Dare to use DAR beyond CMMI® to improve organizations Capabilities

(DAR refers to Decision Analysis & Resolution Process of CMMI® model)

"Improved decision making is the top benefit sought by companies when they implement enterprise solutions"

Today's world of information technology is immensely blessed by the process framework brought in by Software Engineering Institute (SEI) of Carnige Mellon University, Pittsburgh In the form of CMM®, CMMI®, PCMM® models.

Although the initial focus of SEI was to help defence organization in US to improve their software development practices, and to provide disciplinary approach by way of the software process frame work, SEI achieved scintillating success in making these models as de-facto standards. These models are further made available to the commercial organizations because of its valuable guidance and popularity. SEI continuously pursued further improvements in software engineering practices and added all essential elements of system engineering, sourcing and hardware to come up with integrated models CMMI® and now it is CMMI® for development.

The process framework of CMMI® has tremendous potential to address "What IT industries and Business Groups shall look for as an industry best practice and to bench mark."CMMI® framework has provided maximum benefits in improving several businesses and IT practices of software/ hardware/ system/ product development, maintenance and support activities etc. The "how "part (How to perform the model's best practices and demonstrate) is specific to the organization and is left to the individual organization leaving the common interpretation and understanding with Appraiser group.

The CMMI® model addresses a process called "Decision Analysis and Resolution (DAR)".This is one of the support processes of maturity level -3. DAR provides highly structured approach towards decision making process and promotes objectivity in decision making and analysis. In normal professional life scenarios when decisions are taken for good or bad reasons, the quick question strikes to individual mind are "what is the basis for this decision?" CMMI® has ensured that this vital question is addressed.

DAR also provides high level of security to those, whose decisions (technical/business and strategic) are based on established evaluation criteria and their ability to chose right solution among the alternatives. Since all decisions are documented with reasons it leaves no room for anyone in the organization to smell any unprofessionalism in handling crucial decision making process.

The purpose of this article is to provide different perspectives of usage of DAR process and its potential benefits at all levels of the organizations engaged in managing its IT and business functions beyond CMMI purview. This article does not address "How to implement and demonstrate DAR capability from appraisal perspective".

What is DAR from CMMI® Perspective?

The purpose of Decision Analysis and Resolution (DAR) is to analyze possible decisions using a <u>formal evaluation process</u> that evaluates identified alternatives against established criteria." " An organization can use DAR <u>for any significant decision</u> that needs to be made. Typically, employed for … technical decisions, such as those related to trade studies. DAR should not be used for making insignificant decisions, such as buying … pencils and paper …."CMMI® Distilled

Although CMMI® model addresses DAR as a support process at maturity level 3, it actually over lays and goes in to the heart of every other process Area (PA)of CMMI® model to enable practitioners to think "what is in it for me and when do I invoke DAR"

The DAR process typically operates either on predefined trigger or as and when situation demands. It followed systematic steps as shown below till the decisions are implemented and documented

