systems, whereas in certain other management system areas there was a steady and continuous addition of knowledge. So an attempt was made to fill the research gap by inquiring about the evaluation systems available in literature for other facets of management that share systemic similarity with risk management, and to laterally transpose such an evaluation philosophy into the sphere of Risk management . This necessitated analysis of the available knowledge, identification of the similarities between risk management system and other management systems on which evaluation methods are developed, synthesis of the gathered knowledge content with appropriate tailoring to integrate it with risk management framework. Thus a new framework was developed that could be easily used to design evaluation systems for not only assessing the performance of any Project Risk management system, but can effect continuous improvement also.

LITERATURE SURVEY

Previous studies in project risk management were limited to designing and implementing risk management systems. Some research has been conducted about evaluating the performance of enterprise risk management systems and disaster risk management systems. But no significant progress was found in developing evaluation methods to assess the performance of project risk management systems. The earliest attempts at creating methods for evaluating performance of Risk management are found in the domain of disaster risks. As mentioned in the paper by (Amir-Hossein Khameneha et al., 2016) "Since 1990 various models were proposed by Bates and Peacock (1992), Cutter (1994), Tucker et al. (1994), Davidson (1997), Puente (1999), Cardona et al. (2003a, b), UNDP (2004), World Bank (2004) and Carreno et al. (2005, 2006)" all of which followed same basic approach and suggested various indicators and calculations to evaluate the vulnerability of disaster risk management from different perspectives. But none of them was able to assess the effectiveness of the risk management system. Subsequently in 2007, (Carreno et al., 2007) expanded this approach by including the effectiveness and performance in the evaluation by the introduction of RMI, the risk management index as a metric for the risk management performance. The RMI is defined as the average of the four composite indicators for, (1) Effectiveness of Risks Identification, (2) Effectiveness of Risks Reduction, (3) Effectiveness of Disaster Management, and (4) Effectiveness of Financial protection. Subsequently a few models got developed to measure performance of Risk management systems, all of which were based on a same framework that categorized the priorities of the risk management and defined performance indicators for them. Calculation of the indices were done using balanced score card, AHP or SAW. Further progress of this school got confined in the narrow domain of disaster management, yet failed to arrive at a system which points out the inherent weak points objectively and which provides corrective and preventive actions. Since 2000 another school had progressed towards development of evaluation systems based on maturity models. These models use a reference framework that is defined by best practices in terms of maturity , proposed by (A.Hillson, 1997) as the

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Hillson model , to contrast the risk management capabilities of respective project organisations.

The RMMM. proposed by the International Council on Systems Engineering , UK,, The five level Risk Management Maturity Model proposed by (Yeo & Ren, 2009) , the Capability Maturity Model Integration developed for computer industry (Chrissis et al., 2011) , and the RM3 proposed by (Zou et al., 2010) were all variants and improvements over the Hillson model. But after the observation in 2013 by (Zhao et al., 2013) that the application of maturity models for risk management still has deficiencies in the construction industry, (Serpella et al., 2015) had come up with yet another maturity model to support companies to be in constant assessment of their risk management maturity level and to implement those activities that would help them achieve the level of maturity they aspire to reach. The pilot studies based on this could only arrive at a vague result that the maturity was low , but failed to arrive at what is to be improved nor how and by how much.

Any Project risk management system comprises of collection of data and information, envisioning, planning, deciding, organising, directing, scheduling, implementing, allocation of resources, monitoring, communicating, reporting and learning. Each and every component is to be adequately effective to make the system as a whole effective. As the contexts and references keep on changing in project environments appropriateness of all actions also keep changing. To sustain or improve effectiveness of the risk management system in project environments, a framework for continuous evaluation and course correction is a necessity. Literature does not provide one such.

So a research gap was established, which was to be filled up by offering a framework for evaluating the performance of Risk management system in project organisations. Next search was to inquire about the evaluation systems available in other management systems that are similar to risk management systems. The goal was to assimilate the knowledge about such evaluation systems and synthesise them into the sphere of Risk management so as to develop a performance evaluation system appropriate for Project Risk management systems.

