

# RISK MANAGEMENT



# Risk vs Problem

- RISK IS AN UNCERTAINTY (FEAR OF UNKNOWN).
- **PROBLEM** IS SOME EVENT WHICH HAS ALREADY OCCURRED BUT **RISK** IS SOMETHING THAT IS UNPREDICTABLE.

# Risk Categorization

- KNOWN RISKS
  - THOSE RISKS THAT CAN BE UNCOVERED AFTER CAREFUL EVALUATION OF THE PROJECT PLAN, THE BUSINESS AND TECHNICAL ENVIRONMENT IN WHICH THE PROJECT IS BEING DEVELOPED, AND OTHER RELIABLE INFORMATION SOURCES (E.G., UNREALISTIC DELIVERY DATE)
- PREDICTABLE RISKS
  - THOSE RISKS THAT ARE EXTRAPOLATED FROM PAST PROJECT EXPERIENCE (E.G., PAST TURNOVER)
- UNPREDICTABLE RISKS
  - THOSE RISKS THAT CAN AND DO OCCUR, BUT ARE EXTREMELY DIFFICULT TO IDENTIFY IN ADVANCE.

# Reactive vs. Proactive Risk Strategies

## REACTIVE RISK STRATEGIES

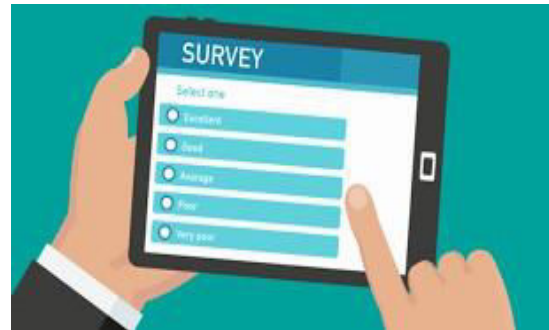
- THE MAJORITY OF SOFTWARE TEAMS AND MANAGERS RELY ON THIS APPROACH
- NOTHING IS DONE ABOUT RISKS UNTIL SOMETHING GOES WRONG
  - THE TEAM THEN FLIES INTO ACTION IN AN ATTEMPT TO CORRECT THE PROBLEM RAPIDLY(FIREFIGHTING)
- CRISIS MANAGEMENT IS THE CHOICE OF MANAGEMENT TECHNIQUES

# Reactive vs. Proactive Risk Strategies

## PROACTIVE RISK STRATEGIES

- STEPS FOR RISK MANAGEMENT ARE FOLLOWED
- PRIMARY OBJECTIVE IS TO AVOID RISK AND TO HAVE A CONTINGENCY PLANING PLACE  
TO HANDLE UNAVOIDABLE RISKS IN A CONTROLLED AND EFFECTIVE MANNER

# GUESS THE CATEGORY OF RISK (REACTIVE OR PROACTIVE)

A photograph of an "ACCIDENT REPORT" form. A yellow pencil is resting on the form. The form includes a section for "Personal Information" with fields for Name, Middle Name, City, State, Zip, Mobile Telephone, and a section for "Phone".

# Risk Exposure

- RISK EXPOSURE IS A QUANTIFIED LOSS POTENTIAL OF BUSINESS
- THE OVERALL RISK EXPOSURE FORMULA IS  $RE = \sum_{i=1}^n P_i \times C_i$ 
  - P = THE PROBABILITY OF OCCURRENCE FOR A RISK
  - C = THE COST TO THE PROJECT SHOULD THE RISK ACTUALLY OCCUR

$$RE = \sum_{i=1}^n P_i \times C_i$$

# Risk Exposure

## EXAMPLE

- $P=80\%$  PROBABILITY THAT 18 OF 60 SOFTWARE COMPONENTS WILL HAVE TO BE DEVELOPED
- $C=\text{TOTAL COST OF DEVELOPING 18 COMPONENTS IS } \$25,000$
- $RE=0.80 \times \$25,000 = \$20,000$



# RISK ASSESSMENT MATRIX

- SEVERITY:
  - THE IMPACT OF A RISK AND THE NEGATIVE CONSEQUENCES THAT WOULD RESULT.
- LIKELIHOOD:
  - THE PROBABILITY OF THE RISK OCCURRING.

# Severity

- INSIGNIFICANT:

RISKS THAT BRING NO REAL NEGATIVE CONSEQUENCES, OR POSE NO SIGNIFICANT THREAT TO THE ORGANIZATION OR PROJECT.

- MINOR:

RISKS THAT HAVE A SMALL POTENTIAL FOR NEGATIVE CONSEQUENCES, BUT WILL NOT SIGNIFICANTLY IMPACT OVERALL SUCCESS.

- MODERATE:

RISKS THAT COULD POTENTIALLY BRING NEGATIVE CONSEQUENCES, POSING A MODERATE THREAT TO THE PROJECT OR ORGANIZATION.

