

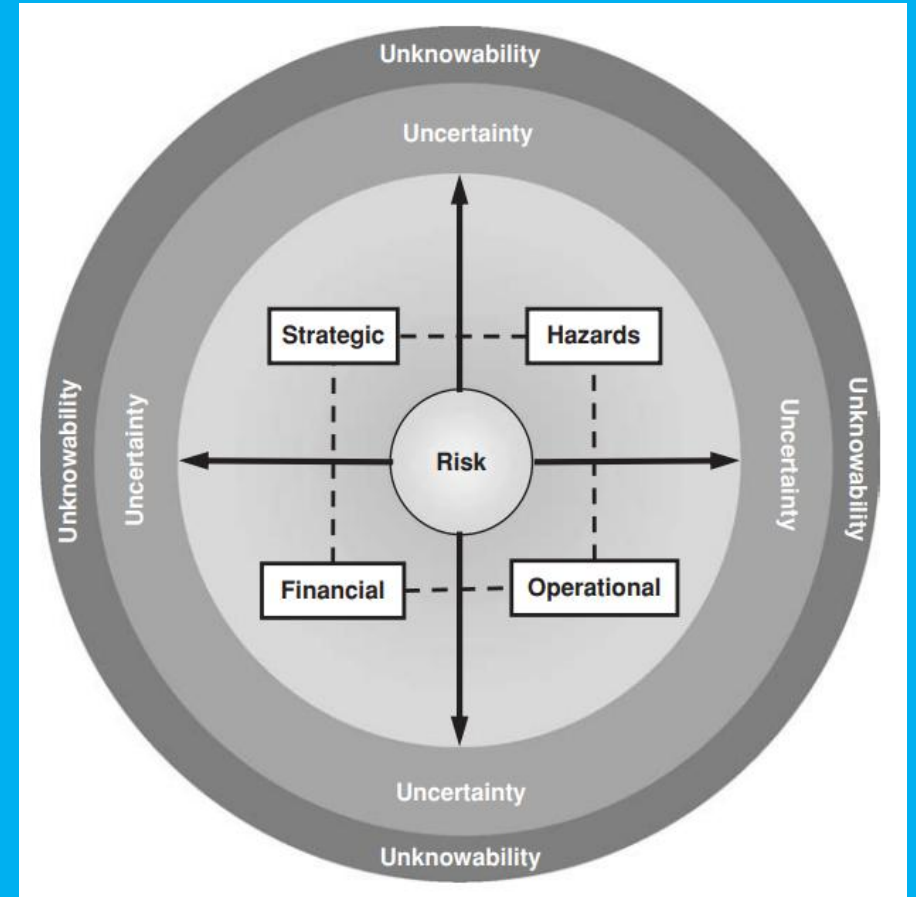
Strategic And Operational Risk Management

PMG630

Prepared by

Dr. Ayman Hassan

Lecture .4 “Tools and Techniques”



The background features a series of vertical panels of varying heights and colors (dark blue, light blue, white). Overlaid on these panels are several white line-art icons: a graduation cap, a laptop with a play button, a target with an arrow, an open book, a magnifying glass, and a group of people. The main title is centered on the right side of the slide.

Tools and Techniques, “**J**ob **S**afety **A**nalysis”