The Management system that was developed to protect the protected areas of USA, was one such area for which literature is abundant with works attempting development of performance evaluation systems. Protected areas comprise of national parks, wilderness areas, community conserved areas, nature reserves and so on that are vulnerable to a host of threats and their protection means continuous combat with risk elements. So any protected area management system can be construed as analogous to Risk management system ,if not similar. (Hockings & Phillips, 1999), while trying to find out an effective evaluation system for the Protected area management systems stated that the key question an evaluation system should pose is “whether the responsible authorities have the capacity to manage their protected areas effectively and whether this management is being delivered on the ground”. They had described the ‘Capacity to manage’ in 3 principal dimension (1) System of governance, (2) Level of resourcing and (3) Community support (Figure 1). For Risk management also , the capacity to manage

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is key to its effectiveness. In the above model , Governance refers to the Political, legislative and the Protected area design features , which have a direct bearing on the boundaries which define the perimeters of management actions. When transposed to a Risk management scenario, as mentioned by (HASSAN & YAZID, 2019) the top management support, culture, and as stated by (*Role of Senior Leadership in Quality Risk Management*, n.d.) leadership commitment are the basic envelopes within which the governance occur. Apart from this the adopted Risk management framework along with the Risk policy and the accepted Risk tolerance levels also play the modulating parts in Risk management actions. Level of resourcing in the Risk management context is easily understood . The community support when transposed to the Risk management area gets poured out as the presence of a dedicated Risk management group, general awareness and co-operation of all participants, the availability and level of utilisation of communication channels, stake holder engagement etc. Capacity to manage gets influenced by all these 3 components , and these are not mutually complementary. As each activity related to Risk management has to derive its strength to deliver from all these 3 components, evaluation has to be done through each of the above 3 viewpoints.

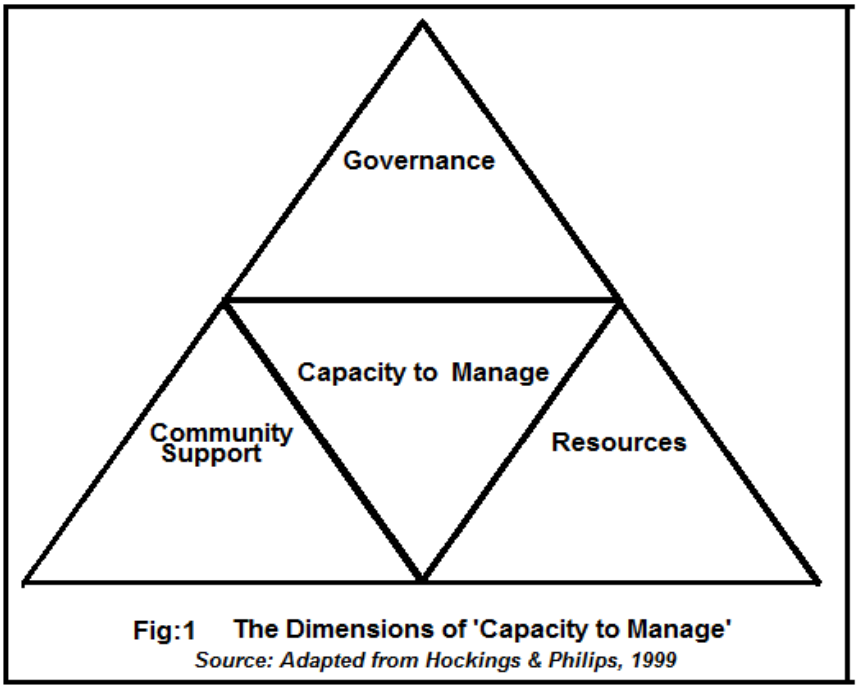

Fig:1 The Dimensions of 'Capacity to Manage'
Source: Adapted from Hockings & Philips, 1999

The 2000 Hockings Model, though was developed specifically for protected area management area, considered that any management system consists of several linked, iterative phases, viz., Planning, Resource allocation, Implementation, Monitoring ,Evaluation and Feedback Management . This is in line with (Balague & Saarti, 2011) who had stated that the PDCA Cycle (Deming Cycle) of ' Plan, Do , Check , & Act ' is at the heart of the ISO way to manage any quality system , as the iterative phases listed by Hockins also can be grouped under PDCA as Planning & Resource Allocation (Plan) , Implementation (Do), Monitoring & Evaluation (Check) , and feedback (Act) . An

