

PMI OVOC *proudly presents*

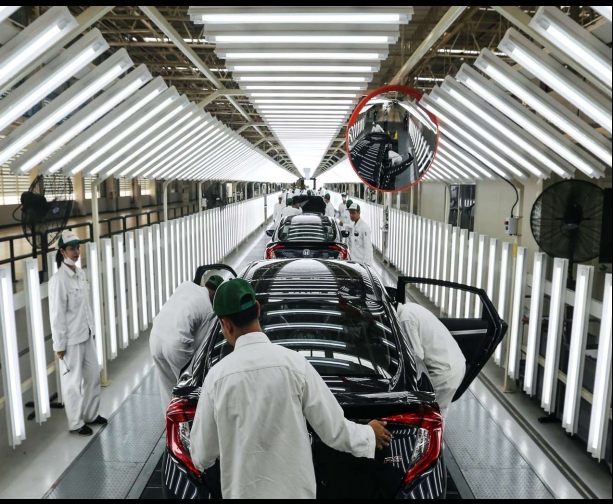
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# NCPMS 2019



# PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY

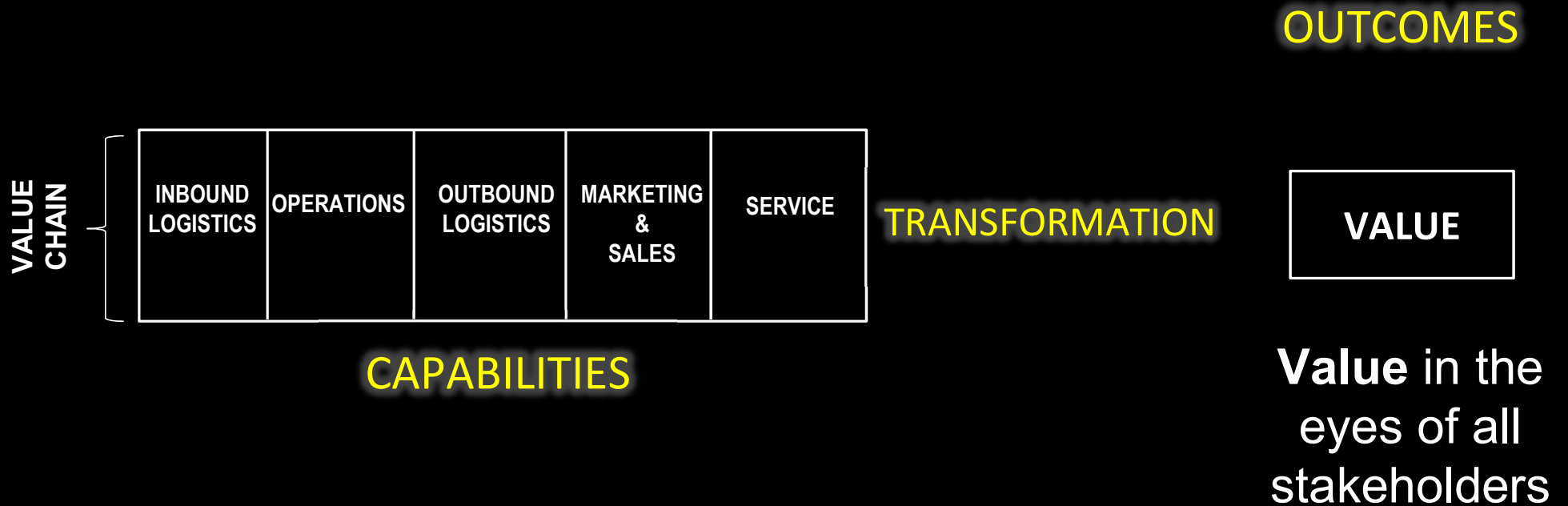
Presented By: **RAIMUND LAQUA, PMP, P.ENG.**



