

Risk Management

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Lecture4



MGM 510

Risk Management



جامعة الجميع الذكية
EVERYONE'S SMART UNIVERSITY

Commonly Used Risk Management Examples

Risk Avoidance

Customer Credit Risk Management

Industry-Specific Strategy

Elimination of Contract Risk

Compliance Risks

Safety Risks

Market Risk

Information Security Risk

Risk Transfer

Risk Avoidance

The best way to explain risk avoidance would be to take the example of an investor trying to manage his/her risk in the company that they invested in. If the company they have invested in is going through losses and decide to sell their investment (stock) in the company, they can exclude it from their list of investments, it is considered risk avoidance.



Customer Credit Risk Management

When it comes to the retail industry, there is always a risk because of the external factors involved. One such external factor is customer credit, which can really impact the profits of the company. If companies conduct a customer credit risk analysis and find that things are not going so well, they can manage their risk. This can be done by stopping the extensions on invoices to the customers the company views as high risk so that it can eliminate further risk.

Industry-Specific Strategy

Take the manufacturing industry as an example. One organization wants to manufacture a new product. Before they can start production for the same, they have to conduct a thorough risk analysis to understand the level of risk the company can face. Then they can decide if the benefits of manufacturing the new product can outweigh the risks that come with it or not.



Elimination of Contract Risk

When investors make investments overseas, there can be external risks to the company. The foreign exchange rates can fall, which can lead to losses, which is considered to be a big threat to the investor. To deal with this risk, the investor can make the contracts in USD and keep themselves safe.

Compliance Risks

Maintaining regulatory compliance is a really important aspect of any institution, which can, in turn, become a huge risk. Companies need to ensure they have controls in place to monitor their organizations' compliance on a regular basis. They need to monitor all their existing processes, procedures, and technologies and stay compliant. This can be effectively done with a risk management system.



Safety Risks

There can be a risk to the safety of the operations within the company. This needs to be analyzed and taken care of regularly as well. All maintenance processes need to be audited regularly to check for latent human error in the processes. This can also be handled very efficiently if companies implement a risk management system.



Information Security Risk

This is a part of cybersecurity. Any business's data is one of its most valuable assets, and it needs to be protected. There are different ways in which data can be stolen, and data theft is a major risk to any organization. One of the many ways to combat this risk is to have controls in place for all incoming communications such as emails. They need to be scanned to make sure no suspicious ones are coming to the company, and even if they are, they are taken care of immediately.

Market Risk

Market risk is a common risk among nearly all industries. There is no guarantee that the product or service a company provides is going to be priced at the same value in the future. A lot of companies manage this risk by getting into early and long-term contracts with various investors so that their future is secured to some extent, regardless of the market conditions.



Risk Transfer

When companies aren't well versed in all aspects of their risk, but they would still like to mitigate it, they transfer the risk. For example, a retail brand may not be fully equipped to manage all cybersecurity risks to the company, but the threat still exists. To manage it more efficiently, they can outsource all their information technology capabilities to a third party, holding them accountable, and thereby transferring their risk.