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examination of all prevailing Risk management Models revealed that all of them were more or less knit around these cyclical phases . Another important suggestion by the said model was that " the Evaluation should look at all aspects of the management cycle including the context within which management occurs". The influence of contextual issues was given special importance in this model due to the reason that management is usually influenced by contextual issues; the significance and uniqueness of the context, the threats and opportunities faced by the context etc. This is corroborated by the findings of (Chenhall, 2003) also that 'measurement and consideration of contextual variables while decision making can enable managers to take more effective decisions that enhance performance outcomes'. Later (Brocke et al., 2015) had defined context as those situational factors related to the dimensions of goals, progress, organisation, and environment and had argued that the management needs to be contextual in order for achieving efficiency and effectiveness. The much practised ISO 9001 standard suggests the guidelines to understand the context of any organisation by analysing the internal and external contexts through SWOT and PESTEL analyses respectively. The Hockings model reckoned that "Management is usually influenced by contextual issues; in the case of a protected area by its significance and uniqueness, and the threats and opportunities that it faces. Evaluation must therefore look at all aspects of the management cycle, including the context within which management takes place. The results of evaluation can be fed back into different parts of the management cycle." So one takeaway obtained from the preceding discussion was that the Evaluation should include looking at all aspects of the management cycle as well as the analysis of the context. The Hockings model is as in Fig:1

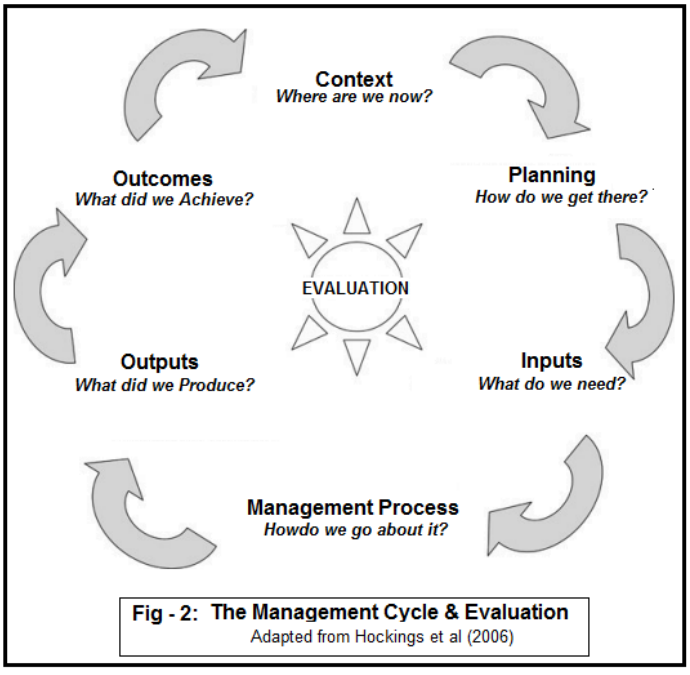

Fig 2: (Hockings et al., 2006)

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For practical evaluation of the protected area management, the Hockings model required that “a series of questions be asked relating to: Design issues – i.e. context and planning; Appropriateness of management systems and processes – i.e. inputs and process; Delivery of protected area objectives – i.e. outputs and outcomes.”

By ‘Design issues’ , Hockings prevailed upon the Context which was an understanding of the current realities of the site, that helped putting management decisions into context. For the managers who need to know the management focus, identify the management priorities within the ambit of the project, or to decide on the time and resources to be allocated this task is of utmost importance. By’ Planning’, the associated questions , “where should we go “ and “how to go” , focus on the intended outcomes. So by ‘Planning’, a vision was to be developed for achievement of those objectives, for which all the management efforts should be directed to. Assessment should consider the appropriateness of policies , design of individual plans and programs etc in relation to the integrity and status of resources. Indicators of evaluation had to be selected depending upon the management objectives and plans.

Under ‘Appropriateness of management systems and processes’ , both Inputs and the Process itself were considered. ‘Inputs’ denoted the adequacy of resources in relation to the management objectives, based primarily on quantity of staff, funds, equipment and facilities , along with consideration of the importance of partners. ‘Process’ denoted the adequacy of management processes and systems in relation to the management objectives . A variety of indicators could be generated for these metrics

Under ‘Delivery of Objectives’ both Outputs and Outcomes had figured. ‘Outputs’ consider what has been delivered as a result of the management, and examined the extent to which targets, work programmes or plans had been implemented. The focus of output monitoring was not so much on whether those actions had achieved their desired objectives (this is the province of outcome evaluation) but on whether the activities had been carried out as scheduled. ‘Outcomes’ , on the other hand assessed how far the management was successful with respect to the goals and objectives contained in the management plan. Accordingly indicators had to be designed.