DAR TRIGGER
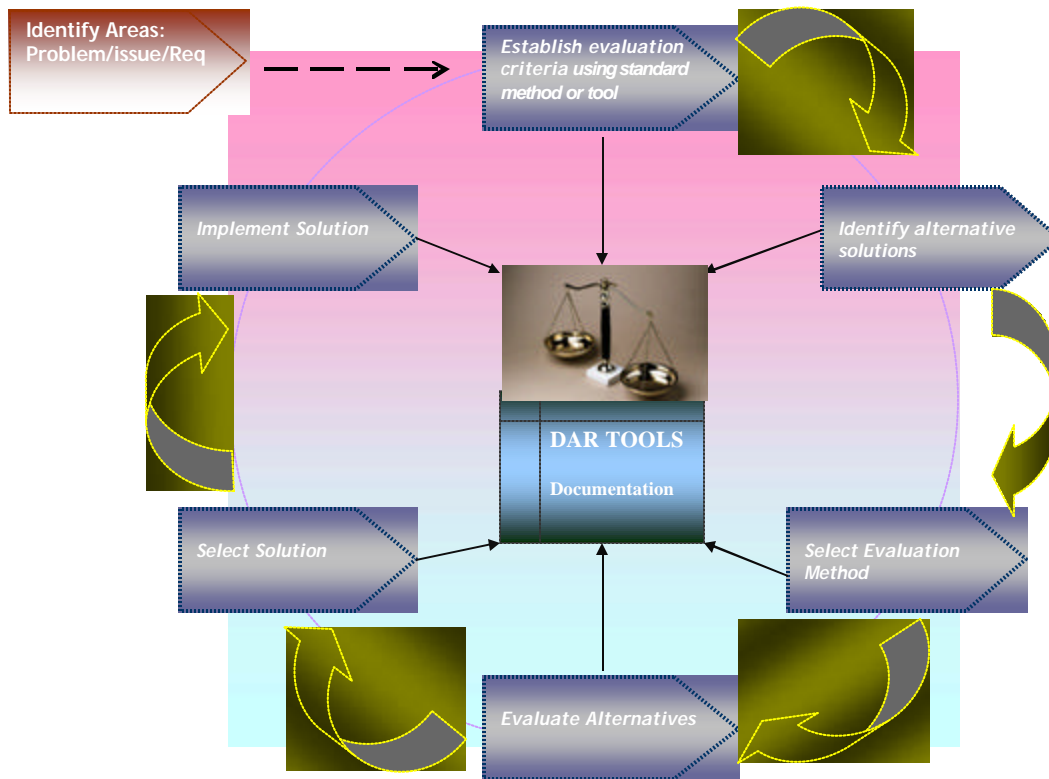
CMMI® Model expects practitioner to use DAR process as a useful tool and come out with structured methodology on:

- ? **Identify areas:** *It could be problems, issues and/or requirements where there is an immense need of applying DAR. This is mostly considered as a trigger to begin using DAR Process*

- ? **Establish evaluation criteria using standard method or tool :** *The evaluation criteria may differ depending upon type, nature and gravity of problem, issue and/or requirement. The use of standard method or tool will ensue consistent usage of evaluation criteria for identical nature of problem, issue and/or requirement*

- ? **Identify alternative solutions:** *The alternatives helps in making appropriate trade-off to arrive at most appropriate and viable solution*

- ? **Select Evaluation Method:** *The appropriate evaluation method is essential to judge the benefits of the alternatives. The wrong evaluation method may mislead the analysis*

- ? **Evaluate Alternatives:** *Alternatives have to be evaluated based on the objectives to be achieved from the evaluation method and from the point of view of getting viable solutions.*

- ? *Select Solution:* *The major portion of decision making takes place at this stage*
- ? *Implement Solution :* *The implementation of selected solution is key to entire DAR process*
- ? *Document the criteria, basis of selecting solution and final result:* *The documentation is most vital component of DAR process to ensure the truthfulness of "what decisions were taken in past and on what basis". It is also useful in case if you need to revisit decisions and criteria at the later dates. , if the issue is raised again, you can look at the criteria, evaluations, and alternatives - if nothing has changed, the decision doesn't have to be revisited. If things HAVE changed (new priorities, new criteria, new evaluation data, new alternatives) you have the previous information and only have to evaluate what has changed*

An effective process essentially has features such as; it is formally defined, documented and deployed to ensure consistency and institutionalization across the Organization. More over as per DAR a formal evaluation process reduces the subjective nature of the decision and has a higher probability of selecting a solution that meets the multiple demands of relevant stakeholders. More formal decisions may require separate plans, months of effort, meetings to develop and approve criteria, simulations, prototypes, piloting, and extensive documentation

 The beauty of DAR process is further enhanced; if it is used along with decision making tools.

The honest intention of DAR is to help all individuals in improving their ability of making better formal decisions with certain amount of basis which will improve their chances of taking right decisions. More over the underlying principals of DAR Process Area of CMMI enables you to make decisions on the basis of quantative representation barring the unavoidable cases where the decisions are made on the basis of intuition or gut fill in absence of past data or experience.

