Types of Risk Management

Now that we understand the basic terms and definitions in Risk Management, it's time to take that basic definition of risk and apply it to all aspects of Business.

This is critical because you as a Quality Engineer can apply your knowledge of Risk Management to every aspect of business, not simply the realm of Quality.

If we look at the CQE Body of Knowledge, ASQ expects that you can apply the concept of risk management to many different aspects of business, which they summarize as 3 main categories – Enterprise Risk, Operational Risk and Product Risk.

2. Types of risk management

Understand and apply various types of enterprise (strategic, software, business, regulatory, medical, audit), operational (supplier, supply chain, safety, project, manufacturing, operations, service, quality system), and product (design, process, use, safety) risk management. (Apply)

Within those 3 major categories are a plethora of specific application areas where risk management should be considered.

It's important to stress that this list is not fully inclusive as the basic definition of risk can apply to ALL aspects of business and even your personal life.

Enterprise	Operational	Product
• Strategic	• Supplier	• Design
• Software	• Supply Chain	• Process
• Business	• Safety	• Use
• Regulatory	• Project	• Safety
• Medical	• Manufacturing	
• Audit	• Operations	
	• Service	
	• Quality System	

Refreshing on the Definition of Risk

To understand how risk applies to all these different areas, we must refresh on the definition of risk.

According to ISO 31000:2018 - Risk is the effect of <u>uncertainty</u> on _____ objectives.

I added that blank space (_____) because I want you to insert the **different objectives** that exist in the various areas of your organization.

Strategic Objectives, Project Objectives, Supply Chain Objectives, Safety Objectives, Design Objectives, Audit Objectives, Operations Objectives, Software Objectives, Business Objectives.

WHY You Should Apply Risk-Based Thinking to all Areas of Your Business

What I want to do next, is to go through specific examples of the various types of objectives that exist throughout any organization.

As we talk about these objectives, we will also identify risks that might prevent us from achieving those objectives, and talk about how we can mitigate those risks.

This is a good time to talk about the REASON we use risk management.

We use risk management because we want to increase the chances of achieving our objectives.

If you want to **make more money** (*Business objective*), you're more likely to achieve that objective if you manage the risks that you face in that area.

If you want to **improve the lead time of your product** (*supply chain objective*), you're more likely to achieve that objective if you manage the risks that you face in that area.

Strategic Risk

Let's see how we can apply the definition of risk, to the area of Strategy.

Risk is the effect of uncertainty on *Strategic* objectives.

Let's say, for example you have a strategic objective to **"Expanding into a new market."** Once you identify that strategic objective, you can then identify the risks that might prevent you from achieving that objective.

What Risks might we face when attempting to expand into a new market???

- Is it Potential or Actual Competitors in that new market?
- Is it the Real Estate cost in that new market?
- Is it the Labor costs in that new market?

Once you've identified those risks, step 2 in the risk management process is Risk Analysis.

Remember, risk analysis considers two aspects of each risk: the **probability** of occurrence and the **severity**.

Risk = Probability * Severity

So we could ask ourselves questions like - What is **the probability** that the labor costs in that new market will be an issue?

Or - What would the **impact on our objective** (severity) if the real estate prices were high in that new market?

Once we've analyzed all of the identified risks, we can prioritize the biggest risks and then mitigate them using a tool like a risk register, which we will discuss in the next chapter.

Risk Description	Probability (Likelihood)	Impact (Severity)	Risk Score	Mitigation
Competitors	Medium (2)	High (3)	6	Product Differentiation, Social Media Marketing
Real Estate	Low (1)	Low (1)	1	N/A
Labor	High (3)	Medium (2)	6	Contract Labor

Business Risk

Let's see how we can apply the definition of risk, to the area of Business.

Risk is the effect of uncertainty on *Business* objectives.

Let's say, for example you have a strategic objective to **"Improving profit margins by 5%."** Now that we've identify that objective, you can then identify the risks that might prevent you from achieving that objective.

What Risks might we face when attempting to improve profit margins???

- Is it a major change in the raw material of your product?
- Is it a major change in the labor associated with your product?
- Is it a major competitor who might undercut your in price?

Once you've identified those risks, step 2 in the risk management process is Risk Analysis.

Remember, risk analysis considers two aspects of each risk: the **probability** of occurrence and the **severity**.

So we could ask ourselves questions like - What is **the probability** that the raw material costs might increase?

Or - What would the **impact on our objective** (severity) if a new competitor entered our market?

Once we've analyzed all of the identified risks, we can prioritize the biggest risks and then mitigate them using a tool like a risk register, which we will discuss in the next chapter.

Remember, **by addressing these Risks we increase the likelihood of achieving our business objective.**

Supply Chain Risk

Let's see how we can apply the definition of risk, to the area of your organizations Supply Chain.

Risk is the effect of uncertainty on *Supply Chain* objectives.

Let's say, for example you have a strategic objective to **"<2 supply disruptions per quarter."** Now that we've identify that objective, you can then identify the risks that might prevent you from achieving that objective.

What are the risks that might disrupt our supply chain?

- Could a Single Source Supplier disrupt your supply chain?
- What Internal Constraints do you have that might disrupt your supply chain?
- What Single Points of Failure exist in your supply chain that might cause a disruption?

Once you've identified those risks, step 2 in the risk management process is Risk Analysis.

Remember, risk analysis considers two aspects of each risk: the **probability** of occurrence and the **severity**.

So, we could ask ourselves questions like - What is **the probability** that a single source supplier causes a disruption?

Or - What would the **impact on our objective** (severity) that supplier goes out of business?

Once we've analyzed all of the identified risks, we can prioritize the biggest risks and then mitigate them using a tool like a risk register, which we will discuss in the next chapter.

Remember, **by addressing these Risks we increase the likelihood of achieving our supply chain objective.**

The 4 Step Process of Risk Management Across the Business

Think back to the start of this presentation where we talked about all of the different aspects of your business.

Strategy – Auditing – Software – Regulatory – Suppliers – Supply Chain – Safety – Projects – Operations - Design

All of those areas of business have their own unique objectives.

And the application of risk management simply follows this 4-step process:

- Clarify the objective you want to achieve
- Identify the risks that might prevent you from achieving that objective
- Analyze that risk by considering the probability of occurrence and severity
- Prioritize and mitigate those risks

Remember, by using this simple process, we increase the likelihood of achieving our objectives!

Examples of Objectives Across the Various Business Areas

Just to spark your creativity, I wanted to give you examples of specific objectives that you might have in all of the listed areas of business.

Then, I would encourage you to think about risk events (failure modes) that might prevent you from achieving that objective!

Category	Area	Objective
Enterprise Risks	Strategic	Expanding into a new market
	Software	Ensure Critical Data is Retained and Safeguarded
	Business	Improving profit margins by 5%.
	Regulatory	100% compliance with all regulatory requirements
	Medical	Reduce or Maintain Employee Health Insurance Costs
	Audit	0 criticals and <2 Majors per Audit
Operational Risks	Supplier	< 2 Major Supplier Quality Issues per Quarter
	Supply Chain	<2 supply disruptions per quarter.
	Safety	0 Series Injuries over a 12-month period
	Project	On-Time Project Completion
	Manufacturing	>98% of Monthly Production Target
	Operations	Maintain Staffing Levels of 95%
	Service	Maintain Stock Availability at 99%
	Quality System	Improve the CAPA Timeliness over the next Quarter
Product Risks	Design	Design a product that meets the customers needs
	Process	Produce a product that meets the customers needs
	Use	Design a product with minimal user risks
	Safety	Design a product that won't harm the end user