- CRITICAL:

RISKS WITH SUBSTANTIAL NEGATIVE CONSEQUENCES THAT WILL SERIOUSLY IMPACT THE SUCCESS OF THE ORGANIZATION OR PROJECT.

- CATASTROPHIC:

RISKS WITH EXTREME NEGATIVE CONSEQUENCES THAT COULD CAUSE THE ENTIRE PROJECT TO FAIL OR SEVERELY IMPACT DAILY OPERATIONS OF THE ORGANIZATION. THESE ARE THE HIGHEST- PRIORITY RISKS TO ADDRESS.

# Likelihood

- UNLIKELY:  
EXTREMELY RARE RISKS, WITH ALMOST NO PROBABILITY OF OCCURRING.
- SELDOM:  
RISKS THAT ARE RELATIVELY UNCOMMON, BUT HAVE A SMALL CHANCE OF MANIFESTING.
- OCCASIONAL:  
RISKS THAT ARE MORE TYPICAL, WITH ABOUT A 50/50 CHANCE OF TAKING PLACE.
- LIKELY:  
RISKS THAT ARE HIGHLY LIKELY TO OCCUR.
- DEFINITE:  
RISKS THAT ARE ALMOST CERTAIN TO MANIFEST. ADDRESS THESE RISKS FIRST.

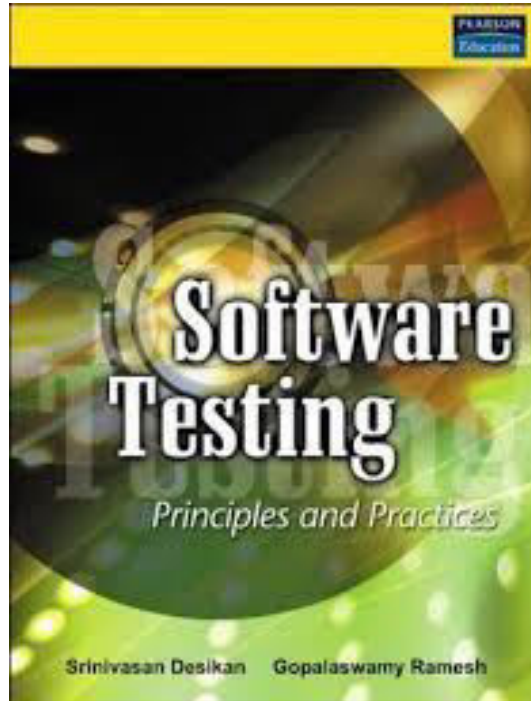
# RISK ASSESSMENT MATRIX

RISK RATING KEY		LOW 0 ACCEPTABLE  OK TO PROCEED	MEDIUM 1 ALARP (as low as reasonably practicable)  TAKE MITIGATION EFFORTS	HIGH 2 GENERALLY UNACCEPTABLE  SEEK SUPPORT	EXTREME 3 INTOLERABLE  PLACE EVENT ON HOLD
		SEVERITY			
		ACCEPTABLE LITTLE TO NO EFFECT ON EVENT	TOLERABLE EFFECTS ARE FELT, BUT NOT CRITICAL TO OUTCOME	UNDESIRABLE SERIOUS IMPACT TO THE COURSE OF ACTION AND OUTCOME	INTOLERABLE COULD RESULT IN DISASTER
LIKELIHOOD	IMPROBABLE RISK IS UNLIKELY TO OCCUR	LOW – 1 –	MEDIUM – 4 –	MEDIUM – 6 –	HIGH – 10 –
	POSSIBLE RISK WILL LIKELY OCCUR	LOW – 2 –	MEDIUM – 5 –	HIGH – 8 –	EXTREME – 11 –
	PROBABLE RISK WILL OCCUR	MEDIUM – 3 –	HIGH – 7 –	HIGH – 9 –	EXTREME – 12 –

# RISK MANAGEMENT MATRIX

NAME					OBJECTIVE					
REF/ID	PRE-MITIGATION				DEPARTMENT / LOCATION	MITIGATIONS / WARNINGS / REMEDIES	POST-MITIGATION			
	RISK	RISK SEVERITY	RISK LIKELIHOOD	RISK LEVEL			RISK SEVERITY	RISK LIKELIHOOD	RISK LEVEL	ACCEPTABLE TO PROCEED?
001	Poor comments in code	ACCEPTABLE	IMPROBABLE	LOW			ACCEPTABLE	IMPROBABLE	LOW	YES
002	Late delivery	TOLERABLE	POSSIBLE	MEDIUM			ACCEPTABLE	IMPROBABLE	LOW	YES
003	Changes in requirements	UNDESIRABLE	PROBABLE	HIGH			TOLERABLE	POSSIBLE	MEDIUM	YES
004	Equipment failure	INTOLERABLE	PROBABLE	EXTREME			UNDESIRABLE	PROBABLE	HIGH	NO

# REFERENCES



GURU99

DG

edureka!

Software Testing Help