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Chapter
3

Divided into two parts

PART I **FUNDAMENTALS OF OPERATIONAL RISK MANAGEMENT**

CHAPTER 1 **INTRODUCTION TO OPERATIONAL RISK**

CHAPTER 2 **THE RISK MANAGEMENT PROCESS**

2 Chapters

PART II **MANAGING OPERATIONAL RISKS**

CHAPTER 3 **TOOLS AND TECHNIQUES**

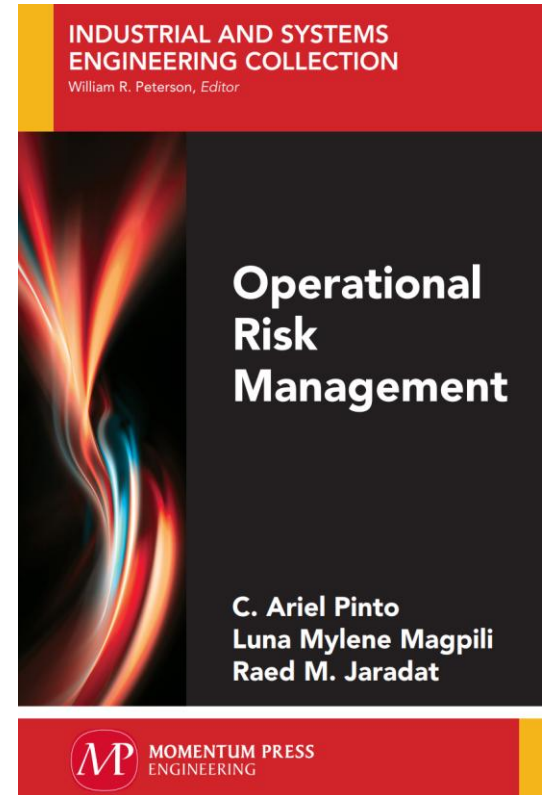
CHAPTER 4 **TREATMENT OF RISK**

CHAPTER 5 **RISK MONITORING, REPORTING, AND REVIEW**

CHAPTER 6 **SYSTEMS THINKING AND THE RISK MANAGER**

CHAPTER 7 **HOW TO FIND SYSTEMS THINKERS**

5 Chapters



REF, 1

9 Strategic risk management

In the preceding chapters, we have looked into the many ways in which the corporation can manage the adverse economic influences caused by a variety of risk factors. These risks include environmental hazards and market volatilities that can be recorded and thereby have a basis for quantification and instrumentation to diversify and hedge exposures. They comprise operational disruptions from irregular internal processes, errors, fraud, etc. where exact exposures are difficult to determine and are often managed by imposing exposure limits and internal controls. They also count various strategic risks that not only may be hard to quantify, but also difficult to foresee and thus require firm-specific response capabilities to observe subtle environmental changes and enable the organization to reconfigure and adapt. The effective handling of such diverse, complex and partially interacting risks must include a combination of different risk management approaches rather than adopting a single unified enterprise-wide framework.

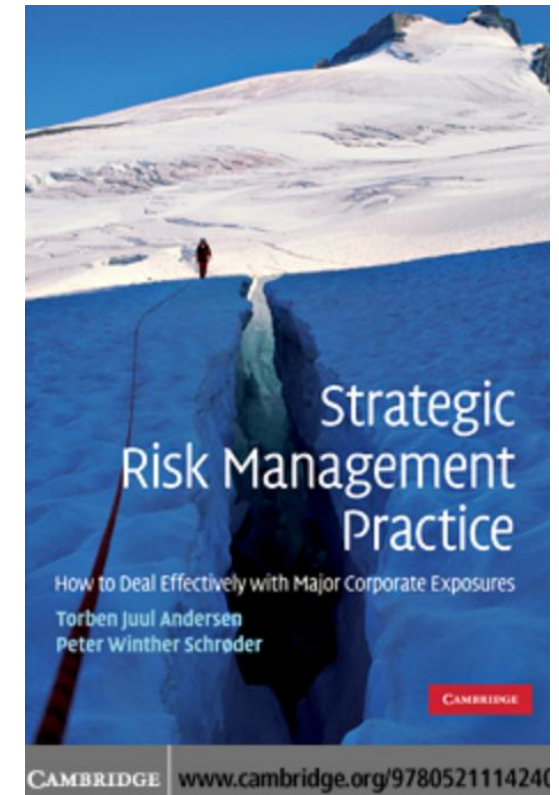
Drawing on the previous discussions, it seems clear that effective risk management requires an amalgam of centralized risk monitoring and coordinating processes supported by specialized risk functions in combination with a general ability to respond decentrally where new risk events arise. In the following, we will discuss further how these integrated risk management processes may be organized and how they can accomplish the commonly stated purpose in risk management of avoiding downside losses and at the same time exploiting upside potentials. We will subsequently use the outcomes from these analyses to outline the contours of a set of effective risk management practices.

9.1 Organizing the risk management activities

There is clearly a need for specialized risk management capabilities at the functional level to manage specific risks and access professional risk transfer markets, for example, in areas like insurance contracting, financial hedging, internal auditing, legal concerns, regulatory compliance, etc. At the same time, the firm must be able to integrate risk assessments at the corporate level to the extent that risk factors are significantly interrelated. These dual needs for risk management expertise dispersed at functional entities and centralized risk management coordination and reporting is to a large extent related to identifiable and

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Lecture 10



REF,2

1. Summary of the previous lecture .
2. Introduction
3. What is **JSA**, “**J**ob **S**afety **A**nalysis”
4. Where and when to use **JSA**?
5. **JSA** Format
6. Generalized Steps For **JSA**
7. Why is the **JSA** tool important?
8. summery

- We have explained in the previous lecture that this chapter talks about many common techniques and principles used in operational risk management. These techniques include preliminary hazard analysis (**PHA**) and hazard and operability analysis (**HAZOP**), and we have already discussed both techniques in our previous lecture.