Summing up, conceptually this model had a potential for universal application and could be adapted to a wide range of applications. This framework was devoid of the inherent flaws and limitations of those ‘Performance Indicators based performance measurement systems’, as identified by (PERRIN, 1988) like (ii) Goal displacement towards making mere numbers, (iii) Use of meaningless measures, (iv) Shifting of cost to future instead of saving, (v) Misleading aggregate indicators that cover differences in subgroups, and (vi) Uselessness for decision making or resource allocation. Moreover the Hockings model emerged as a normal part of management process, allowing current feedbacks to improve the management for future, allowing managers to learn from their own and others success and failures, and keeping track of subsequent changes in objectives and processes. Further it helped in improving planning itself making use of lessons learnt. Lastly it was seen as helpful to managers to develop requests for additional resources. The most striking feature of this framework was its ability to answer whether the risk

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management system evaluated had the capacity to manage all risks and whether this management was being delivered on the target areas.

In view of the above attributes, this framework appeared generic in nature which could be tailored to evaluate the performance efficacy of any management system. Efforts were made to tailor this framework to suit the evaluation requirements of Risk management systems , as detailed in the subsequent sections.

Management Cycle for Risk Management

ISO 31000 is the international standard that provides principles and generic guidelines to assist organizations in establishing, implementing, operating, maintaining and continually improving their risk management framework. This standard is generic in nature applicable to any organisation, but does not intend to promote uniformity of Risk management across organisations. This standard calls upon the Management of the organizations to demonstrate a strong and sustained commitment to risk management by defining risk management policy, Risk management objectives, Risk appetite and Risk thresholds of the organisation , ensuring legal and regulatory compliance, ensuring necessary resources are allocated to risk management, communicating the benefits of risk management to all stakeholders .

Adoption of a Risk management Framework is the next step towards implementing a Risk Management system. ISO 31000 states that the success of the risk management depends on the effectiveness of the management framework that should assist in the application of the Risk management processes , ensure that all the risk information derived from the processes should be adequately reported, and ensure that this information becomes the basis for decision making at all levels of the organisation. Understanding the context of the organisation is the key step towards the generation of a Framework. Usually the objectives are finalised against the back ground of the context where in the project or the organisation is currently situated. The objectives should match with the various influencing factors prevalent in the external and internal environments, culture of the organisation, stake holder expectations, Governance characteristics, etc . While one cannot expect an exclusive set of information handy for making decisions on objectives, the neglect of the various available information will have a direct bearing on the accuracy of objectives formulation and thereby on the effectiveness of overall risk management.

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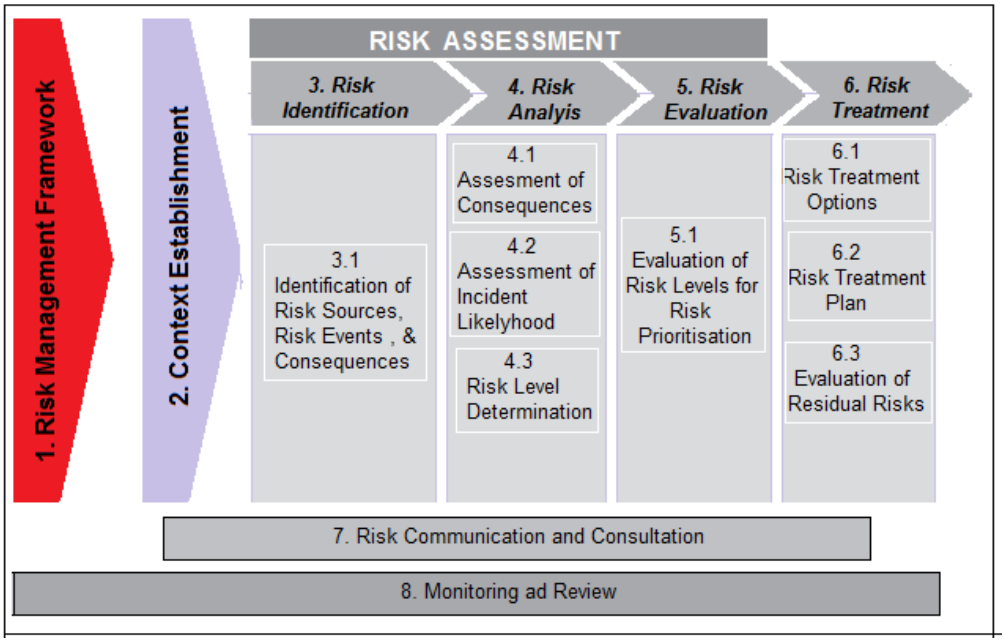

Fig 3: Adapted from ISO 31000

The next sequence in ISO 3100 is Risk assessment. It is the overall process of risk Identification, Analysis and Evaluation. By Risk identification, risk identification tools and techniques are used to identify risk sources, areas of impacts, events and causes, and their potential consequences. Risk analysis involves the development of understanding of the risk, consideration of the causes and risk sources, and their positive and negative consequences, assessing the likelihood of their occurrence thereby deciding on which all risks need to be treated. Risk evaluation assists in decision making about which risks need treatment and prioritise Risks for treatment implementation. Risk treatment options are based on the outcome of the risk assessment, the expected cost for implementing and benefiting from these options. Risk treatment plan, resource requirement plan , schedules, and responsibility fixation are the deliverables.

