

# Risk & Opportunity Management

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# Risk & Opportunity Management

## Was ist ein typisches Metro Projekt?

- **10 bis 30 Züge je vier bis sechs Wagen**
- **Auftragswert 50 bis 200 M€**
- **Weltweite Kunden**
- **Fertigung in Europa mit lokalen Anteilen unterschiedlichen Umfangs**
- **Projektlaufzeit 3 bis 5 Jahre plus Gewährleistung**
- **Fahrzeuge nach Kundenlastenheft mit 50 bis 80% Neuteilen**
- **Entwicklungsaufwand 100.000 bis 300.000 h**
- **Strikte Sicherheitsanforderungen der Zulassungsbehörden und Betreiber**
- **Starke Sichtbarkeit in der Öffentlichkeit**



# Risk & Opportunity Management

## Risiken des Projektgeschäftes

- Technische Risiken
- Kurze Lieferzeiten
- Materialqualität
- Kostenüberschreitung
- Unklarer Projektumfang bzw. Abgrenzung
- Knappe Ressourcen, schlechte Planung
- Vertragsstrafen
- Lange Gewährleistungszeiten
- Politische/öffentliche Einflussnahme
- Geringe Margen und daher wenig Puffer für Unvorhergesehenes
- 
- 



# Risk & Opportunity Management

## Globales Projekt Portfolio

Über 500 Projekte größer 5 M€

Verantwortung der Divisionen und gleichzeitig globale  
Corporate Governance

**Notwendigkeit für global  
einheitliche Prozesse, Tools,  
Transparenz und Kontrolle der  
kritischen Fakts**



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# Risk & Opportunity Management

## Anforderungen an das Risikomanagement Prozess + Tool

- **Einheitlich in allen Geschäftsbereichen**
- **Strukturiert und dokumentiert**
- **Effektiv**
- **Benutzerfreundlich**
- **Unterstützt pro-aktives Handeln**
- **Reports auf unterschiedlichen Ebenen**



# Bahnbrechende Technologien, aber nicht so...



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# What is Risk & Opportunity Management?

## Risk

An ***uncertain*** event or condition that, ***if*** it occurs, has a ***negative*** effect on a project's objectives

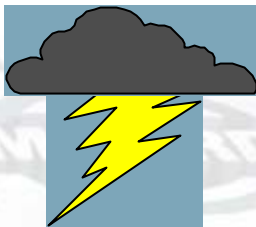
## Opportunity

An ***uncertain*** event or condition that, ***if*** it occurs, has a ***positive*** effect on a project's objectives



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# Differences Between Concerns, Risk and Issues



- **Concern:**

- A negative event that may impact the project but is based on vague understanding.

- **Risk :**

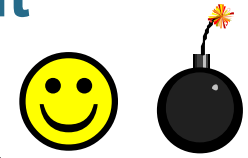
- The likelihood that a negative event **may** impact the project that is based on facts and analysis.

- **Issue:**

- A negative event that **has or will definitely** impact the project.