- **In this lecture, we will explain two risk analysis and evaluation techniques:**
 - ✓ Job Safety Analysis (JSA).

What is JSA, “Job Safety Analysis”

- (JSA) is a safety tool that can be used to define and control hazards associated with a certain process, job, or procedure. It is a systematic examination and documentation of every task within each job to identify health and safety hazards, and the steps to control each task.
- A JSA is a qualitative technique used to identify and control workplace hazards to prevent accidents.
- In a JSA, each basic step of the job is examined to identify and address potential hazards.

- The aim is to recommend the safest way to do a job.
- It focuses on the relationship between the worker, the task, the tools, and the work environment.
- Similar to HAZOP, JSA does not attempt to quantify risk in terms of likelihood or consequence.

Focus	Emphasizes the relationship between the worker, the task, the tools, and the work environment
Origin	Traditionally used in manufacturing and construction industries.
Terminology	‘Safety’ suggests a broader focus on the overall work environment and practices.
Methodology	Follows a step-by-step approach to identify unsafe practices and conditions.
Documentation	Results in the creation of safe job procedures and often integrates with training.

Implementation

JSA is generally seen as a proactive measure to prevent accidents.

Regulatory requirements

Some jurisdictions may specifically require a JSA for certain jobs.

Employee involvement

Encourages worker participation to identify unsafe conditions and behaviors.

Outcome

Aims to create a safe workflow and reduce workplace accidents and injuries.

- Jobs that have taken on changes in procedures, equipment, and materials.
- Jobs are affected by new or revised regulations or standards.
- Newly created jobs, uncommon or seldom-performed jobs with little or no history, and routine jobs requiring regular or continuous exposure to hazards should undertake a JSA.



Where and when to use **JSA**?

- Ideally, all jobs should undergo safety analysis.
- If possible, JSAs should also be performed for no routine activities such as maintenance, repair, or cleaning and jobs that are offsite, either at home or on other job sites (e.g., teleworkers).
- Examining hazards to visitors and the public should also be included.
 - As it involves extensive documentation and recording of job tasks, JSA is an effective setting to create and improve standard operating procedures (SOP).
 - It is useful to train, educate, and update employees regarding job operation and safety practices.

Where and when to use **JSA**?

- It can serve as a guide for employee performance review, training, and accident investigations.
 - JSAs are widely used in the construction, manufacturing, oil and gas, and many labor-intensive industries.
- “**JSA** can also complement PHA, HAZOP, or other risk studies by providing supporting analysis on specific job- or task-related elements, particularly those that are safety critical or ranked high priority.”

The tabular form or spreadsheet is the typical format of a JSA work-sheet.

An example is shown in Figure 3.4.

Unlike PHA and HAZOP, the columns of the JSA worksheet generally follows only two of the key risk questions of risk management discussed in Chapter 2

- What can go wrong?
- What can be done to detect, control, and manage them?
- The other questions are omitted.
- The JSA worksheet is intended to be completed one column at a time.
- The following are the descriptions of columns that correspond to the JSA worksheet shown in Figure 3.4.

- What can go wrong?

{ Column 1: Job steps or tasks

{ Column 2: Hazards or unwanted events related to each task

- What are the causes and consequences?
- What are the likelihood or chances of occurrence?

{ Omitted in JSA measure

- What can be done to detect, control, and manage them?
 - { Column 3: Prevention and control measures for each hazard
 - { Column 4: Person responsible for the prevention or control measure

Department:	Job analyzed: Welding in confined spaces	Performed by: Supervisor:	Date:
Location:		Analysis by: Reviewed by: Approved by:	Started: Completed:
Required personal protective and emergency equipment: Gas, oxygen detector, extraction fan, blower, creeper, lifeline, hardhat, welding jacket, mask, goggles, and gloves			
(1) Sequence of basic job steps <i>List the tasks required to perform the activity in the sequence they are carried out</i>	(2) Potential accident or hazards <i>Per task, list the hazards that could cause injury when the task is performed</i>	(3) Control or prevention measures <i>Per hazard, list the control measures required to eliminate or reduce the risk of injury arising from the hazard</i>	(4) Person responsible <i>Per control measure, identify the person responsible to implement the control or prevention measures</i>
Pre-entry	Pressurized fluid Flammable or toxic atmosphere Lack of oxygen	Ensure the confined space is depressurized and content is drained or cleaned Ensure the confined space is flushed, purged, and thoroughly ventilated as required Ensure confined space is ventilated with sufficient oxygen for normal breathing	Maria
Entry	Lack of contact with worker Dark and insufficient illumination	Place attendant near entry Check lighting, replace bulbs if needed	John