The next sequence, 'Risk treatment, Comprises of resource allocation and implementation. Resource allocation phase lists out the lists out the resources requirement , their deployment schedule etc based on the action plans decided in the earlier phase. Resources include manpower , expertise, infrastructure, information, data, materials, special services, etc all of which having associated costs, and additionally cost of financing such resources also add up. Net loss accruable in spite of spending for the implementation of the action plans is also considered on a conservative basis , along the cost, time and quality fronts. Such net loss is limited to a certain fraction of the overall loss which would other wise befall in the absence of risk management. This fraction is one of the key performance indicators of the Risk management system. Procurement and distribution of the resources should be in line with the requirement in terms of quality , quantity , destination and schedule envisaged in the plan. Any deviation can render the system less effective.

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Implementation phase is where designated groups of people put the plans into proper actions using the resources. Plans are to be broken down sequentially into processes procedures, activities and specific tasks that involve human actions and resource consumption. Aggregates of all final tasks undertaken should comply in spirit to the plans, else end up in ineffectiveness. Apart from the documented procedures and plans, the governance , culture, awareness and sincere cooperation of people also play a vital role in the success of this phase and thereby the overall effectiveness of the system.

Monitoring is the phase where “the results of implemented actions are observed repeatedly according to pre arranged schedules, in space and time using comparable data collection methods” (Meijers, 1986). Such results are called as outputs. Realised benefits/reliefs from implemented risk management actions, cost incurred for such actions, Minimisation of peripheral damages , overall savings in cost , time and quality, as well as the total risks that did occur, risks that evaded dealing actions, un envisaged risks that appeared etc are the higher level outputs from this phase. Results are subjected to evaluation later.

Evaluation is the phase where the outcomes of the management systems are examined and verified as whether they meet the objectives of the system, and thereby assess the effectiveness of the system in place in meeting the objectives. Instances of ineffectiveness are studied in depth to find out the deficiencies, locate the points of ineffectiveness, identify all the causal factors of each deficiency by examining from the Governance, Resource adequacy, and Human involvement angles to arrive at corrective and preventive measures.

Effectiveness can be summarised quantitatively by using aggregate indicators, considering high level outcomes like Ratios of (i) impacted risks vs identified risks , (ii) Mitigation benefit vs posed losses, (iii) cost and schedule escalations vs base lines(iv) Actions implemented vs planned etc help to portray a generalised picture . But the detailed reports and corrective suggestions targeting specific points in the management cycle helps a great deal in improvement of the system.

Feed back is a multidirectional action phase, where relevant information are fed back to specified targets so as to effect course corrections. Feed backs can even suggest cautions and care to be taken while summarising and reading PESTEL , SWOT analyses etc based on the shortcomings stemmed from such points as evaluated. Usually higher level monitoring is done to ensure the feedbacks are honoured by incorporating changes. Feed backs are documented in the lessons learnt register for the benefit of future too.

Comparison of the Risk management Cycle and the Generic Management Cycle

A comparison of the management cycle for Risk management with that of the generic management revealed that Steps (1) Framework generation and (2) context establishment together define “Where are we now?” and hence both together could be seen as analogous to the Context phase in the generic management cycle. Formulation of the Risk management objectives (the Vision-Where do we aspire to reach?) also takes

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place in these steps, whereas the 'Vision' phase is not clearly mentioned in the management cycle considered by Hockings..

Steps (3) Risk Identification, (4) Risk Analysis and (5) Risk Evaluation of the Risk management cycle, together accomplish the function of 'Planning' as referred in the management cycle by Hockings.

Step (6) Risk treatment , provides resources to the players (Phase 'Inputs' of the Management cycle) as well as accomplishes 'Implementation' which translates all of the scheduled plans into actions. This is done through various programs and tasks together considered as 'Management processes.'

Thereafter the Risk management cycle is not prescriptive in detail about the deliverables of the step 6 , except calling up on the management to device own methods to monitor implementation and to review the overall performance to their liking , using proper communication and resorting to proper consultations.