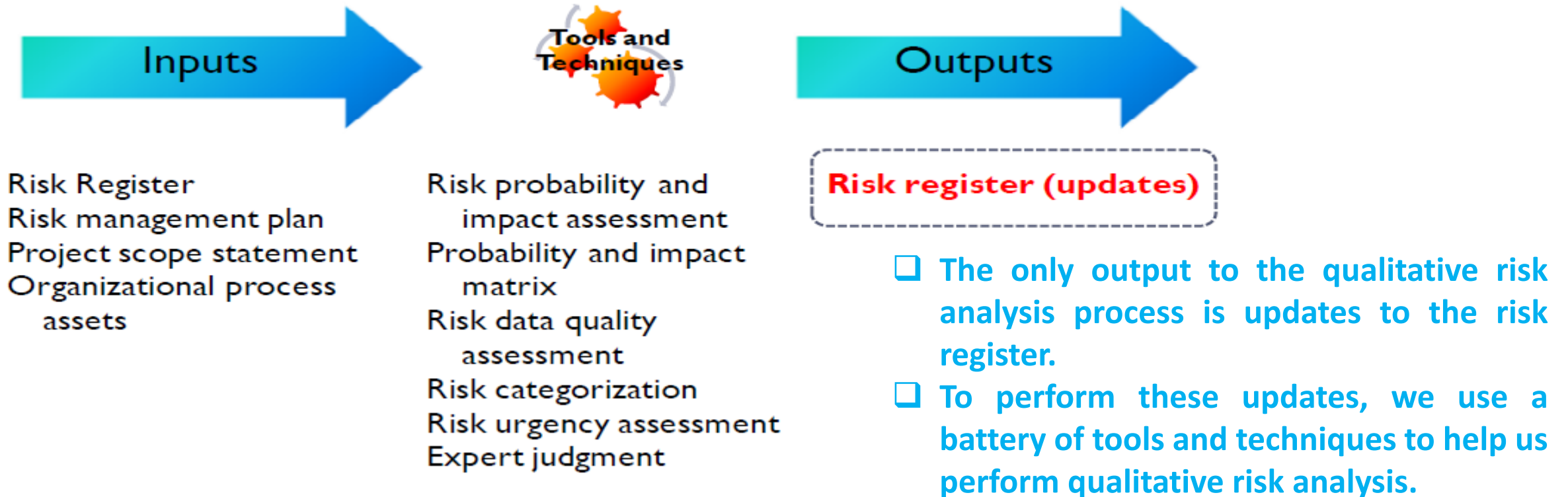
Risk management is a complex process because there are hundreds of different types of risks that companies need to be aware of. Many training and certification programs will impart knowledge for enterprise teams, which will help companies successfully mitigate risks and help the organization improve all its processes and generate more revenue.



- Plan Risk Management
- Identify Risks
- Perform Qualitative Risk Analysis
- Perform Quantitative Risk Analysis
- Plan Risk Responses
- Monitor and Control Risks



Perform Qualitative Risk Analysis



Qualitative Risk Assessment Matrix

The qualitative risk assessment matrix offers a summary level of the potential impact of the risk, based on approximate percentages. Notice that this matrix shows general percentages that are not tied to specific dollar amounts or timelines. Another way of showing a qualitative impact is to rank the probabilities as high, medium or low:

Risk	Impact	Likelihood
Shipments are delayed	High	Low
Long lead times for hardware	Medium	Medium
Resource unavailability	Medium	Low
Rework issues	Low	High

Risk Register Updates

Partial List of Risk Register Updates:

- ☐ Ranking and prioritization of project risks
- ☐ Grouping risks by categories
- ☐ Risks requiring near-term response
- ☐ Risks requiring additional analysis and response
- ☐ Low priority risks to monitor
- ☐ Look for trends in results – regression analysis or trend charts

Risk Register Updates

Risk register updates will generally include the outcome of risk assessments, risk audits, and periodic risk reviews. This can include identification of new risk events or updates to risk probability, risk impact, risk priority and risk response plans