Welding	Flammable or toxic atmosphere	Use extraction fan or blower	
	Fire and explosion	Monitor oxygen and gas levels	
		Use creeper or lifeline	
	Lack of oxygen	Use extraction fan or blower	
	Asphyxiation	Monitor oxygen and gas levels	
		Use creeper or lifeline	
	Getting flashed	Wear welding mask	David
		Change angle of weld	
		Use nonreflective board	
	Getting burned	Wear protective clothing, welding jacket, gloves, and welding mask	
	Hot metal or sparks getting in face or eye	Wear goggles or safety glasses under welding mask	
	Fire hazard from sparks	Check for flammable materials	
		Wear welding jacket	John, David
		Fire watch	
		Check if fire extinguisher is available	
	Inhalation of fumes	Use extraction fan or blower	John
		Perform gas test	
		Use creeper or life line	
Exit and completion	Foreign materials left inside	Ensure there is no tool, equipment, rags, or other material left inside	John, David

Figure 3.4. JSA worksheet for welding in confined spaces.¹⁰

1. Break the job down into a sequence of basic steps or tasks.
2. Identify potential accident or hazards.
3. Determine preventive and control measures to address the hazards.

Step 1

breaks down the job into a sequence of basic tasks or steps.

The listing of the steps is done sequentially according to the order in which the tasks are performed.

This can be done by direct observation or the group discussion method. Observing an experienced employee coupled with enlisting other employees or a supervisor to validate the task steps can be most effective.

- ✓ The use of action words or phrases (e.g., pick up, turn on) to describe each step helps in breaking down a job into steps.
 - ✓ If observed, steps that are not part of the standardized job (standard operating procedure SOP) should be included (and addressed for appropriateness).
 - ✓ To support high-quality documentation, video recordings of the job in action can be compiled.
- ❑ Note that the JSA worksheet should be completed one column at a time.**

1

- ❖ Risk management: JSAs are integral to an organization's **risk management** strategy.
- ❖ They help identify risks before accidents occur, allowing for the implementation of preventative measures to save the organization from costly incidents, legal action, and reputation loss.

❖ Compliance:

- ❖ In the United States, the Occupational Safety and Health Administration (OSHA) outlines standards that often require identifying and mitigating workplace hazards.
- ❖ A JSA helps organizations comply with these regulations, including specific industry standards and general duty clauses.

Increased efficiency

- ❖ Regularly conducting JSAs can lead to improvements in job processes.
- ❖ By analyzing and updating safety procedures, organizations can make tasks more efficient and reduce the chance of hazardous events.

Why is the **JSA** tool important?

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Skills gaps

- The JSA process can reveal employee Training and development needs.
- Organizations can better train their employees on safety practices and proper responses to potential incidents by understanding the risks associated with a job.

Incident assessment

- ❖ Should an incident occur, a JSA provides a baseline for understanding how it happened and what might prevent it in the future?.
- ❖ This information is invaluable for effective incident investigation and analysis.

