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# Enterprise Risk Management thru Six Sigma

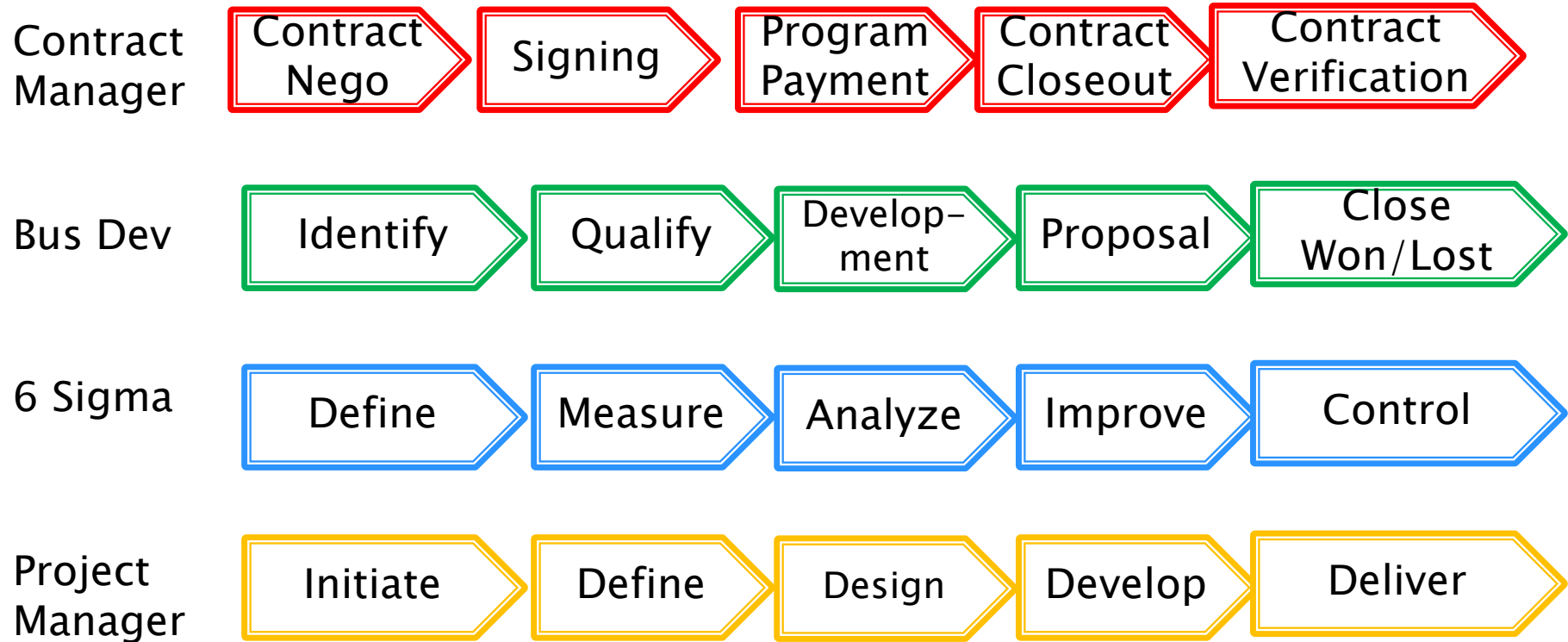
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# OBJECTIVES

- **WHY Effective Risk Management** is important to an organization?
- **What is Enterprise Risk Management**
  - Relevance of ISO 31000 to ERM
- **How does 6Sigma relate to ERM?**

# Risk Exposure Areas



**Risk Management Realities**

# Risk Exposure Areas

Contract  
Manager

Inflexibility

Bus Dev

High Maintenance and Cost

6 Sigma

Time Consuming Processes

Project  
Manager

Expansion of Scope

**Risk Management Realities**

# Definitions

## What is Risk?

- It is **ANYTHING** that may affect the achievement of an organization objectives.
- It is an “uncertainty” that matters
- Risk is not necessarily bad, it just reflects unknown *variability*
- Risks can be expressed as :
  - Threat – risk that Hinders the achievement of objectives
  - Opportunity – risk that Helps the achievement of objectives

# RISK MANAGEMENT

- It is proactive range of activities that an organisation intentionally undertakes to understand and reduce internal and external threats; as well as identifying opportunities that affect the likelihood of an organization's success.