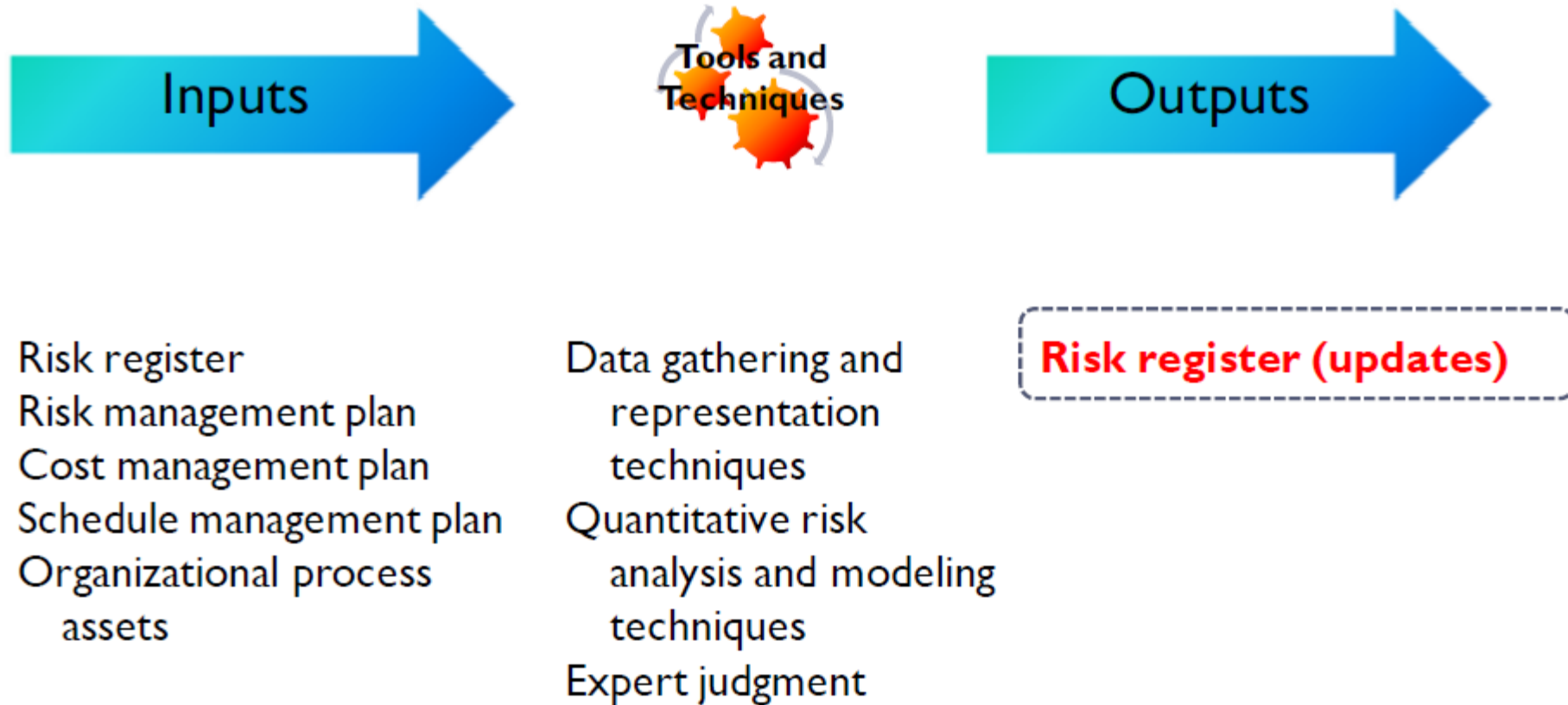
An important use of the risk register is to view the actual outcomes of the project risks and risk responses against anticipated risks. This data can help project managers plan for risk as the project moves forward