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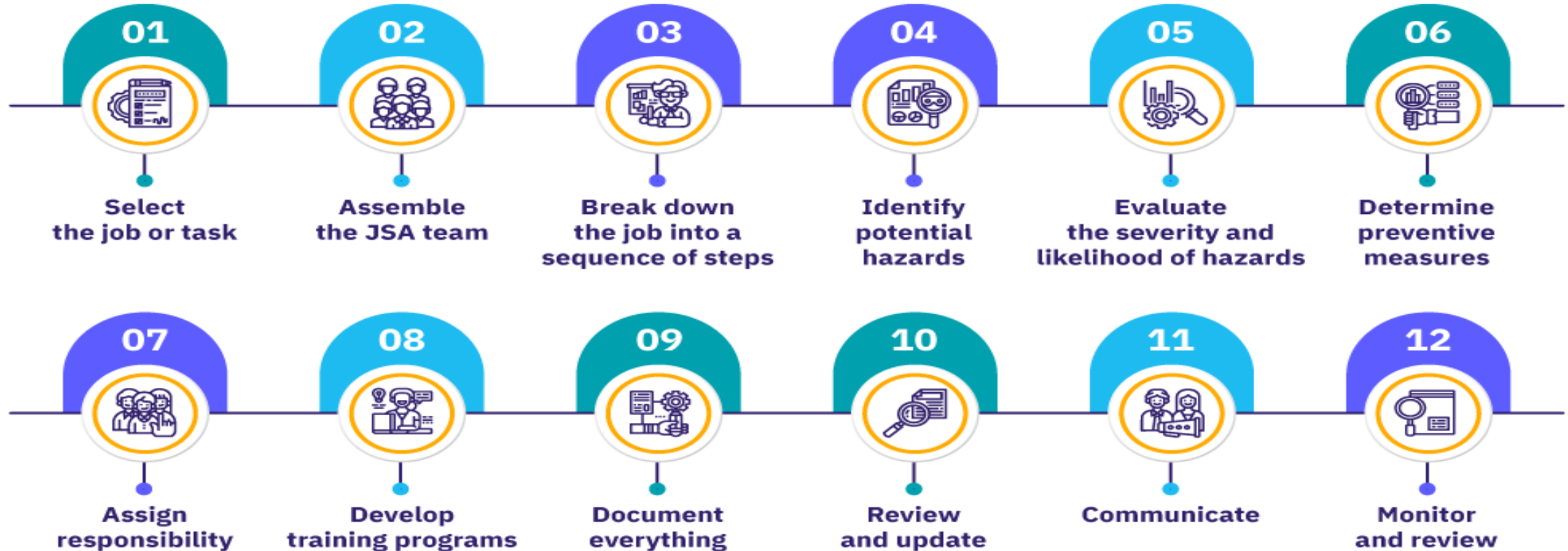
➤ **Cost-savings**

- By avoiding workplace incidents and their associated costs (medical care, compensation, downtime, and potential fines),.
- A JSA can lead to significant cost savings for an organization.

HR Tips

- ❖ Evaluate each hazard by considering the likelihood of an event or exposure, the severity of any potential outcomes, and the number of employees who might be exposed.
- ❖ Engage with operational departments to base the JSA on a realistic understanding of day-to-day tasks and the actual conditions under which work is performed.

Job Safety Analysis 12 Simple Steps



Conducting a job safety analysis is a detailed process that involves several key steps.

It has three main elements:

- the job at hand,
- the potential hazard, or what can go wrong,
- the control measure that must be put in place and followed to mitigate the hazard.

However, to achieve these three objectives takes 12 clear steps.

We have captured them as coming .

1**1. Select the job or task**

Identify a job or task to analyze, typically one with a high potential for injury or a history of incidents.

Prioritize complex jobs that are performed infrequently or have changed recently.

2**2. Assemble the JSA team**

Gather a team that includes a cross-section of those involved with the job, including workers, supervisors, and safety professionals.

This team should have firsthand knowledge of the job and its potential hazards.

3

3. Break down the job into a sequence of steps

Divide the job into its individual steps and describe what is done at each stage. Be detailed enough to capture the nuances of the job without becoming overly complex.

4**4. Identify potential hazards**

Identify hazards that could potentially cause harm for each step. Consider the full range of physical, chemical, biological, and ergonomic risks.

5**5. Evaluate the severity and likelihood of hazards**

Assess each hazard for its potential severity and the likelihood of occurrence. This evaluation can help prioritize which hazards require the most immediate attention.

6

6. Determine preventive measures to overcome these hazards

Develop strategies to eliminate the hazard or reduce the risk to an acceptable level.

Consider engineering controls, administrative changes, or the use of personal protective equipment.

7

7. Assign responsibility

Clearly assign responsibility for implementing the preventive measures. Specifying which person or department is responsible for each action will encourage accountability as well.

8**8. Develop training programs**

Based on the findings of the JSA, develop or update training programs to ensure all employees are aware of the hazards and know how to work safely.

9**9. Document everything**

Record all aspects of the JSA process, including the job steps, hazards, evaluations, and preventive measures. Documentation should be clear, accessible, and maintained for future reference.

10**10. Review and update**

Periodically review the JSA to make sure it remains relevant and effective. Update the analysis if there are changes in the work process, equipment, or personnel.

11**11. Communicate**

Share the JSA results with all employees who perform the job. Effective communication helps the workforce understand the hazards and measures in place to control them.