**ALL SUCCESSFUL PROJECTS CREATE VALUE**

**PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY**

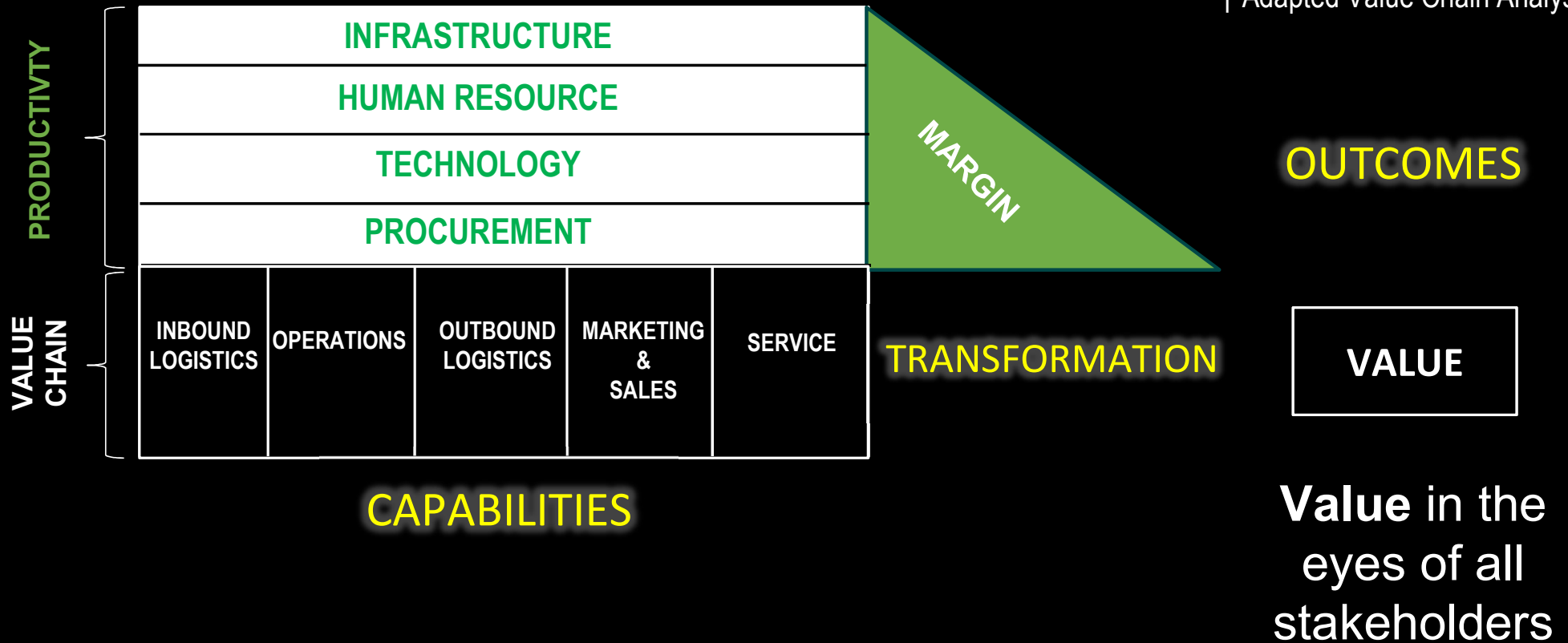
† Adapted Value Chain Analysis



**VALUE IS THE OUTCOME OF CAPABILITIES**

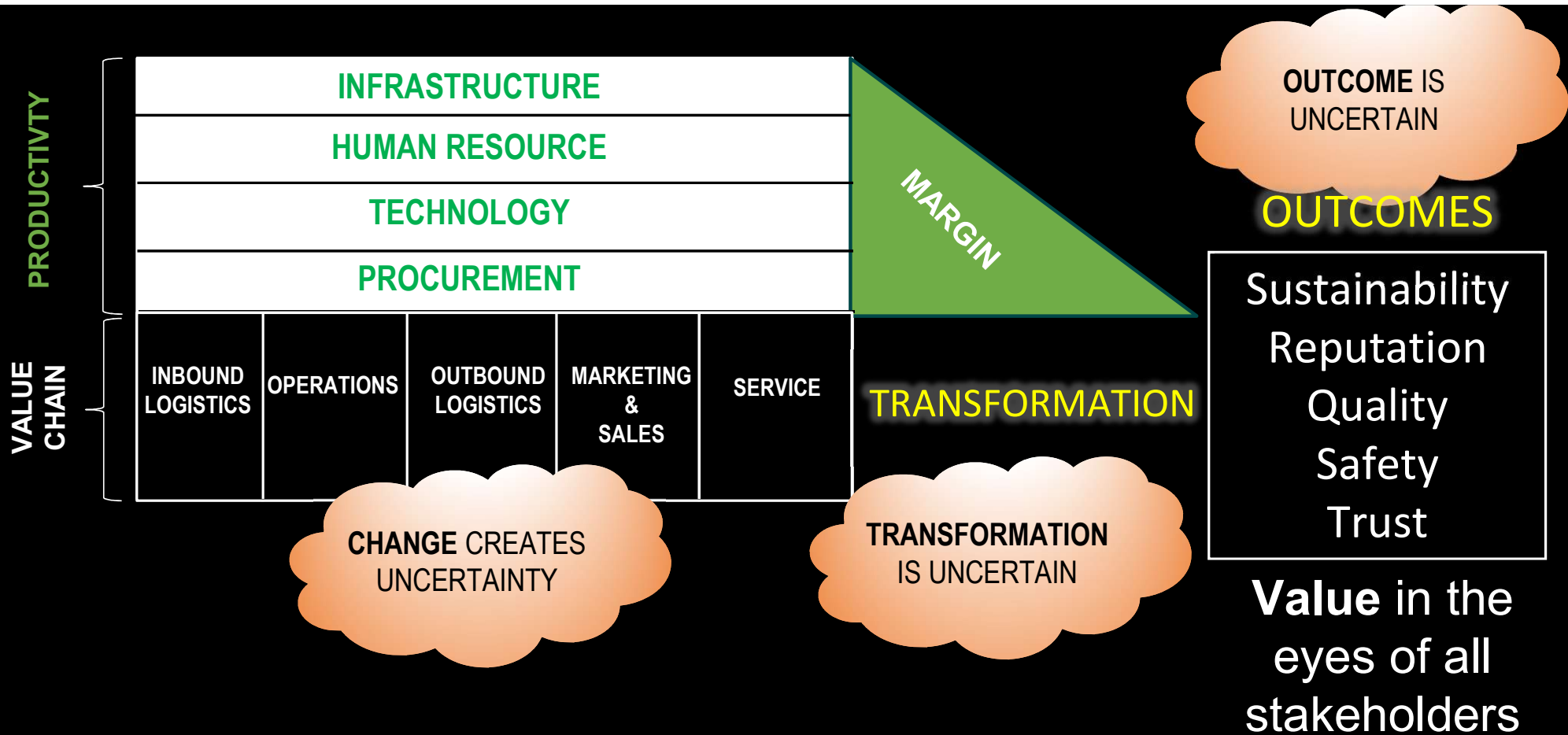
PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY

† Adapted Value Chain Analysis



**INCREASING MARGIN IMPROVES VALUE**

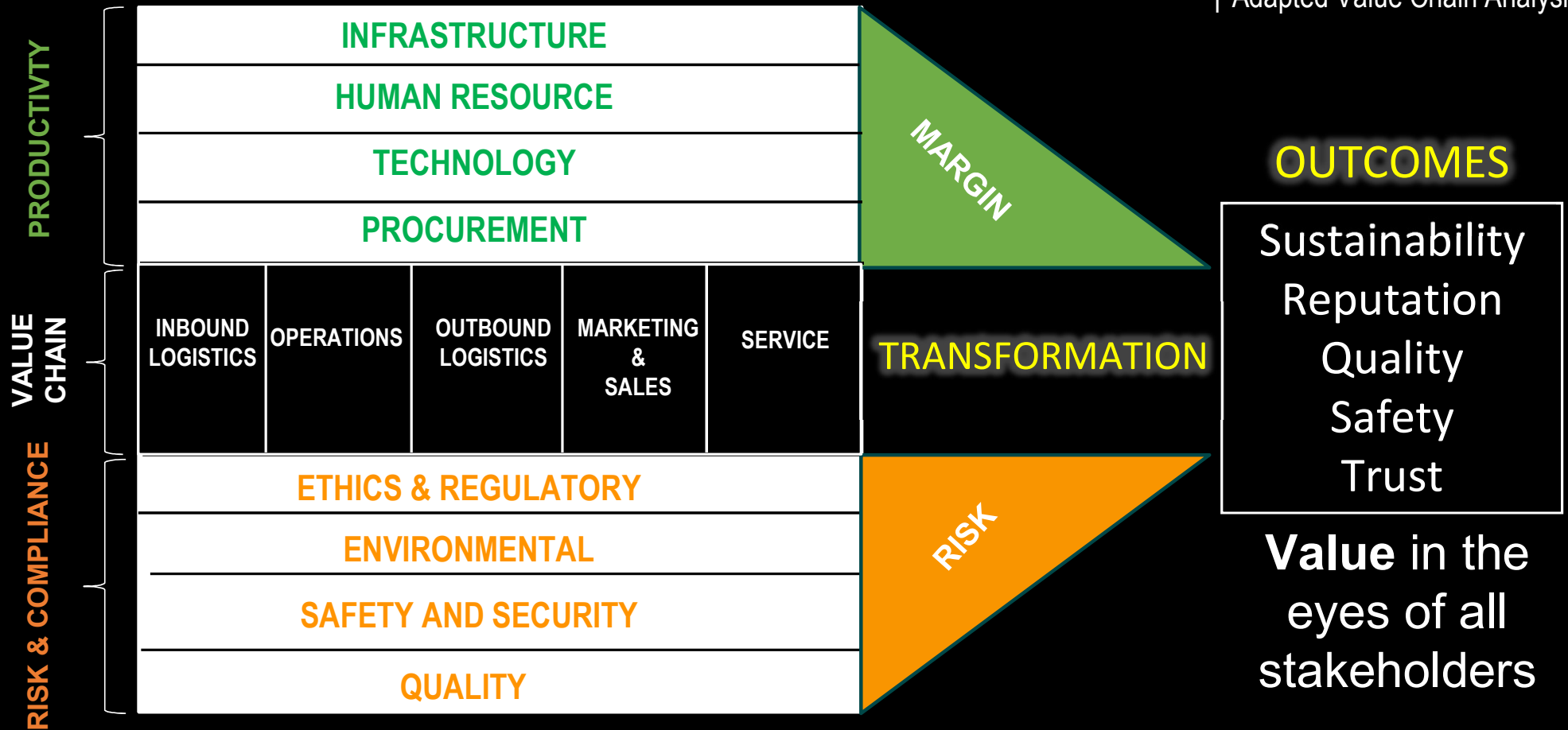
PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY



## THERE ARE OTHER OUTCOMES

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY

† Adapted Value Chain Analysis



## REDUCING RISK ENSURES OUTCOMES

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY



# RISK THREATENS PROJECT AND MISSION SUCCESS

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY





**WE DON'T LIKE TO HEAR, SEE, OR TALK ABOUT RISK**

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY

# THE LORD OF THE RISKS

DEFEATING THE DRAGON OF UNCERTAINTY



**A STORY ABOUT A RING, FRIENDSHIP, AND AN UNCERTAIN MISSION**

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY



**FELLOWSHIP OF THE RING**



**WIZARD**



**THE RING**

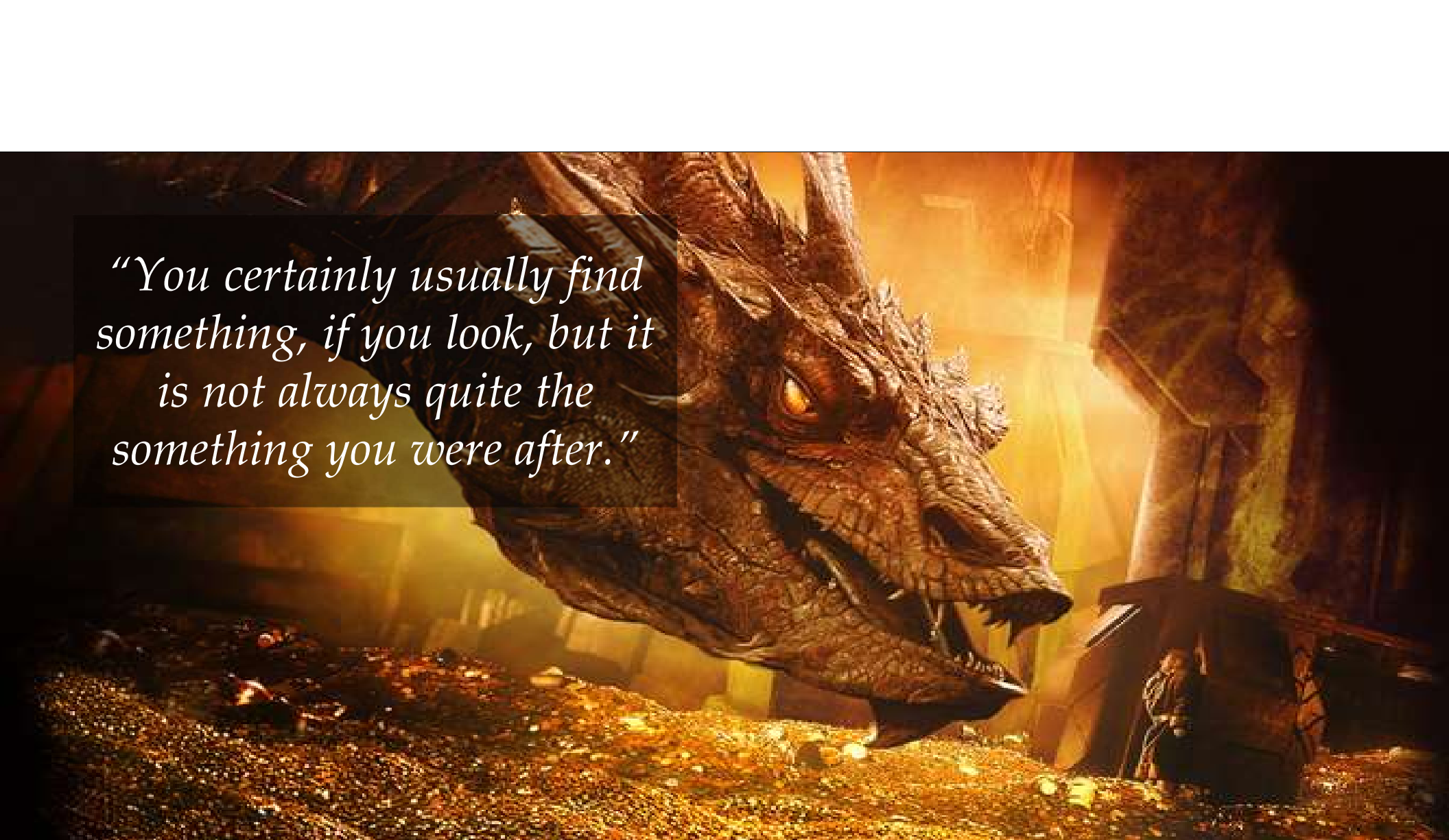
# MAP OF MIDDLE EARTH



*“It’s a dangerous business, walking out one’s front door. You step onto the road, and if you don’t keep your feet, there’s no knowing where you might be swept off to.”*

## **ADVENTURES ARE RISKY AND UNCERTAIN**

**PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY**



*“You certainly usually find something, if you look, but it is not always quite the something you were after.”*

## UNCERTAINTY CREATES THE OPPORTUNITY FOR RISK

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY

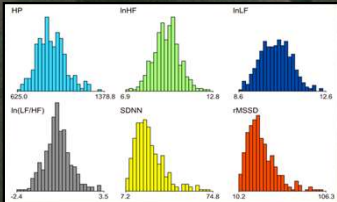
ALEATORY

UNCERTAINTY

EPISTEMIC

IRREDUCIBLE UNCERTAINTY

REDUCIBLE UNCERTAINTY



Risk	Severity of the potential injury/damage				
	Integrating damage to Property	Non-Responsible Injury, minor loss of Process or Equipment or Minor injury	Responsible Injury moderate loss of Property	Major Injury Single Fatality Critical loss of Process/damage to Property	Multiple Fatalities Catastrophic Loss of Business
Very High	1	2	3	4	5
High	5	10	15	20	25
Medium	4	8	12	16	20
Low	3	6	9	12	15
Very Low	2	4	6	8	10
Extremely Unlikely	1	2	3	4	5

Natural variability

Distributions

Lack of knowledge

Probabilistic events and outcomes

Having to do with chance  
No ability to predict outcome

Having to do with knowledge  
Can predict outcome

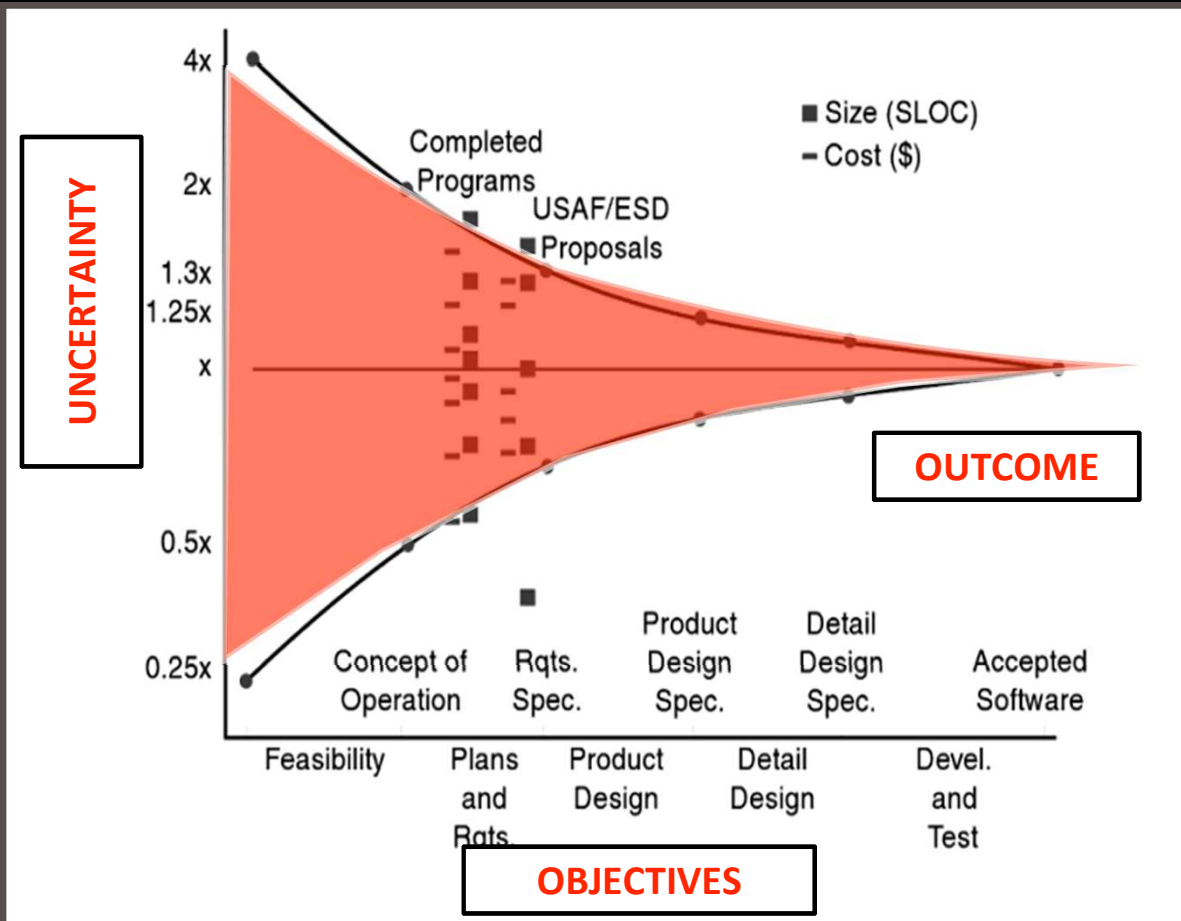
MARGINS

RISK

BUY DOWN

# TWO KINDS OF UNCERTAINTY

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY



“effects of uncertainty on expected results”