Risk Register Updates



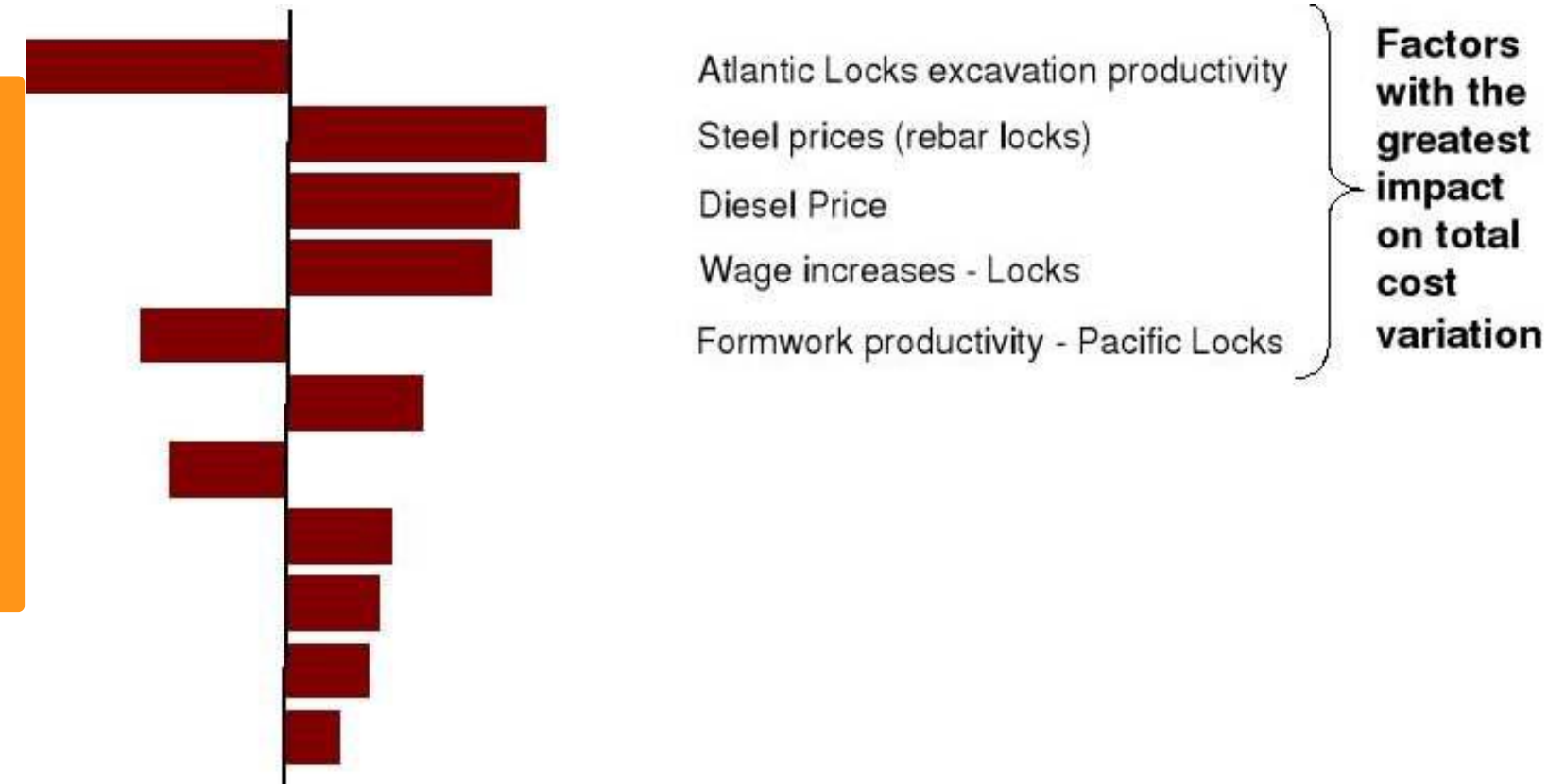
Risk Register updates are an output of Perform Qualitative Risk Analysis, Perform Quantitative Risk Analysis, Plan Risk Responses and Monitor & Control Risks.

Perform Quantitative Risk Analysis



Quantitative risk analysis involves the numerical quantification and measurement of the effects of identified risks on the project. It frequently involves the use of sophisticated mathematical modeling techniques to create forecasts and trend analysis.

Perform Quantitative Risk Analysis



One of the more common analysis and modeling techniques is the sensitivity analysis, which is used to identify the risks with the largest potential impact on the project. The tornado diagram is frequently used to display the sensitivity analysis. The example shown is from the US Department of Transportation

Perform Quantitative Risk Analysis Failure Modes Effects Analysis (FMEA)

شدة الخطر

احتمالية الحدوث

Potential Failure Mode and Effects Analysis (Design FMEA)