12**12. Monitor effectiveness**

After implementing preventive measures, continuously monitor their effectiveness.

Review the JSA if there is an incident, a near miss, or if routine monitoring shows a need for improvement.

Failing to perform a job safety analysis can expose an organization to numerous risks with potentially severe consequences.

1.Workplace accidents and injuries:

Without a JSA, an organization might not identify and mitigate potential hazards, leading to higher workplace accidents and injuries.

2.Legal ramifications:

Organizations not complying with safety regulations mandated by entities such as OSHA could face legal repercussions, including fines and penalties.

3.Costs:

For organizations that do not conduct JSAs, the costs associated with workplace injuries, lost productivity, increased insurance premiums, and potential legal action can be significant.

4.Reputational damage:

Workplace accidents can damage an organization's reputation, impacting customer trust and the ability to attract and retain top talent.

5.Increased turnover rates:

Employees may feel undervalued and at risk, leading to low morale, reduced engagement, and high turnover rates.

6.Loss of productivity:

Accidents can cause significant disruptions to operations, including downtime and the need to reassign or hire new staff.

7.Reduced work output:

Inadequate attention to safety can result in poor job performance and a lower quality of work output.

8.Decreased efficiency:

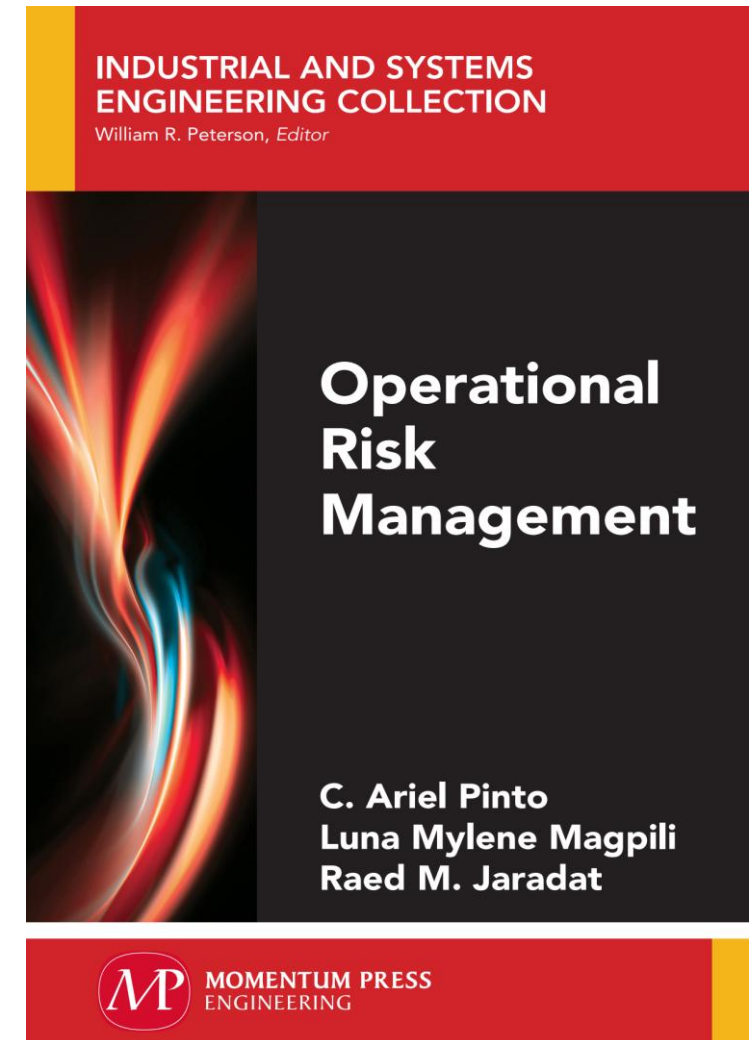
A lack of JSAs can mean missed opportunities to optimize and streamline work processes for better efficiency.

- The job safety analysis (JSA) is critical in ensuring workplace safety and compliance with regulatory standards.
- HR professionals are ideally placed to design and implement a comprehensive approach to identifying, evaluating, and mitigating hazards associated with specific jobs, preventing workplace injuries and fatalities as a result.

1. Operational Risk Management, C. Ariel Pinto, Luna Mylene Magpili, Raed M. Jaradat



3. <https://www.aihr.com/>





My Best Wishes ...
Dr. Ayman Hassan