Both numeric and non-numeric criteria can be used in a formal evaluation process. Numeric criteria use weights to reflect the relative importance of the criteria. Non-numeric criteria use a more subjective ranking scale (e.g., high, medium, low). More formal decisions may require a full trade study. [DAR PA156.N108]

A formal evaluation process identifies and evaluates alternative solutions. The eventual selection of a solution may involve iterative activities of identification and evaluation. Portions of identified alternatives may be combined, emerging technologies may change alternatives, and the business situation for vendors may change during the evaluation period. [DAR PA156.N109]

A recommended alternative is accompanied by documentation of the selected methods, criteria, alternatives, and rationale for the recommendation. The documentation is distributed to the relevant stakeholders; it provides a record of the formal evaluation process and rationale that is useful to other projects that encounter a similar issue.

Organizations role in DAR

In recent days business operations around the world have become complex because of the dynamic nature of the industries and adverse competition. The main reason for that is the increase in the level of uncertainty of the factors that play an important role in the business processes. For almost any decision to be taken, the management in any firm is now faced with a) an increased number of alternatives, b) massive change in the number and nature of goals, criteria or evaluations and c) increased complexity of the decision-making environment. Business decisions involve choosing between alternative courses of action and developing formal plans for future action.

Even today, Fortune 1000 companies typically base their business decisions on a limited number of factors. There are indeed many internal and external factors that can affect and influence these business decisions. These factors can have a tremendous impact on crucial issues such as corporate profitability, the ability to deliver new products to market more quickly, decisions regarding entry or exit mode in any industry and, ultimately, whatever business decisions are made. One manifestation of this increased complexity is that more balanced approaches have to be introduced where even the non-financial factors have to be offset against the more traditional financial measures. A recent report from Goldman Sachs states that companies can expect to reap up to 15 percent costs savings when incorporating decision optimization applications into their business processes.

Decision analysis provides tools for quantitatively analyzing decisions with uncertainty and/or multiple conflicting objectives. These tools provide a systematic quantitative approach to making better decisions and can be especially useful when there is limited directly relevant data and the decision- making process calls for expert judgment.

CMMI'®s DAR process provides excellent opportunity for organizations to:

- ? Involve decision makers in setting up the criteria and priorities, so the decisions are not overruled. The criteria should include thresholds that define the rigor and depth of the study based on the severity of the potential impact.
- ? Create an overall standard structure for a DAR which helps practitioners from IT and business group to make effective use of the process at the juncture where there is a need to evoke DAR process.
- ? Clearly articulate the criteria for using DAR. The criteria must also state clearly when it is mandatory to use DAR and when it is not or Criteria for invoking DAR for decisions that have impact on technical, cost, or schedule related aspects of project and business, strategy, market, technology decisions, risk prone areas and customer related decisions for an organizations units or it may be just be applied on decision needs to be made involving two or more choices.
- ? Train all the stakeholders of the organization on usages of DAR techniques as appropriate
- ? Use DAR process for fact finding and recommendations on larger decision making events

- ? Identify different levels of authorizations and use the opportunity to empower those stakeholders who will enable decisions in their area
- ? Create a repository at organization and project level to store important information on criteria, evaluation models used and recommendations made with specific assumptions for future reference.
- ? Create a strong communication channel, reporting system to display vital decisions related information to relevant stakeholders to get better bye in from them.
- ? Create a culture and habit of making value propositions by using DAR structure in the organization which is proveable, referenceable and easily explainable
- ? Revisit the decisions if someone disagrees with the result based on his own "gut feel"

Benefits of Decision Analysis structure

A well thought DAR structure is an indication of professional and strong management existence in the organization and provides benefits to the organization in following ways:

- ? Leadership and well-defined values develop credibility
- ? Focus on useful information rather than data
- ? Information analysis provides value and saves time and money
- ? The process promotes positive attitude toward problem solving
- ? Clear communication increases stakeholder confidence
- ? Understanding – which in turn helps them provide better and more informed input
- ? Documenting a fair, thorough decision making process ;increases likelihood of success
- ? Identifying barriers and contingencies promote successful implementation

Why DAR and who should use DAR?