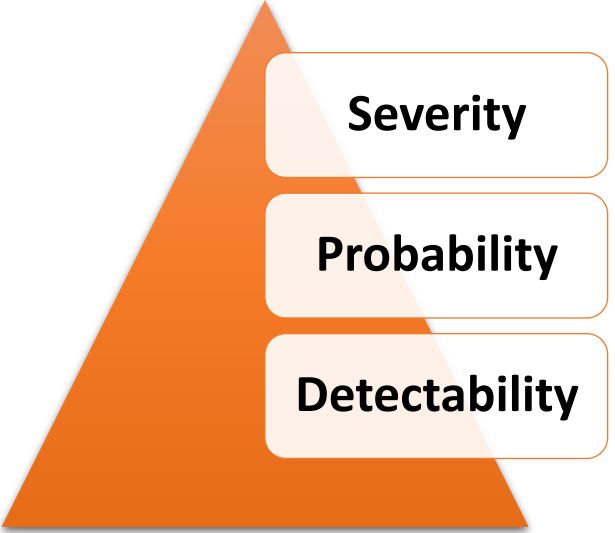
Item	Requirements	Potential Failure Mode	Potential Effect(s) of Failure	Severity	Potential Cause(s) / Mechanism(s) of Failure	Current Design Controls Prevention	Occurrence	Current Detection Design Controls		Detection	R.P.N.
								Cause	Failure Mode		
Name,	Requirements of function being analyzed	Manner in which system could fail:	Effects of failure as perceived by customers.		List every potential cause and/or failure mechanism:	List prevention activities		List Causes	List detection activities		0

FMEA: Failure Modes Effects Analysis. The FMEA is useful for manufactured product or where risk may be undetectable:

Utilizes three measures : 1) Severity, 2) Occurrence, 3) Detectability to produce the Risk Priority Number (RPN) : The higher the RPN, the greater the risk

Perform Quantitative Risk Analysis

A key aspect of the failure modes and effects analysis, or FMEA, is that it uses three measures to determine the **Risk Priority Number**:



Severity

Severity of the risk - represented on a numeric scale from 1 to 10, 1 representing no effect, to 10 representing a high hazard (unsafe without warning)

Probability

Probability of occurrence – 1 representing the current probability of less than .0007%, to 10 representing a probability of 20% (almost continuous failure) or greater

Detectability

Detectability of the risk – 1 representing a risk that is highly detectable, to 10 representing a risk that is completely undetectable (failure without warning)

Notes

The three numbers are multiplied together to produce the RPN (Risk Priority Number)

Perform Quantitative Risk Analysis

The three numbers are multiplied together to produce the RPN (Risk Priority Number)

This risk register type is particularly effective for manufactured products or for software products in which the software controls mechanical devices that could potentially cause serious injury or loss of life if the software (and therefore the device itself) were to fail.