Synthesising of Management Cycles

The generic Risk Management Cycle as proposed by ISO and the management cycle considered by Hockings had to be merged by appropriate tailoring prior to the application of the Hockings model evaluation philosophy. For that the Steps (1) Framework generation and (2) context establishment of Risk management system were combined together as 'Context Assessment' , capable of taking feedbacks from the operating cycle also as parameters , apart from the conventional inputs, to influence changes in risk management framework itself . Next a Vision phase named as 'Objective Formulation' was added as a distinct step to the generic management model considered by Hockings.

The steps (3) Risk Identification, (4) Risk Analysis and (5) Risk Evaluation of the Risk management cycle were combined together as 'Planning' to represent the single phase of Planning envisaged by Hockings. Step (6) Risk treatment of the Risk management cycle being analogous with the phase 'Management Processes' of the model considered by Hockings was retained as such.

The two distinct deliverables of the step 'Management Processes' which were missing in the Risk management cycle were added as 'Output' and 'Outcome' serially as Outcomes get defined only after delivery of Outputs. The Outcomes act as feedback input to the step (1)thus completing the management cycle.

The tailoring of the Risk management cycle and subsequent merging with the generic management cycle on which Hockings had developed the evaluation system , facilitated the transplant of the Hockings evaluation model over risk management cycle . To ensure that such a transplanted evaluation model could be operated using in-house resources, would be user friendly and would be objective in assessments , knowledge on the standards and approaches to be adopted for evaluation was found necessary. This called for searching the published works once again.

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Evaluation

The Swiss SEVAL standard (Evaluation Standards, 2016) defines evaluation as "a systematic and transparent analysis and assessment of the design, implementation and/or effects of an evaluation object." In our context of evaluation of Risk Management systems, the term Evaluation boils down to an objective assessment of the effectiveness possessed by the Risk management system in mitigating the risks and thereby helps the organisation achieve its organisational objectives. The different Evaluation theories listed by (Alkin. & Christie., 2004) were thoroughly studied but all of them were built around one among the three central themes 'Knowledge building" in literature area, ' Valuing' based on data, or 'Use' with an orientation toward evaluation and decision making.

The sustainable evaluation framework (SEF) developed by (Powell et al., 2006) with the intent of creating an evaluation system that could be self-administered by the staff of an environmental education organization in perpetuity. This was acclaimed as capable to help develop sustainable evaluation systems that can be administered and managed internally, is utilisation focussed and can be tailored to the needs and resources of the users. So in the proposed framework, SEF is used to shape up evaluation . Said framework is in Fig:4

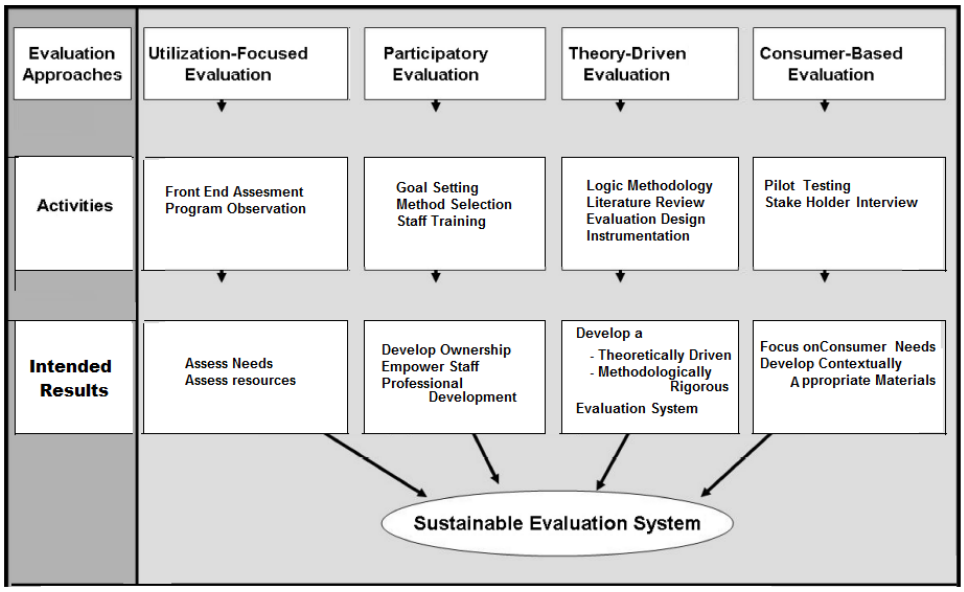

Fig 4: Sustainable Evaluation Framework by (Powell et al., 2006)

SEF comprises of 4 complementary evaluation approaches viz (1) Utilisation Focussed , to define the overall purpose of evaluation and resource requirement for implementing the evaluation system, (2) Participatory Evaluation where the goals and objectives for evaluation system are set, as well as measureable indicators for the Outputs and Outcomes of the management program are developed with the help of literature, and the team is trained to conduct evaluation (3) Theory Driven evaluation, in which data collection methods, and instruments are designed based on various theoretical and other inputs, and (4) Consumer based Evaluation in which pilot test of the instruments is

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conducted in order to guide instrument revisions. After passing through all these the stage is set for conduct of evaluation process , which shall be followed by data management, analysis results and reporting . Evaluation system framework proposed for Risk management effectiveness evaluation shall be developed using SEF framework.