ISO 9001

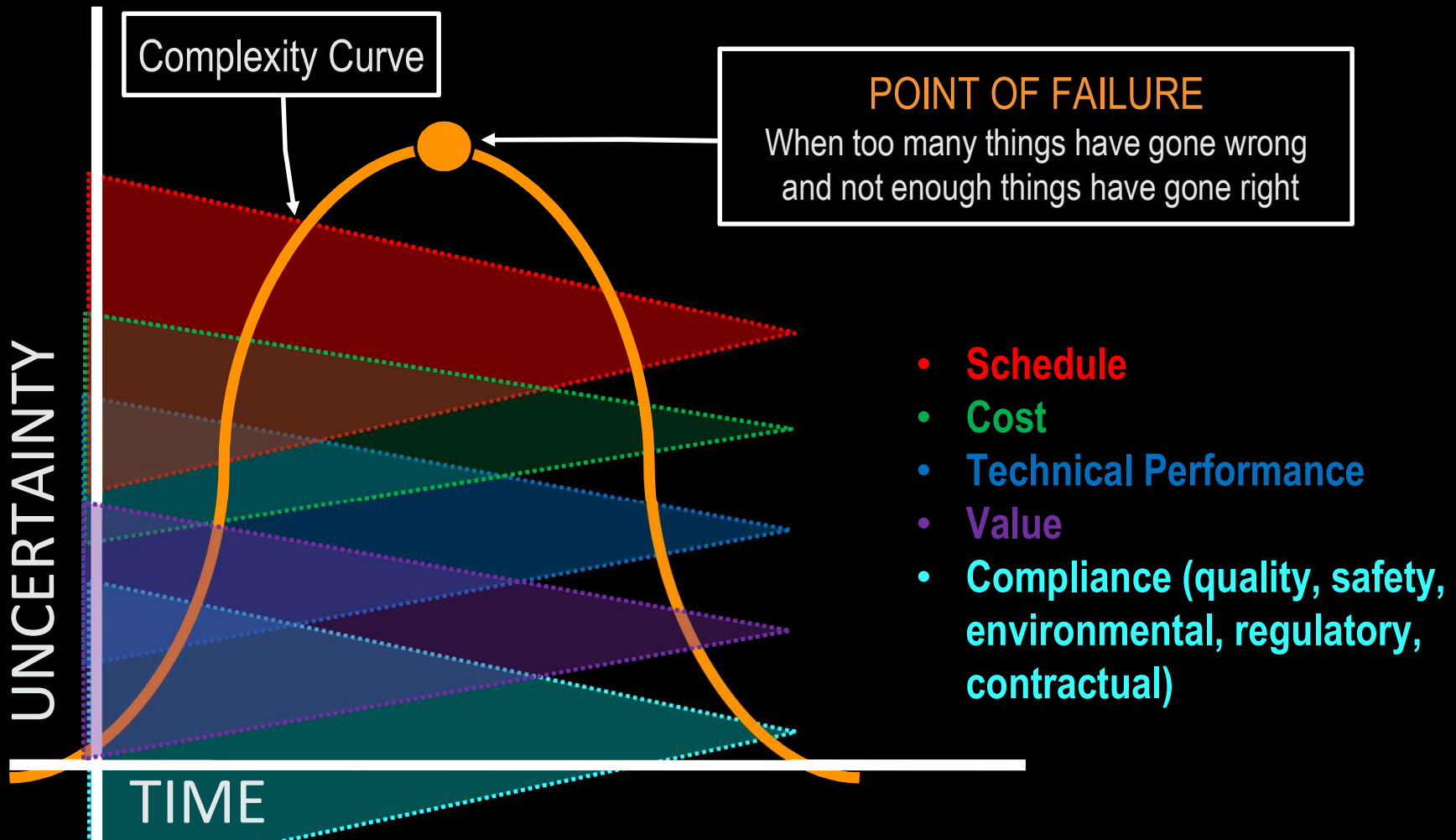
“effects of uncertainty on objectives”

ISO 31000

“an uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives.”

PMI PMBOK

## THE WIZARD'S HAT



## PROJECTS FAIL WHEN UNCERTAINTY OVERWHELMS THEM






*“All that glitters is not gold  
 Not all that wander are lost”  
 – Lord of the Rings*

**NOT ALL RISKS MATTER**  
**PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY**



## RISKS THAT MATTER ARE CONNECTED TO OUTCOMES

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY

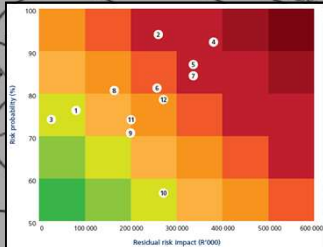


*“One does not simply  
walk into Mordor”  
– Lord of the Rings*

**TO CONTEND WITH UNCERTAINTY YOU NEED A STRATEGY**

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY

Prepared by John Hatto  
<http://www.jwhs.co.uk>



#	Risk Title	Risk Description / Impact	Identified Date	Risk Category	Risk Sub-Category	Status	Owner	Risk Rating	Possible Mitigation	Date Closed
001	Tool License Expiry	Tool license expires in 3 months. This can halt development work. Cost not factored in the budget.	21-Feb-14	Project	Software	Open	IT Lead	High	1. Move to alternate tool. 2. Amend project budget to include software cost.	
002	Website design	The vendor has indicated that the graphics design cannot be completed by project deadline. Development phase could be delayed.	23-Mar-14	Project	Software	Open	Project Manager	Medium	1. Move the project go live. 2. Work on weekends. 3. Add more resources to the project.	
003	Design issues	The application design was not reviewed by the architect.	24-Apr-14	Project	Software	Closed	Project Manager	Medium	1. Arrange a workshop.	20-Apr-14
004	Customer involvement	Our customers are not ready for the change.	21-Feb-14	Organisation	Software	Open	Program Manager	Critical	1. Arrange meeting with customer to see how we can help by 21-Mar.	

Likelihood X Severity

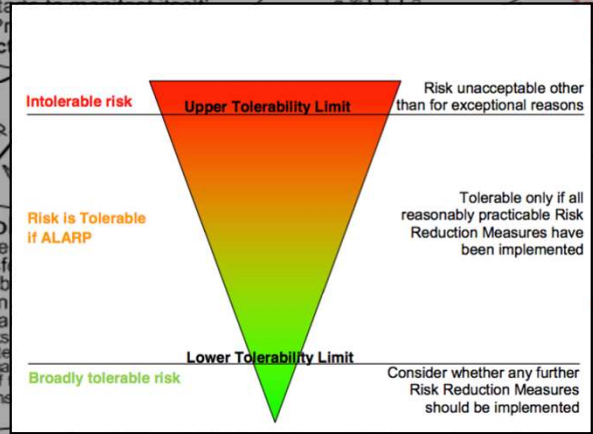


**Value-at-Risk on Portfolio Loss Rate**

- We need to solve for  $VaR^{1-p}$  in

$$\Phi\left(\frac{\sqrt{1-p}\Phi^{-1}(VaR^{1-p}) - \Phi^{-1}(PD)}{\sqrt{p}}\right) = 1-p$$

- which yields the following  $VaR$  formula:

$$VaR^{1-p} = \Phi\left(\frac{\sqrt{p}\Phi^{-1}(1-p) + \Phi^{-1}(PD)}{\sqrt{1-p}}\right)$$