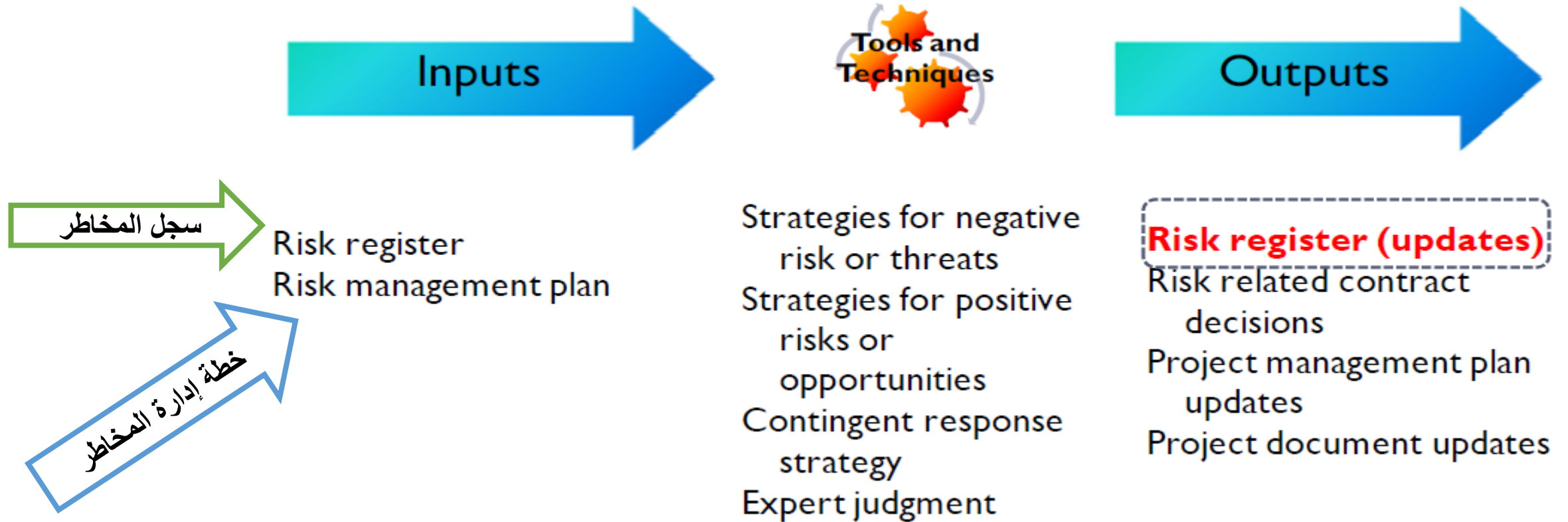


Expected Value/ Expected Monetary Value

Expected value or Expected Monetary Value (EMV) is computed by multiplying the probability of an event by its impact. Examples appear below:

المخاطره	Risk #	الاحتمال	Probability	التأثير	Impact	القيمة المتوقعة	Expected value
	1		30%		-\$20,000		- \$6,000
	2		25%		28 Days		7 days
	3		11%		-\$95,000		-\$10,450
	4		40%		-\$38,000		-\$15,200
	5		20%		+\$40,000		+\$8,000

Plan Risk Responses



Plan Risk Responses

After risks are identified and evaluated from a qualitative and quantitative perspective, we can plan our responses to risk, and either to enhance opportunities, or reduce threats for the project.

Plan Risk Responses

There are a number of risk response strategies that can be employed on a project, however, all of the responses fall into the following basic categories:

- ☐ Implementing actions to prevent the risk from occurring
- ☐ Implementing actions in response to a risk occurrence
- ☐ Implementing actions to mitigate or reduce the risk occurrence
- ☐ Implementing actions to promote opportunities
- ☐ Implementing fallback or contingent responses, in the event risk response plans do not work

Plan Risk Responses

Examples of Risk Strategies – Negative Risks

Avoid Elimination of the potential threat. For example, you are dealing with a vendor and there is the threat of a potential major strike. Your avoidance strategy would be to switch vendors to an organization that does not have unions at all.



Plan Risk Responses

Transfer----- This involves shifting some or all of the negative impact of a threat, along with the ownership of the response, to a third party. Examples include purchasing insurance, performance bonds, warranties, or other forms of guarantee.



Plan Risk Responses

Mitigate_____ – this involves a reduction in the probability or impact of the risk. Designing fault tolerance into a system is a risk mitigation strategy. Instead of shouldering the full cost of the development of a new high risk product, you find three or four partners who can share the expense of development. In case of failure, your exposure to loss has been cut by 75-80%



Plan Risk Responses

Accept – Acceptance means that you cannot eliminate, transfer, or mitigate a threat, and there is no other suitable response strategy. You can actively or passively accept the threat:

- ❖ Passive acceptance means you take no action and deal with the risk if it occurs
- ❖ Active acceptance commonly means you have set aside contingency reserves to deal with any potential risk

Accept

Plan Risk Responses

Examples of Risk Strategies – Positive Risks

Exploit-----is used when the organization wants to ensure an opportunity is realized. Saving funds by using existing equipment or facilities is an exploit strategy

Plan Risk Responses

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Plan Risk Responses

Examples of Risk Strategies – Positive Risks

Share_____ occurs when the organization transfers ownership of the opportunity, in part or altogether to a third party to ensure the opportunity occurs. Engaging a sub-contractor with specialized skill sets not available in your organization can help you capture an opportunity that may have been out of reach otherwise.



Plan Risk Responses

Examples of Risk Strategies – Positive Risks

Enhance___ – used to increase the impact or probability of an opportunity. Ending a project early by using highly experienced resources, or utilizing specific schedule compression techniques, is an enhancement opportunity.



Plan Risk Responses

Examples of Risk Strategies – Positive Risks

Accept – willing to take advantage of an opportunity without actively pursuing it.



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