DAR provides excellent means of evaluating your decisions among the viable options with very clear formal basis. Before you execute the DAR process; you will need to have some rules on when to invoke DAR within your projects or the organization.

By Its very nature DAR is a general (support)process which can be applied at any level by any practitioner where significant decision making is involved hence Just like, six sigma techniques, DAR shall be used as a technique to address problems, requirements, issues etc at appropriate level.

DAR is best employed when there is a tough decision to make and it will have long-term implications.

DAR for Senior Management

DAR Provides opportunity to senior executives of organization to leverage from establishing and using best viable decision making tools which brings lot of objectivity and quantative representation. Smart executives of organization can inculcate the culture where in every one is committed to use DAR to provide optimum benefits to the organization.

Establishing decision criteria and evaluating several good alternatives with respect to those criteria often give birth to new alternatives or criteria. It virtually eliminates the probability that managers who provide input into the decision have hidden agendas, and enhances the communication and buy-in surrounding the decision. It forces the decision makers to think many times ahead before they moves on to the decision rather than just addressing the issue or problem or a requirement.

Strategic or tactical, important decisions for executives from organizations perspective would always benefit from a bit more robust and rigorous thinking, and a DAR-like approach encourages, enables, and perhaps even ensures that there are many decision where you can apply DAR to some of them for sure. Executives can lay some ground rules such as

- ? After the criteria are evaluated and an alternative is suggested, the Decision Owner is allowed to choose a different alternative or even one that wasn't in the original list to benefit the decision making process provided the rationale for such decisions are justified and documented well.
- ? If the decision has severe impact on more than x components then, at least z alternatives need to be considered.

The typical area of focus for senior management to use DAR generally comes from

- ? Cost benefit analysis of proposals
- ? Investments in new technology for future products
- ? Make-Bye decisions
- ? Outsourcing-In sourcing-near sourcing-off shoring, co-sourcing decision of IT infrastructure and support functions
- ? Product or product line decisions
- ? Project prioritization and killing no profitable, non viable projects in time
- ? Acquisition, mergers, disinvestment and organization restructuring decisions

DAR can definitely change the way of working of organizations culture if Senior Management provides visionary support and thought leadership to its promotion. Incentive based encouragements to the managers and staff can increase participation in DAR process significantly.

DAR for Middle Management

DAR has a significant role when it is used by Middle Management cadre, especially by Program/Project Managers with structured approach. It is essential for Managers to plan DAR

strategy as a part of their program/project planning activity to enable identification of areas needing decision and resolution and then select the requisite tools suitable to the environment of DAR. In Programs/Projects, DAR scenarios are easily available and can be easily demonstrated

Just as DAR could be a part of any other process areas (PA's) of CMMI, DAR can be embedded very well in any life cycle development/enhancement or support phase of program or project where there is a need to make critical decisions

The typical area of focus for Managers to use DAR generally comes from

Program Mgt	Program Initiation	Program Planning	Program Monitoring & control
Are of focus	? Project prioritization ? Cost benefit analysis ? Bid-no Bid ? Vendor/Supplier selection ? Budget Prioritizations	? Tools selection ? Resource selection and optimization ? Infrastructure and technology selection	? Risks and Issues trade-off ? Go –No Go for projects based on business and cost ? Project prioritization based on business changes/ budget/ cost/profits
Project Mgt	Project Initiation	Project Planning	Project Monitoring & control
Area of focus for DAR	? Suitability of cost estimation Techniques ? Make or Bye decisions ? Selection of life cycle and tailoring	? Resource selection and optimization (existing or hire) ? Use of reusable components or COTs ? Decisions based on	? Impact of project scope changes on schedule, efforts and cost decisions based on evaluation of alternatives

