RISK DOCTOR GLOSSARY OF RISK TERMS

accept A *risk response strategy* that is not proactive toward a *risk*, but prepares for and deals with the *impact* of a risk should it occur. This may involve use of a *contingency plan*. An acceptance strategy can be selected for either *threats* or *opportunities*.

Action Owner The person responsible for implementing an agreed *risk action* and reporting progress to the *Risk Owner*.

assumption A future uncertainty that is treated as a fact for the purposes of planning or decision making.

assumptions and constraints analysis A technique for *risk identification* based on identifying and testing *assumptions* and *constraints* to determine their stability and sensitivity.

avoid A *risk response strategy* directed toward a *threat,* which aims to eliminate the uncertainty, usually by implementing *responses* to remove its potential cause.

cause An existing certain event or set of circumstances that may give rise to one or more *risks*. A cause is the first element of a *risk description* using *risk metalanguage*.

checklist A structured list of *risks* that have been identified during previous *risk assessments* and that can be used as an input to *risk identification*.

consequence See *effect*.

constraint A condition of the situation or project, usually imposed externally, that restricts available options.

contingency Amount of time or money set aside against *accepted* risks, or to make allowance for unforeseen risks, to be used to compensate for the negative consequences of *threats* that occur, or to be used to take advantage of the positive consequences of *opportunities* that occur. (See also *management reserve.*)

contingency plan Appropriate *responses* defined in advance but implemented only if/when a risk actually occurs or when planned responses fail to have the intended effect. Contingency plans can be developed for either *threats* or *opportunities.*

correlation A mechanism for relating groups of tasks and/or risks within a *risk model* to reduce the allowable degree of variation during a *Monte Carlo analysis*. Related tasks and/or risks are called a correlation group. The statistical sampling within a correlation group is driven by a predefined correlation coefficient. Also called *dependency*.

criticality A measure of how often an element in a *Monte Carlo–based* quantitative schedule *risk model* appears on the critical path, expressed as a percentage of the overall number of iterations during the simulation. A criticality index between 0% and 100% for each task in the *risk model* is calculated automatically during the analysis.

cruciality A measure of the relationship between variation of each task or risk in a *risk model* and variation of the overall outcome from a *quantitative risk analysis*, usually expressed as a correlation coefficient (from -1 to +1). The results of a cruciality analysis are often presented in a *Tornado Chart*. Also known as *sensitivity*.

decision tree analysis The *quantitative risk analysis* technique for assessing the value of alternative actions, taking into account the costs of taking the action, the likelihood of future uncertain events that may occur if the action is taken, and estimates of resulting rewards or costs. The decision made is usually the one that yields the greatest *expected value* (or the least expected cost). A decision tree may be evaluated using *Monte Carlo analysis.*

Delphi technique An anonymous facilitated technique used for *risk identification* based on the consensus opinions of experts.

dependency See *correlation.*

double Probability-Impact Matrix (double P-I Matrix) Two *probability-impact matrices* presented alongside each other, with one showing *threats* and the other showing *opportunities.* The typical double P-I Matrix shows threats on the left matrix and opportunities on the right, with the opportunity matrix flipped horizontally to bring both red zones together in the centre of the double P-I Matrix. See also *Probability-Impact Matrix.*

effect The possible outcome of a risk if it occurs. Effects are negative for *threats* and positive for *opportunities.* Effects form the third element of a *risk description* using *risk metalanguage.* (Also called *consequence* or *impact.*)

EMV See *Expected Monetary Value.*

enhance A *risk response* strategy directed toward an *opportunity,* which aims to increase *likelihood* or *consequence*, or both, above the *risk acceptance threshold.*

enterprise risk management (ERM) Integrated application of risk management across the entire business, addressing all levels of risk, including strategic, business, corporate, reputation, portfolio, program, project, technical, safety, etc.

ERM See *enterprise risk management.*

EV Expected value; used to evaluate a *decision tree.*

expected monetary value (EMV) See *expected value (EV).*

expected value (EV) (1) The statistical average or weighted mean of a distribution, approximating to the 50th percentile calculated during *quantitative risk analysis* using *Monte Carlo analysis*, which represents the outcome that would occur on average given the input data. (2) A measure of *risk exposure* calculated as the product of *probability* and *impact.* Since probability is dimensionless, the units and sign of expected value are the same as the units and sign of the impact. Sometimes also called *expected monetary value (EMV).*

exploit A *risk response* strategy directed toward an *opportunity,* which aims to eliminate the uncertainty by implementing *responses* to ensure that the opportunity occurs.

