



THE RELIABILITY ENGINEER PRIMER

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III. RISK MANAGEMENT

**TAKING CALCULATED RISKS IS QUITE
DIFFERENT FROM BEING RASH.**

GENERAL GEORGE S. PATTON



**III. RISK MANAGEMENT
IDENTIFICATION/RISK MANAGEMENT TECHNIQUES**

II.A.1

Risk Management Identification

Risk Management is presented in the following topic areas:

- **Identification**
 - **Risk Management Techniques**
 - **Types of Risk**
- **Analysis**
 - **Fault Tree Analysis**
 - **FMEA**
 - **Common Mode Analysis**
 - **Hazard Analysis**
 - **Risk Matrix**
 - **System Safety**
- **Mitigation**



**III. RISK MANAGEMENT
IDENTIFICATION/RISK MANAGEMENT TECHNIQUES**

II.A.1

Risk Management Techniques

Risk is defined as the probability of an undesirable event occurring and the impact of that event. Failure of a project or venture can be experienced in any combination of the following three ways:

- **The product or activity does not meet expected performance levels**
- **The actual costs are higher than budgeted costs**
- **The delivery or timing of the product or activity is too late**

Additionally, performance, cost, and schedule risks can be segmented into five risk areas. These are:

- **Technical performance**
- **Supportability risk**
- **Environmental risk**
- **Cost risk**
- **Schedule risk**



**III. RISK MANAGEMENT
IDENTIFICATION/RISK MANAGEMENT TECHNIQUES**

II.A.1

Risk Management Techniques (Continued)

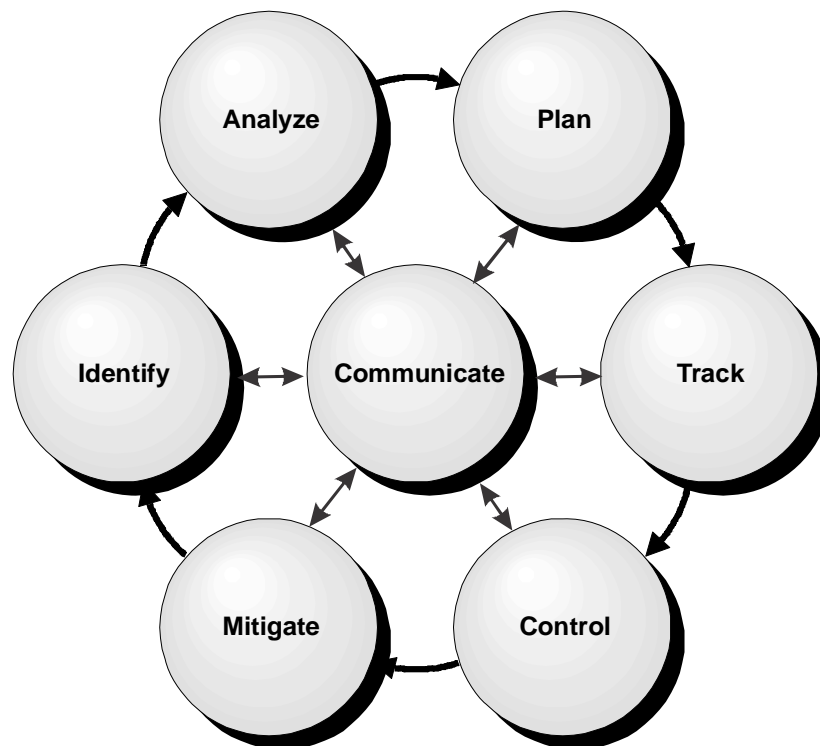
The risk management continuous process consists of:

- **Identify:** Locate risks before they become abuse problems.
- **Analyze:** Transform risk data into decision-making information.
- **Plan:** Translate risk information into decisions and implemented actions.
- **Track:** Monitor the risk indicators and actions taken.
- **Control:** Adjust for deviations from planned actions.
- **Mitigate:** Reduce the impact of any unforeseen event.
- **Communicate:** This is the **KEY** element in a successful program.