	? Feasibility study on accepting the project on account of cost, schedule, resources, skills ? Bid-no Bid ? Vendor/Supplier selection	High/Medium risks ? Plat form/ tools/ process selections ? Phase end Go /no go situation	? Decisions based on resource changes and optimization of skills and efforts ? Analysis of high impact issues and decisions based on evaluation of alternatives ? Decisions based on prioritization of project deliverables based on business need.
Development Life cycle	**Requirements**	**Design & Construction**	**Testing**
Area of focus for DAR	? Trade/Market studies ? Decisions on operational scenarios and concepts ? Products, features (cost-benefit, build/buy) ? Deciding among two competing technologies	? Selection among design or architectural decisions Integration strategy (sequence, procedure, environment). ? Implementation options	? Decision on release mechanism Test environments, and production Testing strategies (manual/automated) ? Verification methods
Maintenance life cycle (Enhancements/Adding new features)			
Area of focus for DAR	? Prioritization of requirements	? Re-architect /re-design / re-do the subsystem in view of changes to the legacy system	? Release decisions ? Testing strategies ? Back out strategies ? Defect prevention strategies
Process improvement:			
Area of focus for DAR	? Process improvement proposals and its priorities ? Piloting decisions of processes and tools		

Others:	
Area of focus for DAR	? Selection of components using criteria such as price, availability, warranty, and reliability ? Tools selection ? Analyse job proposals

DAR for Practitioners

It is a myth that decisions and evaluations are done only by senior and middle management. DAR shall be encouraged every practitioner to establish minimum formality at every level of IT and Business development and support functions based on certain eligibility and need based criteria.

DAR Tools & Techniques

The following table provides a list of some of the common tools used by practitioners at all levels of decision making, based on the nature and type of decisions required to be taken by individual or organization as a whole.

The table includes certain proprietary DAR tools(marked as proprietary) developed by vendors that provides enhanced data analysis and decision making ability based on probabilities and forecasts etc.

Organizations can chose some of the commonly used standard tools & techniques and implement them in the organization to get consistent results.

Name of the DAR Tool	Features/ Characteristics	Advantages
Pugh Matrix or Decision Matrix	? Creates and compares different alternative concepts to arrive at optimally viable concept	? Highly suitable for evaluating alternatives on technology, Human resource, cost ,maintenance, reusability and related issues
Brain Storming	? Idea based approach -Follows structured and unstructured approach	? Useful for developing creative solutions to the problems
Delphi Method	? Technique allows experts to deal with complex problem or tasks ? Questionnaire based approach used by experts	? Used as a problem solving method.
Quality Function Deployment (QFD)	? Used when poor communication and expectations are over shadowed by the complexity of product development ? Building blocks are based on What's, How's, customer &	? Ideally suited for decision making in product development environment

	technical Importance, relationship and target value of How	
Cause-and-Effect Diagram	? The Cause-and-Effect diagram provides an efficient summary of factors that impact a process, and hence can be used as a map to guide the overall quality improvement efforts. ? Provide a pictorial display of a list in which you identify and organize possible causes of problems, or factors needed ? It is one of the important tools for the Define phase of Six Sigma quality control efforts. ? The diagram is also sometimes referred to as a "fishbone chart," because of its appearance, or an Ishikawa chart.	? It is a simple but effective tool that allows practioners to easily see the relationship between factors to study processes, situations, and for planning.
Pareto Diagram	? A Pareto diagram is used to graphically summarize and display the relative importance of the differences between groups of data. ? A Pareto diagram is a simple bar chart that ranks related measures in decreasing order of occurrence. IT separate the significant aspects of a problem from the trivial ones ? A Pareto diagram is used to determine what characteristic is the major contributor in a process. The diagram is constructed by ranking the data in frequency of occurrence and plotting the bars in descending order	? Pareto analysis is most effective when the problem at hand is defined in terms of shrinking the PV to a customer target. For example, reducing defects or elimination the non-value added time in a process ? Pareto provides more details about the impact of a specific category, than a count
Image Theory	? Simple model for Human decision making ? Decision Makers code their knowledge in 3 images, select evaluation method and evaluate alternatives	Suitable for ? Adoption decisions to determine whether to add new goals to the trajectory image or new plans to the strategic image. ? Progress decisions to determine whether a plan is making progress toward achieving a goal.
Decision Tree	? A decision tree is a decision support	? It is useful when the company