Further , the process of evaluation is to be governed by a standard set of guidelines to have objectivity in result as well as to aid in comparisons globally. These guidelines address Issues of Quality and Ethics. UNDP (United Nations Development Program) had published norms for Evaluation which are universally accepted. According to the UNDP guidelines, the evaluation should be (1) Independent (2) Intentional, (3) Transparent (4) Ethical (5) Impartial , (6) high Quality (7) Timely and (8) Used. Seven out of the eight guidelines address the evaluation team .

The SEVAL evaluation standard (Evaluation Standards, 2016), which is also a globally accepted one had put forth the general principles governing evaluation like (1) Openness for results and impartiality (2) Transparency (3) Attention to stakeholders , (4) Alignment on use, (5) Suitable cost-benefit ratio (6) Ensuring the necessary skills , (7) Quality assurance, (8) Legal compliance, (9) Ensure Privacy and confidentiality rights , (10) Ethics, (11) Respect to all involved or affected, and (12) Honesty of all Stake holders. Eleven out of the twelve guidelines of SEVAL standards are applicable to the evaluation and most of them are having parallels in UNDP standards.

Framework for Performance Evaluation of Project Risk Management Systems

The framework as depicted in Fig :5 was developed in which the tailored Risk management system cycle , divided into three components viz Design, Appropriateness, and Delivery each of which could be evaluated along the three principal dimensions of the capacity to manage, viz (i) System of Governance, (ii) Peoples commitment and (iii) Resources availability level. Each aspect encapsulated in the Risk management system , being subjected to the modulation effect posed by the three dimensions, evaluation should measure the performance output of the aspect with respect to the strength of the modulator, assess improvement scope within the existing envelope , and at the same time identify the opportunity for improvement if any by means of altering the envelope.

In the Risk Management Cycle , Design component comprises of the steps ‘Context Assessment’, ‘Objective Formulation’, and ‘Management Planning’ . Here the focus of evaluation should be the aptness of various management decisions and findings including assessment of context, identification of priorities, point wise devotion of time and resources to deal with risks, fixing of focus etc., to the actual context . Instrumentation with appropriate indicators to identify misses and deviations and subsequent inquiry to look into the material and analytical reasons that paved the way for such flaws , should aim at elimination of repetitions of similar flaws .

Tianjin Daxue Xuebao (Ziran Kexue yu Gongcheng Jishu Ban)/
Journal of Tianjin University Science and Technology
ISSN (Online):0493-2137
E-Publication: Online Open Access
Vol: 56 Issue: 04: 2023
DOI10.17605/OSF.IO/AYDZP