# OLD STRATEGIES BASED ON AN OLD MAP

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY

PREVENT LOSS

ENSURE OUTCOMES

EARLY  
RISK MANAGEMENT

TRADITIONAL  
RISK MANAGEMENT

ENTERPRISE  
RISK MANAGEMENT

CERTAINTY  
MANAGEMENT

▲ 1950

▲ 1960

▲ 1970

▲ 1980

▲ 1990

▲ 2000

▲ 2010



## RISK MANAGEMENT HAS CHANGED

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY

## AVOID PROJECT FAILURE

- PROTECT (GUARD) AGAINST LOSS
- MINIMIZE VARIATION BY REDUCING UNCERTAINTY AND HANDLING RISK
- FOCUS ON EFFICIENCY (COST, SCHEDULE, TECHNICAL PERFORMANCE)
- PAY ATTENTION TO WHAT MIGHT CAUSE FAILURE AND WHAT COULD GO WRONG

## PURSUE PROJECT SUCCESS

- ENSURE (MAKE CERTAIN OF) PROJECT OUTCOMES
- MAXIMIZE VALUE IN THE PRESENCE OF UNCERTAINTY BY IDENTIFYING AND EXPLOITING OPPORTUNITIES
- FOCUS ON EFFECTIVENESS (OUTCOMES, VALUE CREATION, BENEFITS REALIZATION)
- PAY ATTENTION TO WHAT IS CRITICAL TO SUCCESS AND WHAT NEEDS TO GO RIGHT