	tool that uses a graph or model of decisions and their possible consequences, including dance event outcomes, resource costs, and utility. ? A decision tree is used to identify the strategy most likely to reach a goal. Another use of trees is as a descriptive means for calculating conditional probabilities. ? Uses influence diagram as a visual and analytical decision support tool, where the expected values (or expected utility) of competing alternatives are calculated ? Initial mapping exercise helps show relations between decisions, uncertainty, and outcomes. ? Trees allow you to trace the events leading to high and low cost outcomes ? Clearly captures event-based uncertainties and chain of-event uncertainty (interdependency)	has a policy of maximizing expected values, which is the preferred strategy? The alternatives, probabilities, payoffs, and resulting expected value ? Shows probabilistic range of costs (rather than just high/ low estimates) ? Facilitates development and evaluation of strategies targeted at reducing cost risk ? Robust sensitivity analysis and communicates results well
SWOT Analysis	? SWOT Analysis, is a strategic planning tool used to evaluate the Strengths, Weaknesses, Opportunities, and Threats involved in a project or in a business venture. ? It involves specifying the objective of the business venture or project and identifying the internal and external factors that are favorable and unfavorable to achieving that objective ? It is a general tool designed to be used in the preliminary stages of decision-making and as a precursor to strategic planning in various kinds of applications ? SWOTs can be performed by the individual administrator or in groups.	? SWOTs are used as inputs to the creative generation of possible strategies. ? Ideally a cross-functional team or a task force that represents a broad range of perspectives should carry out the SWOT analysis ? SWOT analysis may be used in any decision-making situation when a desired end-state (objective) has been defined
Cost Benefit Analysis	? A formal discipline used to help appraise, or assess, the case for a	? Cost-benefit analysis is mainly, but not exclusively, used to

	project or proposal and an informal approach to making decisions of any kind. ? It tries to make decisions independent of the preferences of decision makers ? Is data driven ? Minimizes the cost/benefit ratio across the affected groups ? Group that pays for the analysis may not receive benefits ? The practice of cost-benefit analysis differs between countries and between sectors	assess the value for money of very large projects. ? Used to calculate present value of benefit and cost
Monte –Carlo Simulation	? Refers to the use of random numbers in evaluating a model and also recalculates a model multiple times and can update any number of parameters between model recalculations. ? It is used for various kinds of value of information analysis and assigning values that are randomly sampled from probability distributions. ? It is referred to as probabilistic sensitivity analysis. ? Monte Carlo simulation allows analysts to examine the potential impact of all parameter uncertainties in the model. ? TreeAge Pro analysis and iDecide tools is a Monte Carlos simulation tool based upon an influence diagram representation	With the simulation model the project manager can forecast such elements as: ? The probability that an activity lies on the critical path (looking back from project completion). This is called the criticality index. ? The distribution for time to complete the project or any milestone sequence of activities. ? The distribution of project cost or, better, project value to the customer. We can perform cost/benefit analyses for candidate risk mitigation actions and for possible activity crashing efforts.
Discrete Event Simulation Technique	? In discrete event simulation, the operation of a system is represented as a chronological sequence of events. ? Discrete event simulation is one way of building up models to observe the time based (or dynamic) behaviour of a system. ? Uses a Markov node and sub tree to represent a variety of types of complex models having different	? Is commonly used in the area of developing new systems, particularly those that involve a high capital investment ? For systems that already exist, simulation can be used to test for minor design changes or to look at the control policies