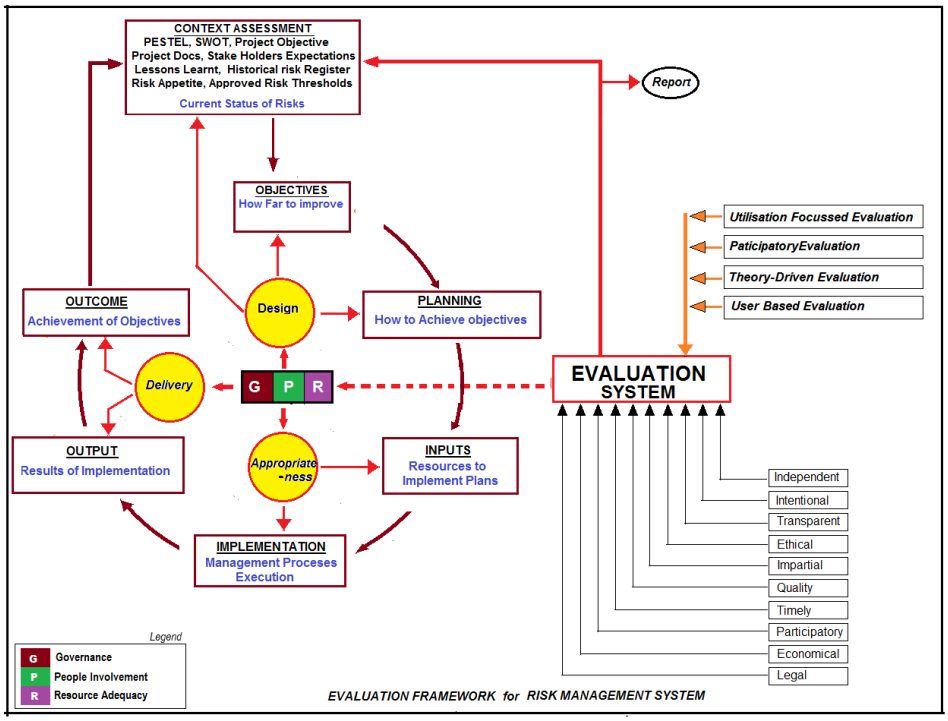

Fig 5: The New Evaluation Framework for Project Risk Management systems

The component named as 'Appropriateness' comprises of the 'Input' and 'Implementation' steps of Risk management cycle. Implementation of the envisaged management plans requires commitment of appropriate inputs as well as deployment of appropriate processes, procedures ,activities and tasks, that have several inter connections and dependency relations between them, and effecting appropriate communication and transactions among a network of people with different responsibilities and stakes. Evaluation should be done to assess whether the processes deployed were adequate in relation to the management objectives, the committed resources were adequate to the processes or not, the processes were executed as planned or not, and the plan itself was adequate or not. Root causes for all deviations are to be found out and corresponding corrective and preventive actions to be formulated.

The third component 'Delivery' denotes the 'Output' and 'Outcome' steps of Risk management cycle. 'Outputs' that are the results of various processes , should be compared with the envisaged and expected ones to find out the gaps. To identify gaps aggregate or simple indicators can be used depending upon the nature of each entity being evaluated . But reasons for the gaps are to be investigated through root cause analysis to identify the basic shortcomings that had caused them. What has been done by management , and the extent to which the plans and processes have been implemented should also be considered while evaluating the outputs. The focus should be more on whether activities were carried out as planned, and the progress in

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implementing them etc , rather than on whether the activities had achieved the desired objectives. Achievement of desired objectives is the subject of outcome evaluation.

Outcomes indicate what the system could achieve against the management objectives. Outcome evaluation is the true test of management effectiveness. It summarises the value addition by the risk management system, effectiveness of each of the system components, domain coverage of mitigation actions, etc. Time series data pertaining to inputs and outputs can help assess the changes in efficiency of management and can throw light on the effectiveness of changes made in management.

Evaluation Process

The findings of the evaluation should help managers to improve the current state of risk management through adaptive measures, to influence Risk management policies, to provide increased accountability to executives and to raise awareness of all stake holders. To meet this end, the evaluation has to be ensured as Independent, intentional, transparent, ethical, impartial, of quality, made timely, participatory, economical and legally compliant. Further ,

the evaluation system developed under this framework should proceed from the assessment of the evaluation needs and available resources, defining the team, set the goals , train the team members , Design the whole evaluation scheme, set the instrumentation appropriate for each aspect, Pilot test the execution in select areas and hold discussions with all concerned stake holders to assess the compatibility of evaluation, make corrections if needed and proceed for full fledged evaluation process thus confirming to the SEF of (Powell et al., 2006)

Evaluation Reports

The main objective of evaluation being continuous improvement of the risk management system, the evaluation results will be fed back to the context assessment step on real time basis. To get the suggested corrective and preventive actions implemented, necessary modifications will be done in the design phase . At the same time provision exist for the generation of customised reports to various end users . Wide circulation of such reports as needed by various stake holders will also be generated. All reports shall be complete with the limitations and assumptions of evaluation stated clearly.

CONCLUSION

In the authors opinion, the framework developed to evaluate the performance of Project Risk management Systems, possess the features like (i) Easiness to practice, (ii) Easily integrate able with the current culture and practices of any project organisation, (iii) minimal dependency on complex mathematics , (iv) easily understandable by all levels of hierarchy, (v) evaluate performance of all steps with reference to corresponding objectives, (vi) results in gap identification, (vii) detonate causal analysis that are suggestive of Corrective and preventive actions, (vii) Provide pointer for direction and destination of improvements, (viii) minimal use of resource consumption, (ix) objectivity and accuracy of findings and (x) as realistic as possible.

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Further refinement can be done after testing this framework in the field, and also by incorporating the new knowledge developed elsewhere in this area. As such this framework can be used to start developing specific systems for project organisations , now that no such practice exists.

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