eyeball plot An output from an integrated time-cost *quantitative risk analysis* using *Monte Carlo simulation*, which presents all possible time-cost pairs (usually for overall duration and total cost) calculated from the analysis, together with a best-fit ellipse (the "eyeball"). Sometimes also called a *football plot* (especially in the US).

football plot See *eyeball plot.*

frequency of occurrence A measure of *likelihood* for a specific *risk* that could occur repeatedly over a given period of time or in a given number of trials. Frequency of occurrence is usually expressed as number of occurrences per unit of time or per total number of trials.

heuristic A frame of reference used as a shortcut when making decisions. In the risk management process, heuristics usually operate subconsciously, and include availability, stereotyping, anchoring and adjustment.

impact The resulting change to one or more objectives that will happen if a *risk* occurs. See also *effect*.

implementation Part of the risk management process where agreed *risk actions* are performed by *Action Owners*, the *Risk Register* is updated, and *Risk Reports* are prepared.

influence diagram A structured approach to *quantitative risk analysis*, which presents the topic of the analysis using entities, outcomes, and influences, and which represents the relationships and effects between them. An influence diagram may be evaluated using *Monte Carlo analysis.*

inherent risk The risk as originally identified before risk actions have been implemented. (See also *residual risk*.)

insurable risk A risk that can be covered by an insurance policy.

IRR Internal Rate of Return.

issue An event (usually negative) that has occurred, is affecting achievement of an objective, and usually cannot be addressed directly by the responsible manager. Sometimes also used for an ill-defined matter of concern that might give rise to *risks*.

likelihood The chance that a particular risk will occur. This can be expressed as either a *probability* for a single event or condition, or as a *frequency of occurrence* for repeatable events.

management reserve Amount of money or time intended to compensate for the consequences of unforeseen *risks*, usually held outside the main budget. (See also *contingency*.)

mitigate See *reduce*.

Monte Carlo analysis A technique for *quantitative risk analysis* in which the range of possible outcomes is determined by selecting random values from defined distributions within a *risk model*. The process is done on an iterative basis to determine statistical probabilities of particular outcomes.

onion ring diagram A series of overlapping *S-curves*, often used to show the cumulative effect of *risk response strategies* on the result of a *quantitative risk analysis*.

opportunity Any uncertainty that, if it occurs, would have a beneficial effect on achievement of one or more objectives, such as improved safety and saved time or cost. A positive or upside *risk.*

overall risk The exposure of stakeholders to the consequences of variation in outcomes. Overall risk is more than the sum of individual *risk events*, and includes the effects of other sources of uncertainty such as ambiguity and variability. It is best estimated through use of *quantitative risk analysis* techniques.

P-I Probability-Impact.

probability A measure of *likelihood* for a specific *risk*. Probability may be expressed in qualitative terms (e.g., high, medium, or low) or in quantitative terms (as a percentage or a number in the range 0–1).

Probability-Impact Matrix (P-I Matrix) A two-dimensional plot with *probability* as one axis and *impact* as the other. Identified *risks* can be plotted on the matrix to prioritize them into one of a number of zones within the matrix (usually three: red, amber, green). The matrix can be of different sizes, but is usually symmetrical (e.g., 3x3, 4x4, 5x5). The Probability-Impact Matrix can be used to prioritize both *threats* and *opportunities*, usually using a "mirror" double matrix format (see *double Probability-Impact Matrix*).

Probability-Impact Scoring (P-I Scoring) A method of scoring individual *risk events* by allocating numerical values corresponding to *probability* and *impact*, and multiplying these to give a *Risk Score*, which can be used to prioritize risks, calculate metrics, and perform trend analysis.

prompt list A list of generic headings or categories of types of risk that can be used to structure *risk identification*. It may be presented as a simple linear set of headings, or as a hierarchy like the *Risk Breakdown Structure*.

quantitative risk analysis A numerical analysis of *risk exposure* based on the *probability* and *impact* of identified risks, which predicts possible outcomes and allows an estimate of aggregated *risk exposure* (including *overall risk* for projects). Quantitative risk analysis techniques include *Monte Carlo analysis*, *decision trees,* and *influence diagrams*. These techniques often use *sensitivity analysis* to explore the effects of key *risk drivers*.

RACI Chart A version of the *Responsibility Assignment Matrix* that allocates tasks to individuals or groups under four headings: Responsible, Accountable (and/or Approves), Consulted (and/or Contributes), Informed.

RAG red/amber/green scoring system for *risk assessment*.