	properties	
Markov Models - State Transition Models	? Markov models are used to simulate both short term processes (e.g., development of a tumor) and long-term processes (e.g., an individual's lifespan). ? Uses expected value or micro simulation methods.	? Markov models allow analysts to study events that recur over time.
Multi-criteria Decision Analysis	? Captures qualitative factors in decision making ? Allows trade-off analysis of competing objectives ? Can be used to monetize benefits and levels of service ? Weighting exercises bring organizational values and policies into alternative evaluation ? Incorporates service level risks into decisions	? Suitable method for determining optimal strategies when faced with several decision alternatives and an uncertain pattern of future events. ? Well documented and defendable for public record ? Communicates well to both technical and nontechnical people ? Open, inclusive process ensures buy-in from stakeholders
Multi voting	? Voting methods for decision analysis uses a team of experts to review and vote on different choices or on rankings for each best item from all Persons and attaching a value to each one of them ? This method relies on the ability of the stakeholders to understand the advantages and disadvantages of each choice and to vote accordingly. ? This method is used for large number of stakeholders ? Give each person V votes (V _ M. Alternately, V = L/3.)Each person allocates one, two or even all votes to one or more items ? The Facilitator asks each person for their votes ? The Facilitator totals the votes ? The group eliminates the items with the fewest votes. The items with highest totals are selected ? Repeat the process with the revised	? Simple Method and useful for achieving team consensus quickly when the team is ranking several options or alternatives or selecting the best choice among them. ? The technique is good for 1) ensuring equal participation of each member of the team when the team is making a choice among or ranking several options or alternatives; 2) building everyone's commitment to whatever choice or ranking the team makes because everyone was given a fair chance to participate; 3) eliminating peer pressure in the team's selection/ranking process; 4) preventing dominant members from controlling the quiet ones; and 5) making the team's consensus (or lack of it) visible,

	list if needed	allowing the major points of disagreements to be discussed and settled objectively. ? Outputs are quantitative ? Quick to perform with minimal efforts Easy to use ? Can be used for almost any decision
The Analytic Hierarchy Process (AHP)	AHP allows one person or a group to: ? Structure a complex decision ? Identify criteria and factors (concrete or intangible) ? Measure the interactions among them in a simple way ? Combine the data to obtain the relative priorities of the alternatives	Suitable to use for following criteria: ? Objective Criteria ? Technical Data ? Cost Estimates ? Subjective Criteria ? Benefits ? Risk Information ? Preferences ? Political Factors
Optimization Method	? Accept only quantitative inputs ? Finds optimal solution to a complex problem ? Identifies feasible solutions that meet all limits ? Require a great deal of effort to develop and solve equations. ? Reaching stakeholder agreement on the model may be difficult. ? Uncertainty is not directly addressed	? Can address many or infinite alternatives ? Many design problems can also be expressed as optimization programs

Weighted Scoring Methods	? Weighted scoring methods plainly identify decision factors, and each alternative is compared to the factors. ? The decision models address many factors. ? A numerical value is assigned to each alternative for each factor. ? Various factors are weighted differently. ? The weighted numerical values are added, and the alternative with the highest score is the best overall alternative. ? Both qualitative and quantitative inputs are easily handled ? Each alternative is given an overall score	? Address different factors, and different types of scales can be used for the various factors ? Decision factors are plainly identified and weighted so the group can reach an agreement on each item ? Can be used by individuals or groups ? Used when alternatives are few(<10) and enough time is available
Decision Tools Suite (proprietary tool) @RISK, RISK Optimizer, Precision Tree, TopRank, BestFIt Risk View ™, @Risk Accelerator are registered trade mark	? Is an integrated set of programs designed to work together in Microsoft Excel to provide combined analyses for optimum decision analysis in one package? ? Incorporate decision analysis in your spreadsheet model by creating a decision tree with PrecisionTree. ? Performs a "What-if" analysis with TopRank to identify critical variables in the model. Bring in @RISK to analyze the risk inherent in the chance events and uncertain payoffs of your PrecisionTree model. ? Use BestFit and RISKview ™ to quantify risks in your @RISK, PrecisionTree, and TopRank models. ? Performs a risk analysis of uncertain factors with @RISK, then use RISKOptimizer to help allocate variables you can control.	? Powerful and integrated tool for risk analysis and decision making ? Each component of the Decision Tools Suite can perform a powerful analysis. ? A combined products, can perform analyses with more complete results than any single program can provide
Concept Star™ (proprietary tool)	? Generates a visual map that is used to obtain new insights, and construct new approaches to the problem at hand, effective tool to	? A powerful decision support tool that provides a formal method for dealing with complex situations.