**Effective risk management is:**  
Executing these activities efficiently and in a way that actually and demonstrably improves the ability of the organisation to meet its objectives in a repeatable fashion

# *Effective*

## Why is Risk Management important?



- ✓ Reduces the risks of major risk events that intervenes with the priority objective of the organization
- ✓ Reduces or avoids potential business losses
- ✓ Ensures greater operational efficiency.
- ✓ Ensure business continuity
- ✓ Contributes to informed decision making
- ✓ Evaluates business opportunities and is a vital component of the value-generating process.

# Enterprise Risk Management (ERM)

“Nascent tool” by APQC (American Productivity and Quality Center)

## Survey Findings:

- less than 20 percent of organizations said their enterprise risk management processes effectively identify new risks.
- 25% claimed to have complete ERM process.
- 61% of those surveyed said strategic risks, such as those in cybersecurity and supply chains—once identified—do not influence strategic plans.
- 53 % said their organization does not have an operative process for reporting risk to the board.

**“ Organizations are now reconsidering their compliance-driven ERM program” more and more and finding that a good ERM plan can increase shareholder value.”**



# What is ISO 31000?

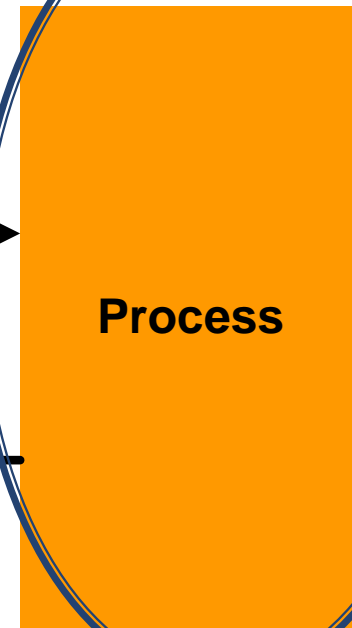
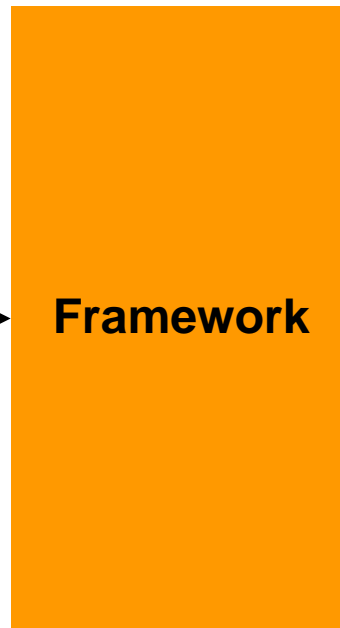
- ▶ It is the new international standard on risk management.
- ▶ ISO 31000 provides a generic framework for establishing the context of, identifying, analyzing, evaluating, treating, monitoring and communicating risk.
- ▶ It puts emphasis on risk management as a strategic discipline for making risk-adjusted decisions rather than a compliance-based function .
- ▶ Defines Risk: “effect of uncertainty on objectives”