RAM See *Responsibility Assignment Matrix.*

RBS See *Risk Breakdown Structure.*

reduce A *risk response strategy* directed toward a *threat,* which aims to reduce *likelihood* or *consequence*, or both, below the *risk acceptance threshold*. Also known as *mitigate*. (In some processes the term *mitigation* is used for all types of *risk response strategy*.)

residual risk The risk remaining after agreed *risk actions* have been implemented. (See also *inherent risk*.)

Responsibility Assignment Matrix (RAM) A chart showing allocation of particular tasks to individuals or groups, usually formed by relating the Work Breakdown Structure (WBS) to the Organizational Breakdown Structure (OBS). (See also *RACI Chart*.)

risk acceptance threshold A measure of the level of *risk exposure* above which action must be taken to address *threats* and *opportunities* proactively, and below which risks may be *accepted*.

risk action An activity implemented by an *Action Owner* at the request of a *Risk Owner* in order to implement an agreed *risk response strategy* in response to current *risk exposure*. The risk action and its associated cost are independent of the actual occurrence of the risk.

risk aggregation A part of *risk identification* in which risks that are similar, interdependent, or temporally coincident are grouped together for further attention.

Risk Analyst A specialist in risk management processes, tools, and techniques (particularly in the use of *quantitative risk analysis*) who may provide expert support to a project or business. This role is sometimes filled by a *Risk Champion*.

risk Any uncertainty that, if it occurs, would have a positive or negative effect on achievement of one or more objectives. [Sometimes abbreviated as "uncertainty that matters".] Risks include both *threats* and *opportunities*. The concept of risk includes *risk events* (stochastic risk) as well as other types of uncertainty (i.e. aleatoric/variability risk, epistemic/ambiguity risk, Black Swan/ontological risk). Risk in projects includes both individual *risk events* and *overall risk*.

risk appetite Tendency of an individual or group to take risk in a given situation.

risk assessment The process of estimating the *probability* and *impact* of identified *risks*, and comparing it against a defined *risk acceptance threshold*. (Also known as *risk evaluation*.)

risk attitude A chosen response of an individual or group to a given risky situation, influenced by perception. Risk attitudes are adopted by individuals and groups. Risk attitudes exist on a continuous spectrum, but common risk attitudes include risk-averse, risk-tolerant, risk-neutral, and risk-seeking.

Risk Breakdown Structure (RBS) A hierarchical framework presenting possible sources of risk, used to structure *risk identification* and *qualitative assessment*. A generic RBS may be developed covering all activities for a business, or a specific RBS may be used for a particular application.

risk capacity Amount of risk that an entity can bear, quantified against objectives.

Risk Champion The person responsible for facilitating the risk management process..

risk culture: Shared beliefs, values and knowledge of a group about risk.

risk description A structured statement of *risk*, usually containing three elements: *cause*, *risk*, and *effect*, often combined using *risk metalanguage*.

risk driver An uncertain factor that exerts a significant influence on overall *risk exposure*.

risk evaluation See *risk assessment*.

risk event An uncertain discrete occurrence that, if it occurs, would have a positive or negative effect on achievement of one or more objectives.

risk exposure: A measure of the overall effect of identified risks on objectives. Risk exposure may be expressed quantitatively or qualitatively. **Inherent risk exposure** is the level of risk exposure that exists before *risk actions* have been implemented. **Residual risk exposure** is the level of risk exposure remaining after agreed *risk actions* have been implemented.

risk identification A structured process of exposing knowable *risks*, including both *threats* and *opportunities*, and describing and recording them for further analysis.

Risk Management Plan A project planning document produced during the *Initiation* step that records the parameters of the risk management process for a particular project, including: the scope and context of the risk assessment; objectives to be considered; methodology, tools, and techniques to be used; roles and responsibilities; risk acceptance threshold; reporting and update cycle. (Also sometimes known as a Risk Strategy Statement or Risk Policy.)

risk management The structured process of taking appropriate decisions and implementing appropriate actions in response to the current level of *risk exposure.* (Also used as a generic term for the whole process of initiation, risk identification, assessment, response development and implementation.)

risk metalanguage A structured description of a *risk* that separates *cause*, *risk,* and *effect*. A typical risk description using risk metalanguage might be in this form: "Because of <cause>, <risk> might occur, which would lead to <effect>."

risk model A mathematical representation of *risk exposure* that can be used as the basis for *quantitative risk analysis*.

Risk Owner The person responsible for ensuring that an appropriate *risk response strategy* is selected and implemented. This person is also responsible for determining suitable *risk actions* to implement the chosen strategy, with each risk action assigned to a single *Action Owner*.

risk perception View of risky situation by individual or group, influenced by *triple strand* (conscious, subconscious and affective) factors.