	help you create outstanding decisions and action plans, use as a personal desktop tool or a group problem solving tool	? Can be used by any individual or group Used for Strategic Planning, Change Management, Group Problem Solving Technical Design, Project Planning, Organization Design, Budgeting
Merak Decision Tool ™ Kit (proprietary tool)	? Helps you weigh uncertainties inherent in any decision. ? Measures the effect of those uncertainties on the expected economic value, and see how risky each of your options really is ? Perform multivariable sensitivity analysis using tornado, spider or value measure diagrams. ? Analyze decisions, calculate expected value, and determine the value of information. ?	? Calculation of risk for complex projects not easily modeled in standard Monte Carlo analysis programs is possible.
PrecisionTree ™ (proprietary tool)	? PrecisionTree™ is the Decision Analysis Add-In for Microsoft Excel®. It Builds decision trees and influence diagrams directly in your spreadsheet ? It enters probabilities and payoffs directly in cells in your tree.	? Useful to anyone faced with a set of alternative decisions should use PrecisionTree. ? Businesses user uses PrecisionTree ™ to make decisions on introducing new products, factoring in decisions at each stage of marketing and production.

In conclusion

DAR provides unique benefits to the practitioners of the organization at all levels, the key benefits are:

- ? Key decisions are based on evaluation of prioritized criteria.
- ? Underlying priorities and assumptions are exposed while decisions are made.
- ? Involvement of relevant stakeholders is ensured in decision making process.
- ? Documentation and records exists, not only of the final decision, but also the reasons for the decision including other alternatives that were considered

References

- ? Practitioners comments from CMMI® user group on, cmmi_process_improvement@yahoogroups.com
- ? Decision Analysis Tools for Effective Project Delivery by Daniel R. Pitzler, CH2M HILL
- ? The Decision Analysis and Resolution (DAR) Process byTerry Bahill Systems and Industrial Engineering University of Arizona
- ? DAR Basics: Applying Decision Analysis and Resolution in the Real World by Bill Phifer EDS
- ? Decision Analysis – A Tool to Deal with Uncertainty-DM Direct Special Report By Riddhi Dutta
- ? References from Wikipedia and tool vendors such as www.modeladvisor.com& http://www.decisivetools.com/, www.sis.slb.com,www.palisade.com, http://erc.msh.org/quality/ittools/itswot.cfm for decision tools
- ? Implementing Decision Analysis and Resolution in a Software Organization by Wendy Irion-Talbot (CSC)
- ? Tools for Decision Analysis and Resolution by Richard D. StutzkePresented at the 4th Annual CMMI Technology Conference & Users Group Meeting Denver, Colorado

About the Author

The author **Sunil V Tadwalkar** is Principal
Consultant in Quality Consulting Group (QPRIME) of Satyam
Computer Services Ltd. He has over 24 years of experience in IT
And Mfg industry. He is PMP, CSQA, Tick IT Auditor, ITIL, CMMI
Trained. His expertise lies in process consulting and project/program
management, outsourcing, knowledge management, competency
building, strategic initiatives and in developing service offerings.
He may be contacted on:
Sunil_Tadwalkar@Satyam.com Contact: +91-20-30534654 (M):+91-9850992146