# ISO 31000 – An Overview

Principles guide the creation of the framework

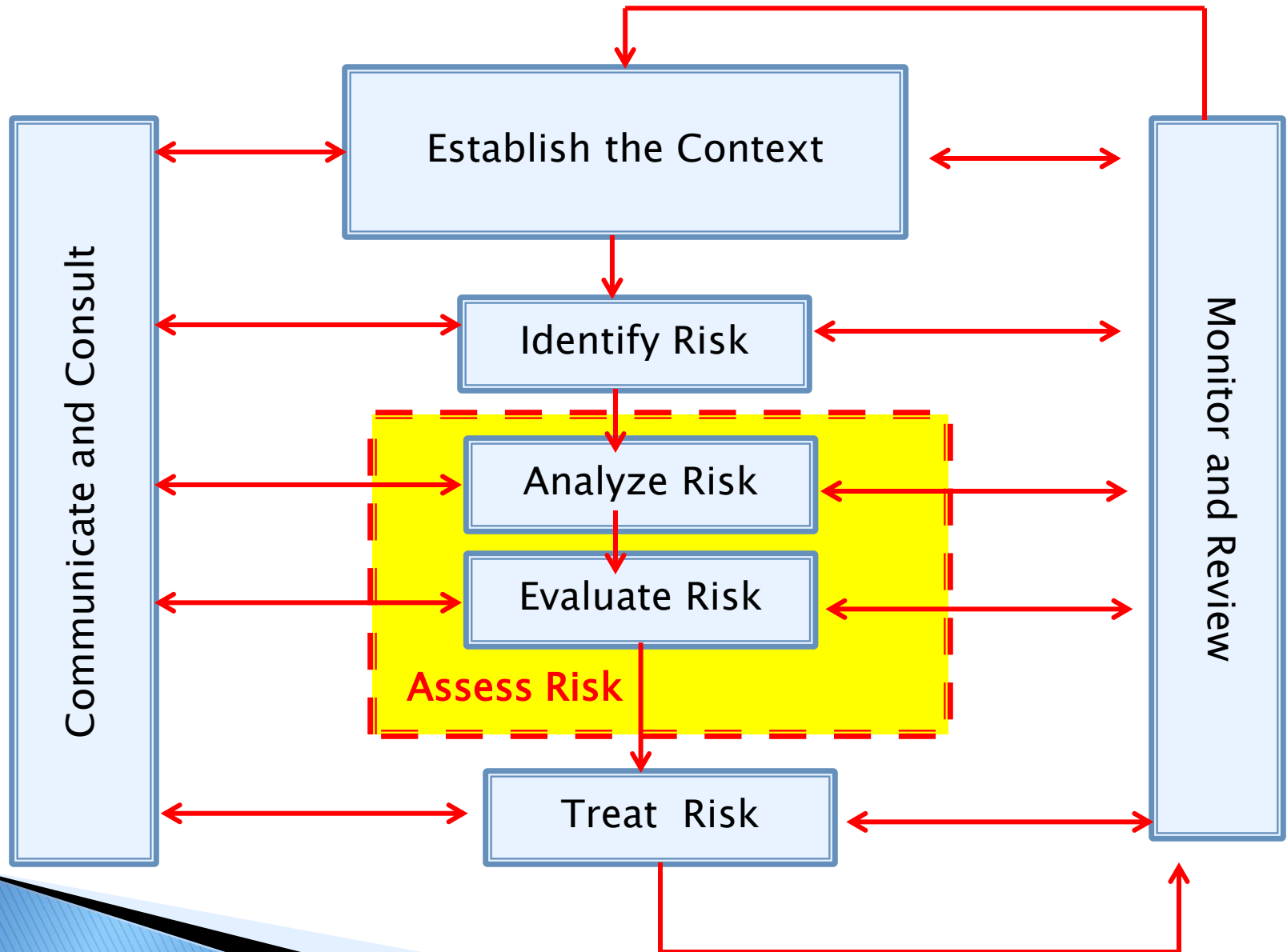


The framework defines the process



The performance of the process feeds back into the framework

# Risk Management Process



# Risk Management Process & DMAIC

## 1. Communication and Consultation :

- Communicate and consult with internal and external stakeholders should take place at all stages of the risk management process.

## 2. Establish the Context:

- Confirming the subject of the risk assessment
  - ✓ New programs, new products, integrated plans, capital projects
- Consider internal and external factors
  - ✓ Economic factors, gov't policy, budget, resources



# Risk Management Process & DMAIC

## 3. Identify the Risk events:

- Classify them strategic, operational, reporting, compliance
- Prioritize them



## 4. Risk Analysis:

- Assess and agree on features of risk events: likelihood, impact, ability to control, etc.
- Determine the degree of avoidance or acceptance of the risk.