Risk Policy See *Risk Management Plan*.

risk preference Those aspects of an individual's personality and motivation that influence their *risk propensity*.

risk process initiation The initial phase of the risk management process in which the scope and parameters of the particular risk analysis are determined. Decisions made during risk process initiation are recorded in a *Risk Management Plan*.

risk propensity Tendency of an individual to take risk in general, informed by inherent *risk preferences*.

Risk Register A record of all identified risks from the risk management process for a particular situation, presented in a standard format, including assessments, agreed responses and actions, and current status. The Risk Register may be an output from a proprietary risk software package, or may be maintained as a standalone document, spreadsheet, or database.

Risk Report An output from the risk management process that records the findings and presents conclusions and recommendations. Different types of report are possible, such as a Full Risk Report including detailed analysis, or a Summary Risk Report presenting less detail, or a Risk Analysis Report presenting the results of a *quantitative risk analysis*.

risk response planning Part of the risk management process where appropriate *risk response strategies* are developed, *risk actions* are generated, and *Risk Owners* and *Action Owners* are nominated.

risk response strategy A strategy for determining what, if anything, should be done with a *risk*. It leads to specific *risk actions* to deal with individual risk events or sets of related risks. Proactive risk response strategies for *threats* include *avoid*, *transfer*, and *reduce*. Proactive risk response strategies for *opportunities* include *exploit*, *share*, and *enhance*. If a proactive risk response strategy is not possible or cost-effective, it may be decided to *accept* a risk (either threat or opportunity).

risk review A structured update of the assessment of current risk exposure, which may be undertaken using a dedicated risk review meeting or as part of the routine management process. Risk reviews can be conducted at various levels of detail.

Risk Score A non-dimensional number calculated from the *Probability-Impact Scoring* system, which can be used to prioritize risks, calculate metrics, and perform trend analysis.

Risk Strategy Statement see *Risk Management Plan*.

risk thresholds Quantified measures that represent upper and lower limits of acceptable uncertainty against each objective (see also *risk tolerance*).

risk tolerance The acceptable variance around an objective (also known as *risk thresholds*).

scenario analysis A *quantitative risk analysis* technique used either within other techniques to expose key *risk drivers*, or as a standalone technique to explore outcomes associated with defined sets of possible future situations.

S-curve A cumulative probability distribution curve produced from a *quantitative risk analysis* using *Monte Carlo simulation*, which presents all possible values calculated from the analysis together with their probability of being achieved. S-curves can be produced for time (e.g., overall duration, end-date, or milestone dates), cost (e.g., total spend), or other variables.

secondary risk A *risk* that arises as a direct result of implementing a *risk response strategy* or *risk action* for an existing risk. Secondary risks can be either *threats* or *opportunities*.

sensitivity analysis A *quantitative risk analysis* technique used within other techniques to expose key *risk drivers*, by varying one or more parameters within a *risk model* and determining the extent of the effect on the overall outcome. Sensitivity analysis can be performed on deterministic or probabilistic risk models. Results are usually presented using a *Tornado Chart*.

sensitivity See *cruciality*.

share A *risk response strategy* directed toward an *opportunity* that aims to involve a third party who is better able to manage the specific risk.

stakeholder analysis The process of determining the degree of interest, influence, and attitude of *stakeholders* toward a particular risky situation.

stakeholder Any person or party with an interest in the outcome of a risky situation and/or an ability to exert influence.

stochastic branches Constructs used within a *risk model* defining alternative logic paths that might be followed during a *Monte Carlo analysis.* Two types of stochastic branches are common: the probabilistic branch, where the frequency of sampling for each alternative path is driven by a predefined probability, and the conditional branch, where existence of a path is determined by the status of a predefined condition. Stochastic branches can also be used to model *risks* explicitly.

Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis A *risk identification* technique used to structure a risk workshop, identifying strengths, weaknesses, opportunities, and threats.

SWOT Strengths, Weaknesses, Opportunities, Threats—the elements of a *SWOT Analysis.*

threat Any uncertainty that, if it occurs, would have an adverse effect on achievement of one or more objectives, such as injury, damage to environment, delay, or economic loss. A negative or downside *risk.*

Tornado Chart An output from a *quantitative risk analysis* using *Monte Carlo analysis* that shows the main *risk drivers* in descending order of importance, plotting their *cruciality*.

transfer A *risk response strategy* directed toward a *threat,* which aims to involve a third party who is better able to manage the specific risk.

triple strand Influences on *risk perception* arising from three interdependent sources, including conscious, subconscious and affective factors.