### THE TWO TOWERS OF RISK MANAGEMENT



**Ostrich**

I don't want to know



**Avoider**

I don't want any risk



**Manager**

Let's size the risk and decide



**Gambler**

Let's play the odds



**Strategist**

Let's reduce threats and exploit opportunities

**RISK**

**TOLERANT**

**RISK**

**INTOLERANT**

**RISK**

**NEUTRAL**

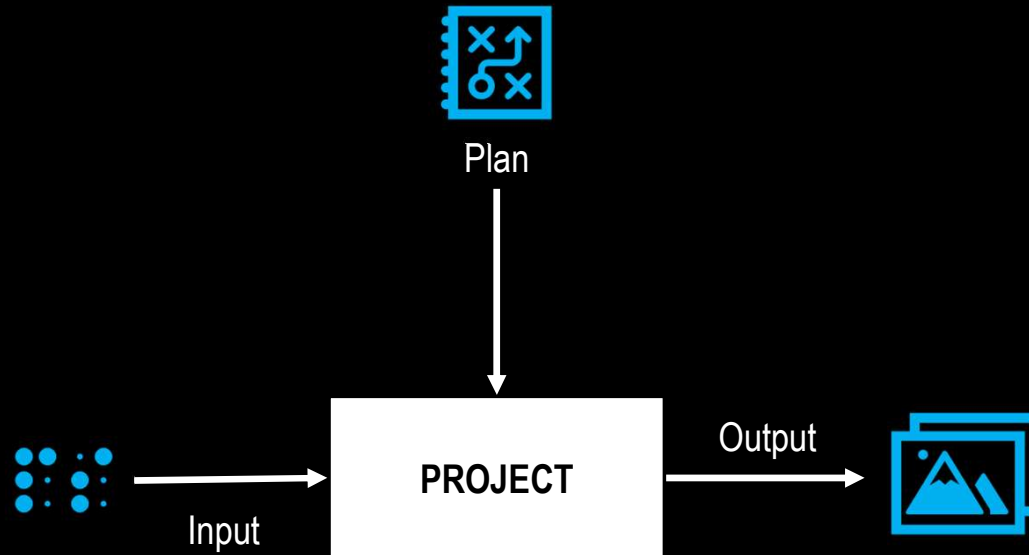
**RISK**

**SEEKING**

**RISK**

**OPTIMIZER**

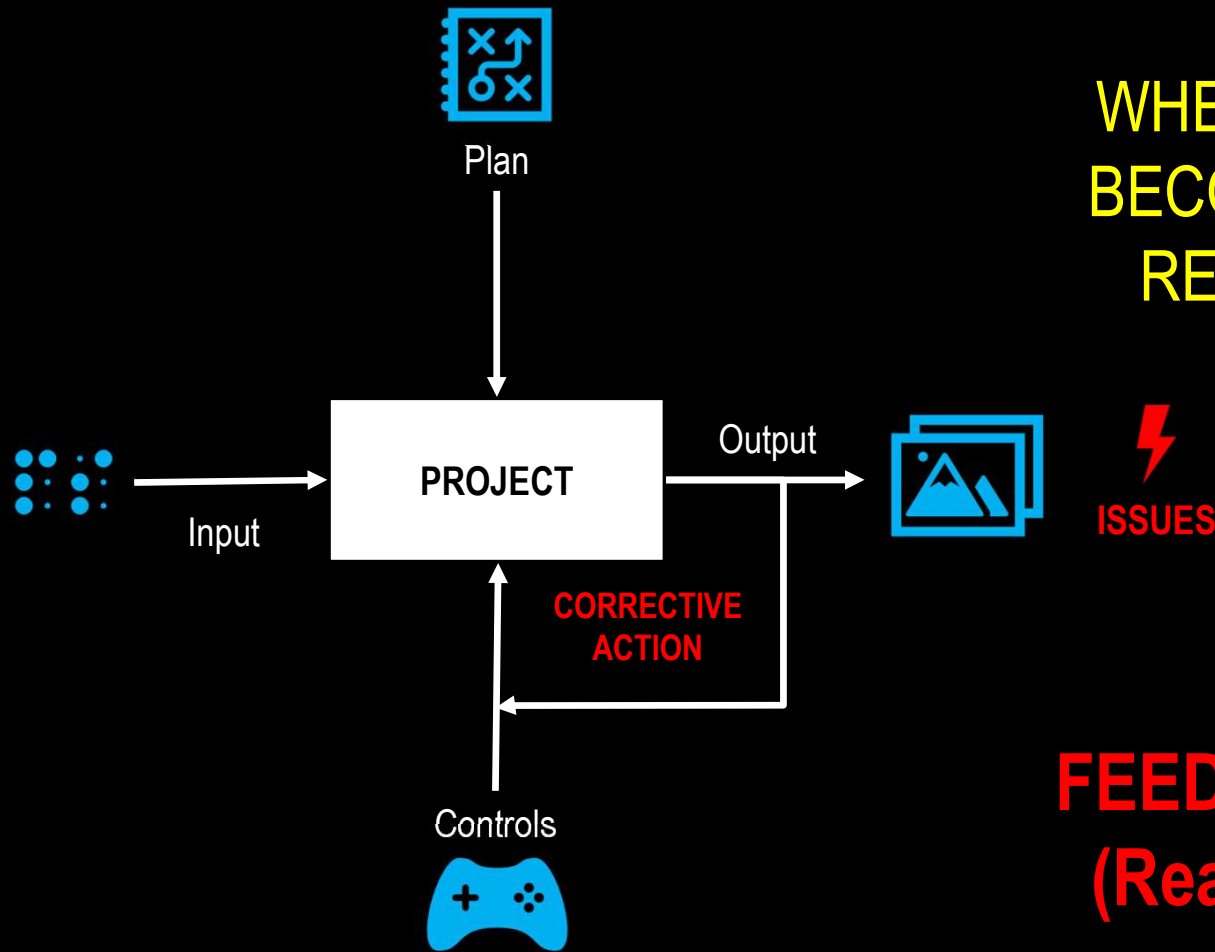
**TWO MINDSETS**



# EFFECTIVE PROJECT MANAGEMENT IS A STRONG DEFENSE

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY





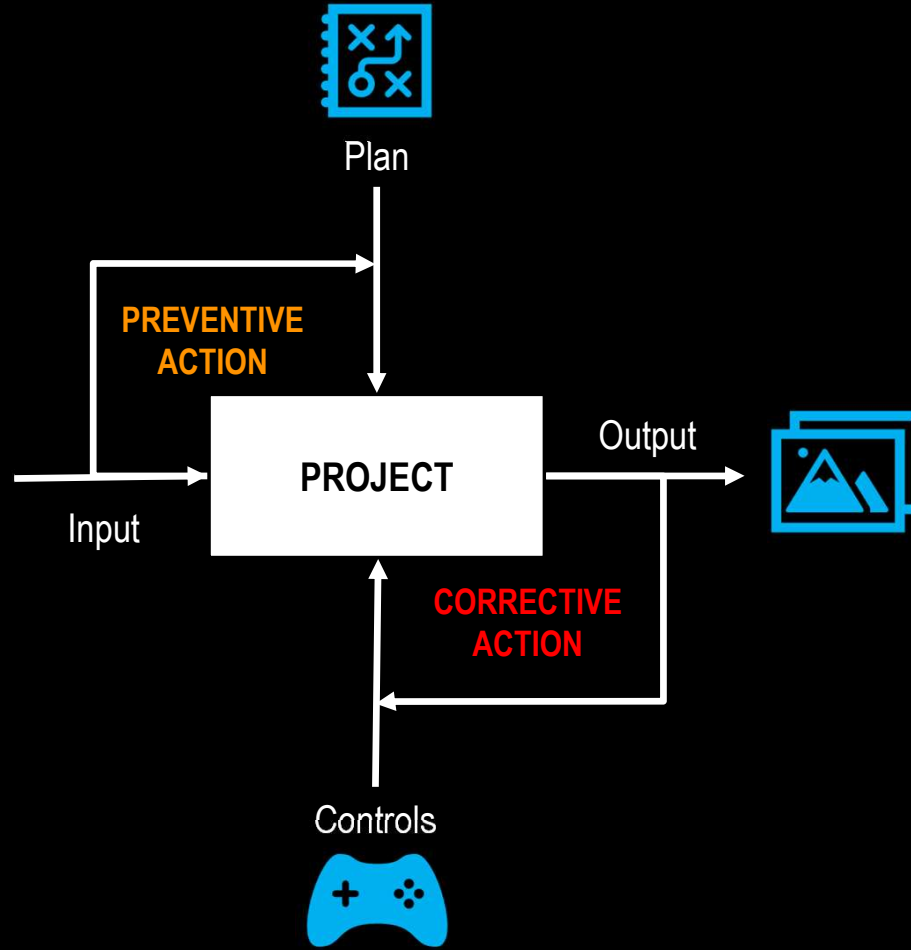
WHEN RISK  
BECOMES A  
REALITY

FEED-BACK  
(Reactive)

ISSUE MANAGEMENT IS THE LAST DEFENSE

# FEED-FORWARD (Proactive)

UNCERTAINTIES



WHEN RISK  
BECOMES A  
REALITY

DEFEATING  
UNCERTAINTY

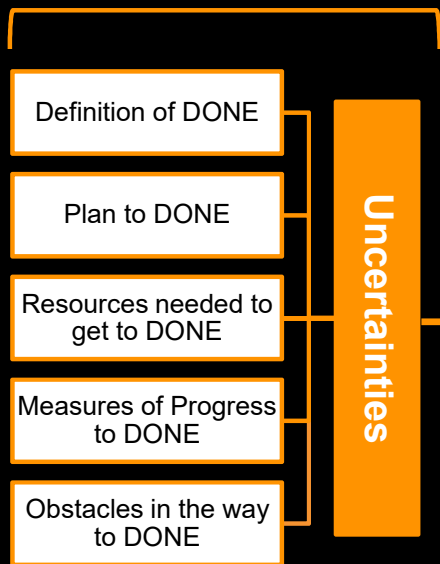
FEED-BACK  
(Reactive)

**PREVENTION IS THE BEST DEFENSE**

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY

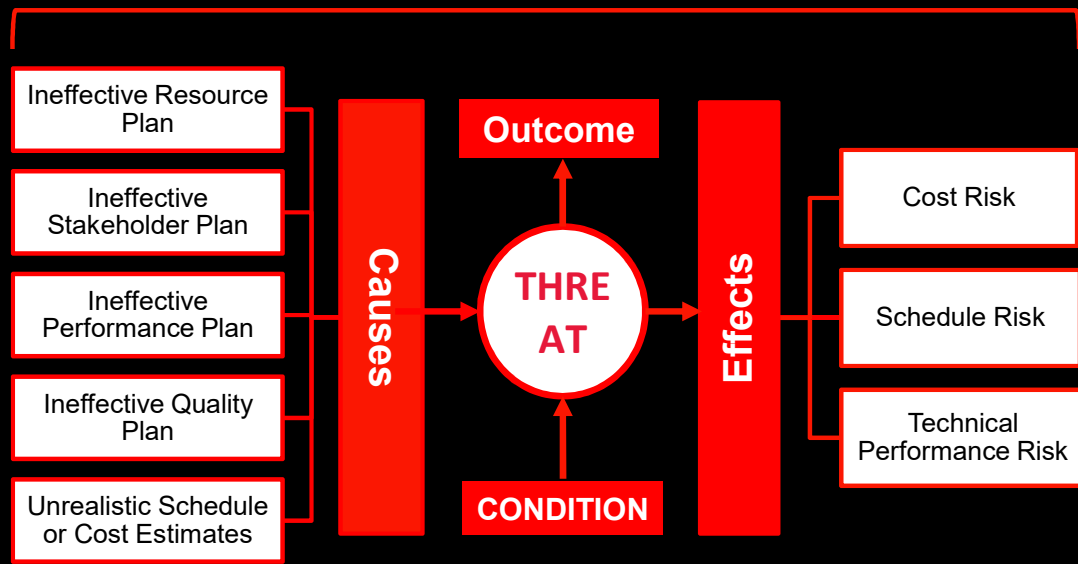
1

### IDENTIFY UNCERTAINTIES



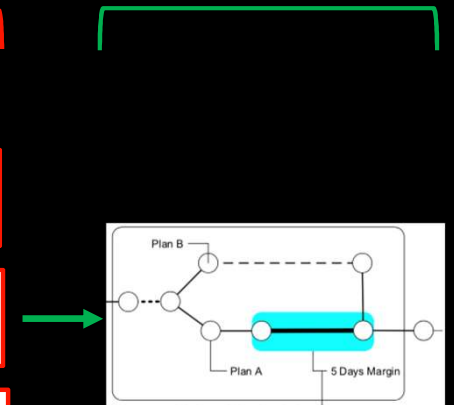
2

### BUY DOWN REDUCIBLE UNCERTANITES



3

### APPLY MARGIN FOR IRREDUCIBLE UNCERTAINTIES



# STRATEGY TO DEFEAT THE DRAGON OF UNCERTAINTY

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY

Mission: Destroy the ring by throwing it into the fires of Mt. Doom

*Happy Plan*



- Leave the Shire
- Travel to Mt. Doom
- Throw ring into the fires of Mt. Doom
- Return to Shire



The Shire



Mt. Doom

## DETERMINISTIC PROJECT PLAN

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY

THREAT

RING DESTROYED



The Shire



Mt. Doom

IDENTIFY UNCERTAINTIES (CONDITIONS THAT THREATEN YOUR MISSION)

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY

**THREAT**

**OPTIMIZATION WAITING**

**RING DESTROYED**



THRESHOLD: **LOW**

INHERENT RISK: **HIGH**

RESIDUAL RISK: **HIGH**

**THREAT**

**OPTIMIZATION STARTED**

**RING DESTROYED**

Running

PENDING

Causes

Prevention Controls

Recovery Controls

Consequences

Distracted



Running



Walking



Risk Event  
Falling in  
Hole



The Shire



Mt. Doom

THRESHOLD:

**LOW**

INHERENT RISK:

**HIGH**

RESIDUAL RISK:

**HIGH**

**THREAT**

**OPTIMIZATION RUNNING**

**RING DESTROYED**

Running

PENDING

Causes

Prevention Controls

Recovery Controls

Consequences

Distracted



Running



Walking



Risk Event  
Falling in Hole



The Shire



Mt. Doom

THRESHOLD:

**LOW**

INHERENT RISK:

**HIGH**

RESIDUAL RISK:

**HIGH**



**THREAT**

**OPTIMIZATION RUNNING**

**RING DESTROYED**

**COMPLETE**

**PENDING**

**Causes**

**Prevention Controls**

**Recovery Controls**

**Consequences**

**Distracted**



**Risk Event  
Falling in  
Hole**

**Running**



**Walking**



**The Shire**



**Mt. Doom**



THRESHOLD:

**LOW**

INHERENT RISK:

**HIGH**

RESIDUAL RISK:

**MEDIUM**

**THREAT**

**OPTIMIZATION RUNNING**

**RING DESTROYED**

COMPLETE

PENDING

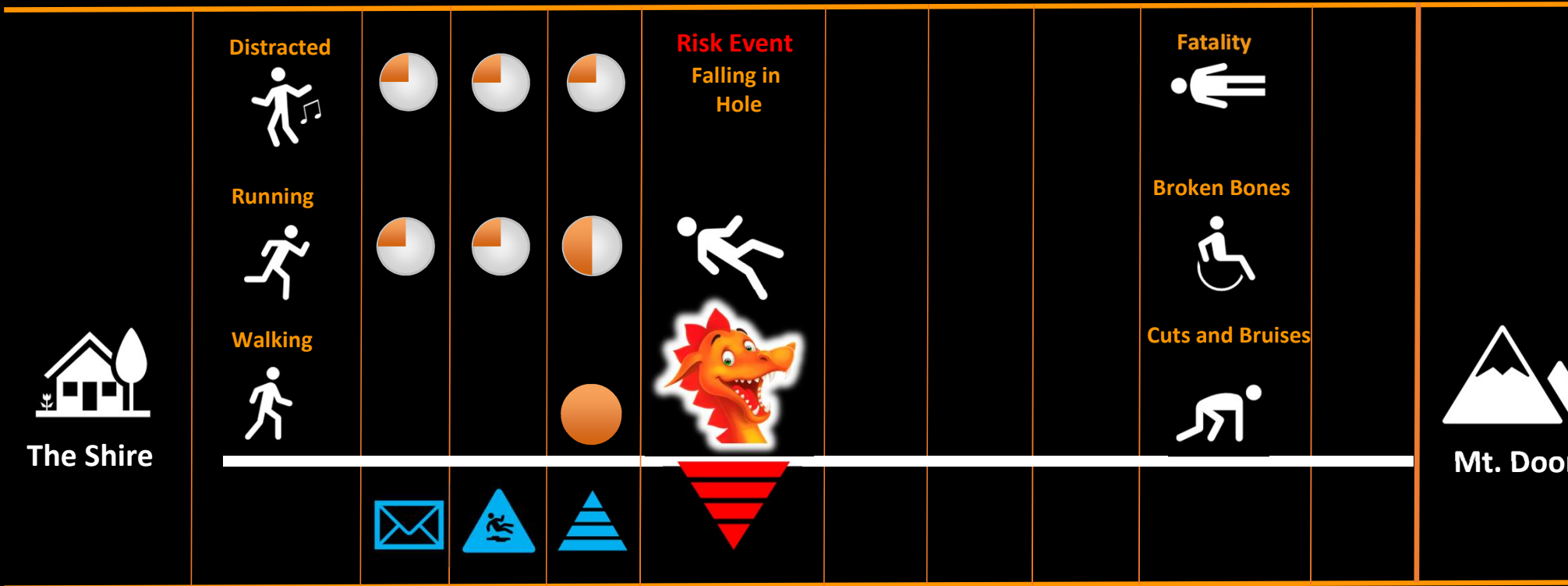
Running

Causes

Prevention Controls

Recovery Controls

Consequences



The Shire

Mt. Doom

THRESHOLD:

LOW

INHERENT RISK:

HIGH

RESIDUAL RISK:

MEDIUM

**THREAT**

**OPTIMIZATION RUNNING**

**RING DESTROYED**

COMPLETE

PENDING

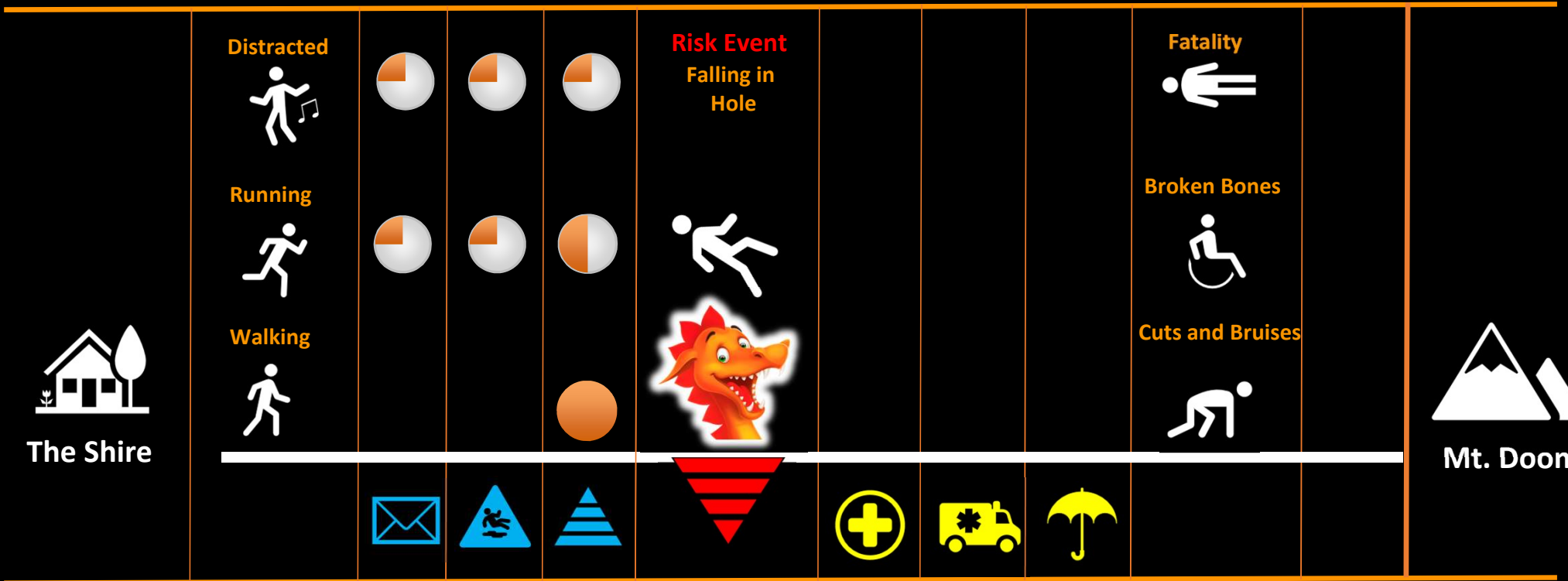
Running

Causes

Prevention Controls

Recovery Controls

Consequences



THRESHOLD:

LOW

INHERENT RISK:

HIGH

RESIDUAL RISK:

MEDIUM

**THREAT**

**OPTIMIZATION RUNNING**

**RING DESTROYED**

COMPLETE

PENDING

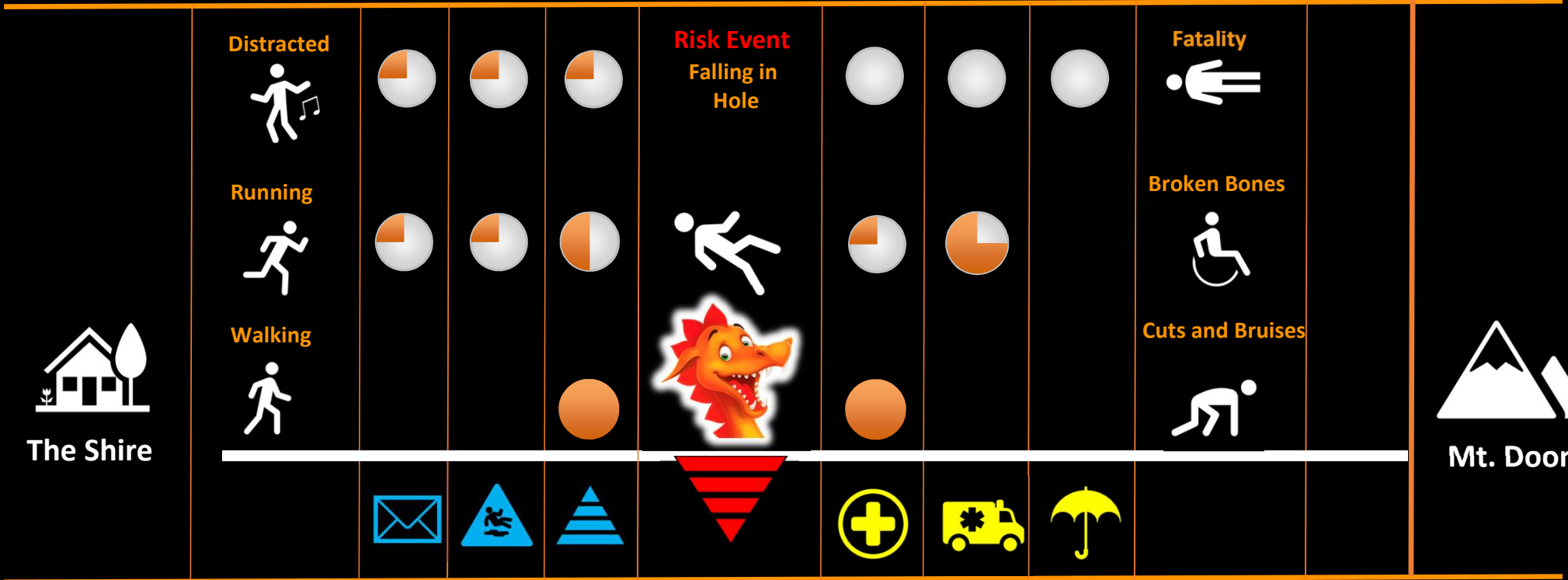
COMPLETE

Causes

Prevention Controls

Recovery Controls

Consequences



The Shire

Mt. Doom

THRESHOLD:

LOW

INHERENT RISK:

HIGH

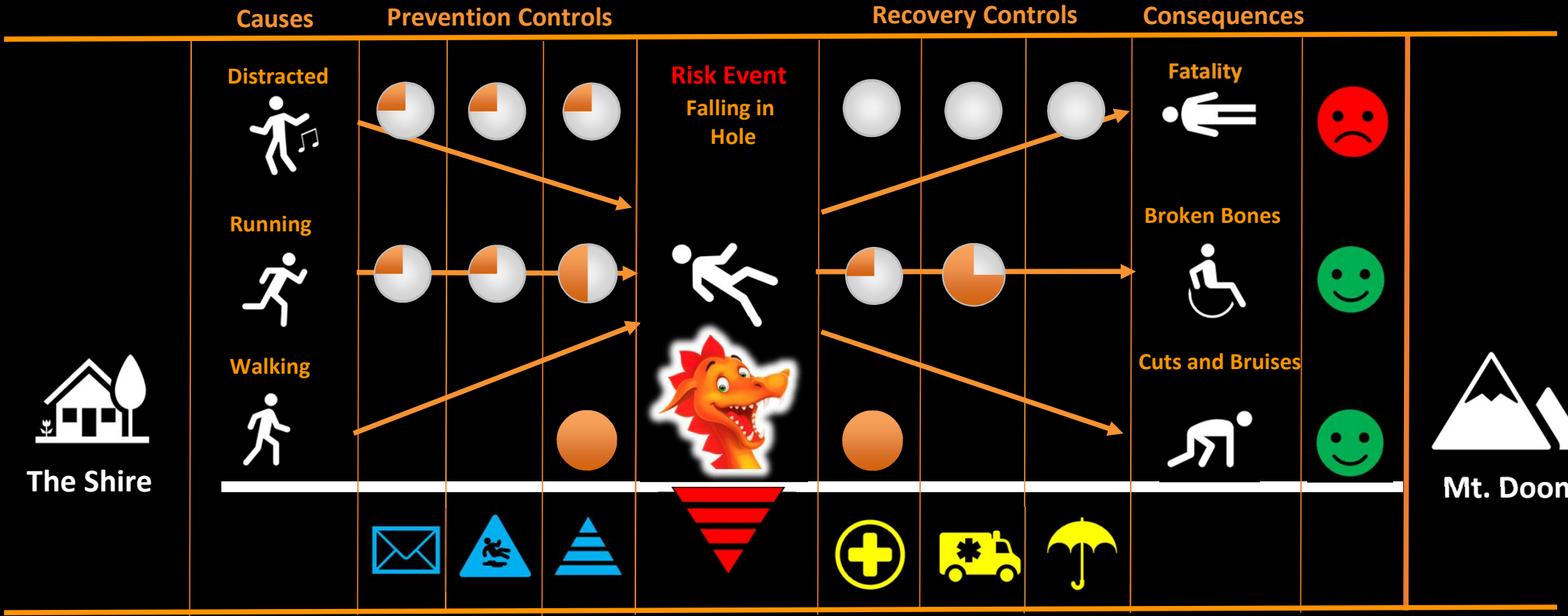
RESIDUAL RISK:

LOW

**THREAT**

**OPTIMIZATION COMPLETED**  
COMPLETE SUCCESS COMPLETE

**RING DESTROYED**



THRESHOLD: **LOW**

INHERENT RISK: **HIGH**

RESIDUAL RISK: **LOW**

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY

## Mission: Destroy the ring by throwing it into the fires of Mt. Doom

#	RISK OWNER	INHERENT LEVEL OF RISK	TREATED LEVEL OF RISK	QUALIFIED RISK	PREVENTION	RECOVERY
R1	John	LOW	LOW	As a result of walking on the path, falling in the hole may occur, leading to cuts and bruises	Pylon, sign, e-mail	First aid
R2	John	MEDIUM	LOW	As a result of walking on the path, falling in the hole may occur, leading to broken bones	Pylon, sign, e-mail	First aid, hospital
R3	Mary	HIGH	LOW	As a result of walking on the path, falling in the hole may occur, leading to a fatality	Pylon, sign, e-mail	None
R4	John	LOW	LOW	As a result of running on the path, falling in the hole may occur, leading to cuts and bruises	Pylon, sign, e-mail	First aid
R5	John	MEDIUM	LOW	As a result of running on the path, falling in the hole may occur, leading to broken bones	Pylon, sign, e-mail	First aid, hospital
R6	Mary	HIGH	HIGH	As a result of running on the path, falling in the hole may occur, leading to a fatality	Pylon, sign, e-mail	None
R7	John	LOW	LOW	As a result of distracted walking path, falling in the hole may occur, leading to cuts and bruise	Pylon, sign, e-mail	First aid
R8	John	MEDIUM	LOW	As a result of of distracted walking on the path, falling in the hole may occur, leading to broken bones	Pylon, sign, e-mail	First aid, hospital
R9	Mary	HIGH	HIGH	As a result of of distracted walking on the path, falling in the hole may occur, leading to a fatality	Pylon, sign, e-mail	None

## PLAN TO STORM THE GATES OF MORDOR AND SUCCEED

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY

# THE LORD OF THE RISKS

DEFEATING THE DRAGON OF UNCERTAINTY



**A STORY ABOUT A RING, FRIENDSHIP, AND AN UNCERTAIN MISSION**

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY



**WE NEED TO CHANGE HOW WE HEAR, SEE, AND TALK ABOUT RISK**

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY





# THERE IS TOO MUCH AT RISK

PROJECT SUCCESS IN THE PRESENCE OF UNCERTAINTY

# Q&A



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