# Risk Management Process & DMAIC

## 5. Risk Evaluation

- A Probability Impact Matrix can be used to plot probability and impact of risk identified .
- The matrix is a good tool for assessing the risks that have been identified and deciding on how to respond to them
- FMEA can also be used



# Probability Impact Matrix (Heat Map)

<b>P R O B A B I L I T Y</b>	5	Medium	Medium	High	Extreme	Extreme
	4	Medium	Medium	High	Extreme	Extreme
	3	Low	Medium	Medium	High	High
	2	Low	Low	Medium	High	High
	1	Low	Low	Medium	Medium	Medium
			1	2	3	4
		<b>IMPACT</b>				

Level	Min Point
Extreme	16
High	8
Medium	3
Low	1 15

# What is Failure Modes and Effect Analysis ? (FMEA)

It is Prevention Technique used to *define, identify and eliminate* potential problems from a system, subsystem, component or a process

- Focus on Prevention
- An assessment of Risk
  - Safety
  - Regulatory
  - Customer Satisfaction Program
- Coordinated/Documented team effort



# Risk Management Process & DMAIC

## 6. Treatment or Mitigation

- Once risks have been identified as requiring treatment, they need to be mitigated.
- Responses are:
  - ✓ Tolerate: Being passive, where no action is taken at all.
  - ✓ Treat: Reducing the probability and/or the impact of risk threat by taking early and pro-active action.
  - ✓ Transfer: Shifting the negative impact of a threat (and ownership of the response) to a third party.
  - ✓ Terminate: Eliminating the threat, isolating objective from the risk's impact, or relaxing the objectives that are in threatened.
- A contingency plan should be in place if the risk is determined to be outside the control of the organisation.