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IDENTIFICATION/RISK MANAGEMENT TECHNIQUES

II.A.1

Risk Management Techniques (Continued)



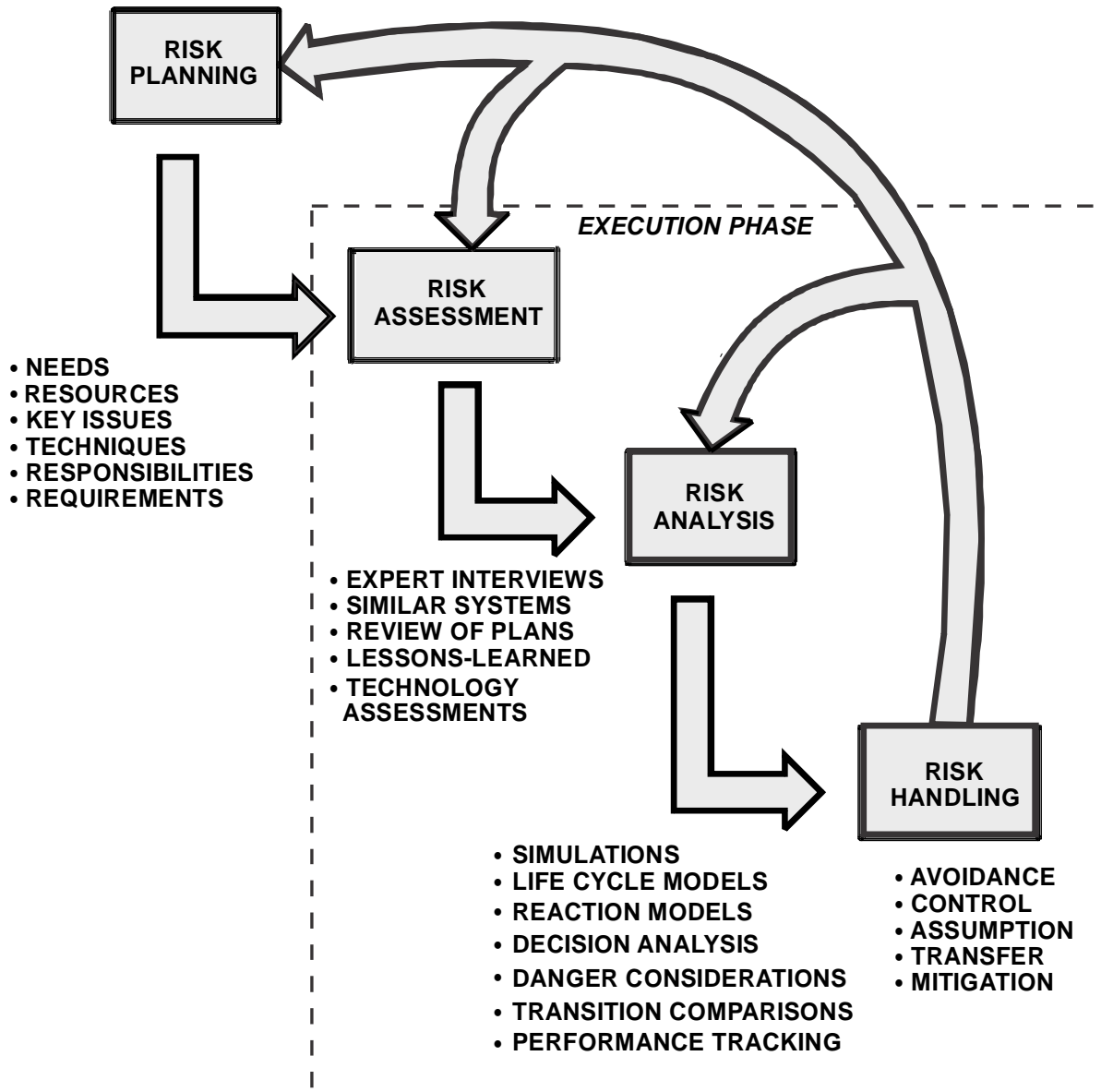
Risk Management Continuous Process



III. RISK MANAGEMENT
IDENTIFICATION/RISK MANAGEMENT TECHNIQUES

II.A.1

Risk Management Techniques (Continued)



Risk Management Process



**III. RISK MANAGEMENT
IDENTIFICATION/TYPES OF RISK**

II.A.2

Types of Risk

Sufficient stakeholder profits cannot be obtained without accepting risk. Recently, the business world has become more concerned with the subject of risks, especially as it relates to business decisions. All activities of an organization involve risks; some of the risks are small, and some are large.

One definition of risk:

“The probability of an undesirable event occurring and the impact of that event occurring.”

Regardless of which definition of risk is used, risk management involves consideration of a combination of the probability of occurrence and impact of that occurrence.



**III. RISK MANAGEMENT
IDENTIFICATION/TYPES OF RISK**

II.A.2

Types of Risk (Continued)

Some of the types of risks include the following issues:

- **Technical**
- **Safety**
- **Scheduling**
- **Financial**
- **Personnel**
- **Market**
- **Credit**
- **Operational**
- **Legal**
- **Regulatory**
- **Product development**
- **Supplier**