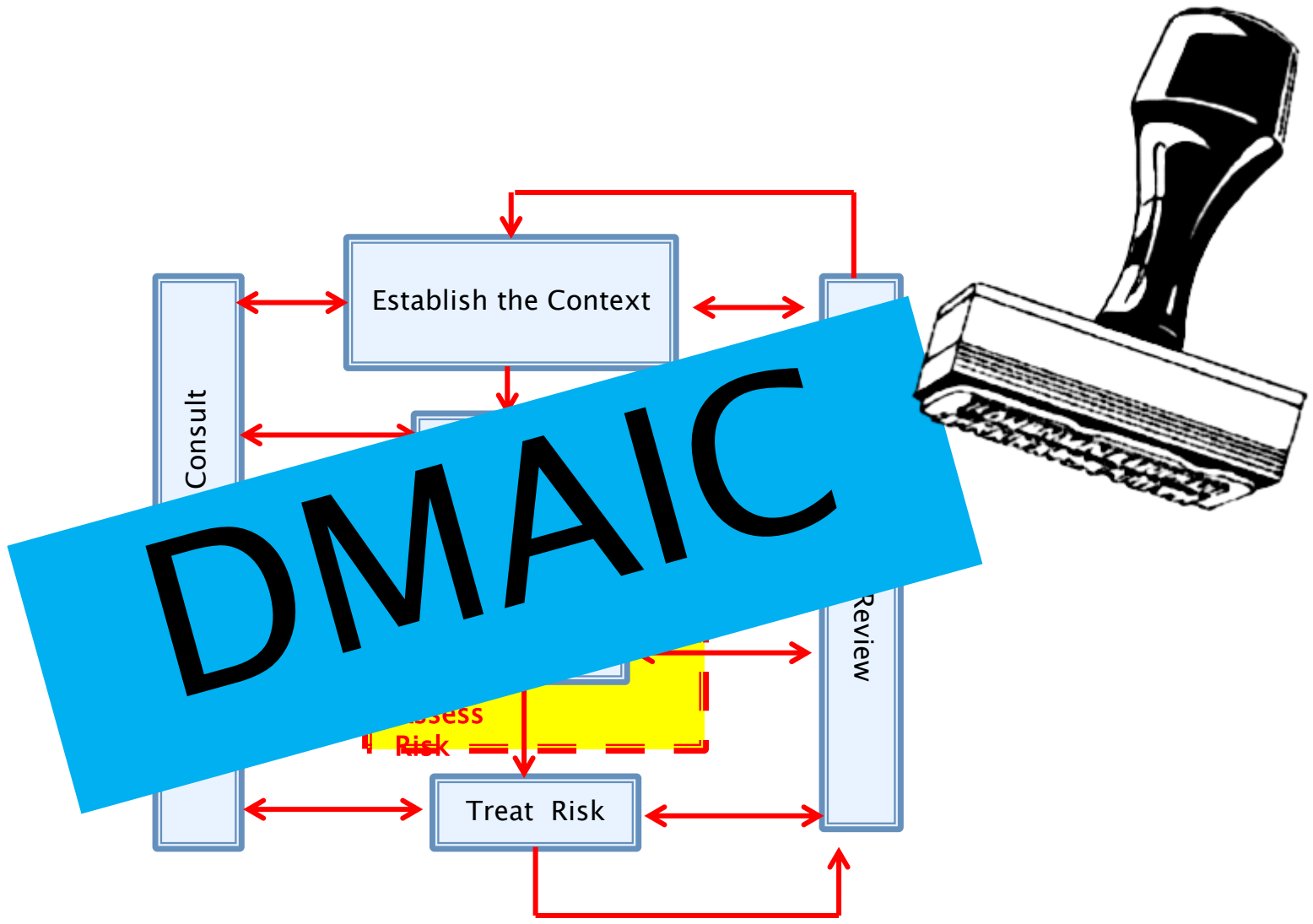


# Risk Management Process & DMAIC

## 7. Monitoring and review

- Follow-up activity with the purpose that policies and procedures have been carried out as intended.
- Updating the Probability Impact Matrix
- Develop metrics to measure performance and track effectiveness.





# Risk Components & 6Sigma Tools

## Risk Components:

- i. Internal Environment : Establishes the entity's risk culture.
- ii. Objective setting: considers the risk strategy and risk appetite in setting of objectives.
- iii. Event identification: involves identifying incidents, occurring internally or externally, that could affect strategy and achievement of objectives. It differentiates events that may have negative impact from those with positive impact.\*

## Six Sigma Tool

- i. Change Management Tools
- ii. SIPOC : where decision-making is based on linking customer expectations to process performance.
- iii. Statistical tools like process capability metrics and performance capability metrics maybe used to prioritize resources to improve performance.

# SIPOC in Risk Management

Supplier	Input	Process	Output	Critical Customer Requirement	Customer
Account Manager	Price List based on # of hrs	Discuss the required # of hrs needed for equipment rental.	Quotation	Customer-friendly # of hrs of equipment use that are operationally viable and cost effective to my operations.	Customer
Yard manager	Equipment Fleet	Coordinate with Sales on Equipment availability	b. # of well-maintained units available for rent	Good-running condition equipment	Customer

## Input Indicators

- a. No. of operating hrs. per contract
- b. # of equipment in fleet available for rent

## Process Indicators

- a. The most-appropriate no. of operating hrs
- b. # of well-maintained equipment available for rent

## Output Indicators

- a. # of closed sales
- b. delivery of equipment

# Risk Components & 6Sigma Tools

## Risk Components:

### iv. Risk Assessment :

- Allows an entity to understand the extent to which potential events might impact objectives.
- Assesses risks from two perspectives:
  - Likelihood
  - Impact

### v. Risk Response:

- Identifies and evaluates possible responses to risk.
- Evaluates options in relation to entity's risk appetite, cost vs. benefit of potential risk responses, and degree to which a response will reduce impact and/or likelihood.

## Six Sigma Tool

### iv. Translate qualitative to more quantitative methods:

- FMEA
- Cause and Effect matrix
- Risk matrix

- v. IF FMEA is used; the RPN (Risk Priority Number) will define the risks that need to be prioritized. And business decisions can be made to avoid and mitigate risk.



# Six Sigma and ERM Relationship

## Common elements:

- Both focus on delivering value to stakeholders
- Both rely on business processes
- Both puts importance to data integrity
- Both deals with risk and uncertainty that matters.

## Risk Approaches

Six Sigma's approach : from an operations and production viewpoint

ERM's approach : from a financial reporting viewpoint



# Conclusions:

The application of Six Sigma Methodology can help companies to achieve goals and manage risks.

The structure, statistical methods and deployment readiness of Six Sigma can enhance the application and effectiveness of ERM in these areas:

- Skilled Employees
- Implementation of Tool
- Value Creation



**Six Sigma is the Avenger that will make the organization “bullet-proof” from risk events and define opportunities that can be pursued to meet its objectives**



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