# The 5 Step BT Risk & Opportunity Management Process



New Risk & Opportunity



Risk & Opportunity Closure

Risk & Opportunity Identification

Risk & Opportunity Assessment

The Project

Tracking and reporting

Risk & Opportunity Response Planning

Risk & Opportunity Response Implementation

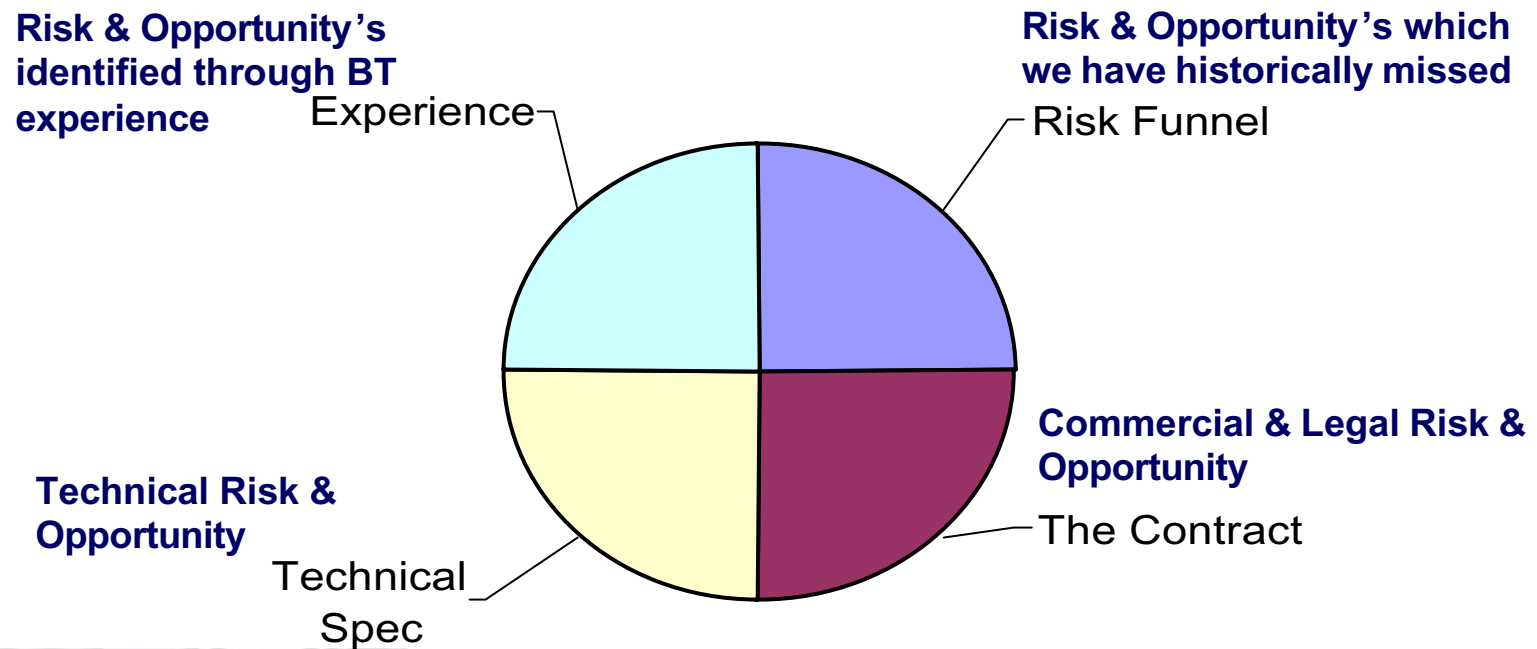


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# Risk & Opportunity Identification - The Whole Picture - **Where to Capture**

## 100% Risk Management - The Whole Picture



# Risk Funnel - Identifying Risks using the High Risk Areas



Table 4 - QUESTION RESPONSE SUMMARY					
	Y	Y&N	N	DN	UK
<b>1.1 Level of Political Interest</b>					
Is the customer publicly funded or a public body (funded directly or indirectly)?	7	1		2	
Is there significant public/media interest in the project?	7	2		1	
Is there public/media interest outside the locality of the project (e.g. on a national level, or state level in US)?	6	2	1	1	
Is/was there political dispute over the project go-ahead?		1	3	6	
Is/was there political dispute over the main contract award?		1	4	5	
Are there multiple stakeholders with different power bases and interests?	4		2	4	
Is safety a key issue beyond the norm for the product?	5	2	2	1	



# Risk & Opportunity Identification

## HoW to Capture

### The 3 Cs

- **C**ondition
- **C**ause
- **C**onsequence



# Risk Identification

## HoW to Capture

### Condition

- **There is a Risk that....** [describe the adverse event or series of events that might happen]

### Cause

- **The Risk is caused by....** [Identify the generic cause area and describe the specific source of the Risk]

### Consequence

- **The direct impact of the Risk occurring will be.....** [Describe the direct impact in terms of the adverse effect on the objectives of the work area in which the Risk occurs]



# Risk Identification


## HoW to Capture

- **There is a Risk that....** we have a shortage of Engineering resources
- **The Risk is caused by....** too many projects running at the same time
- **The direct impact of the Risk occurring will be.....** a delay during the Design phase.



# RIS - Risk Identification Sheet

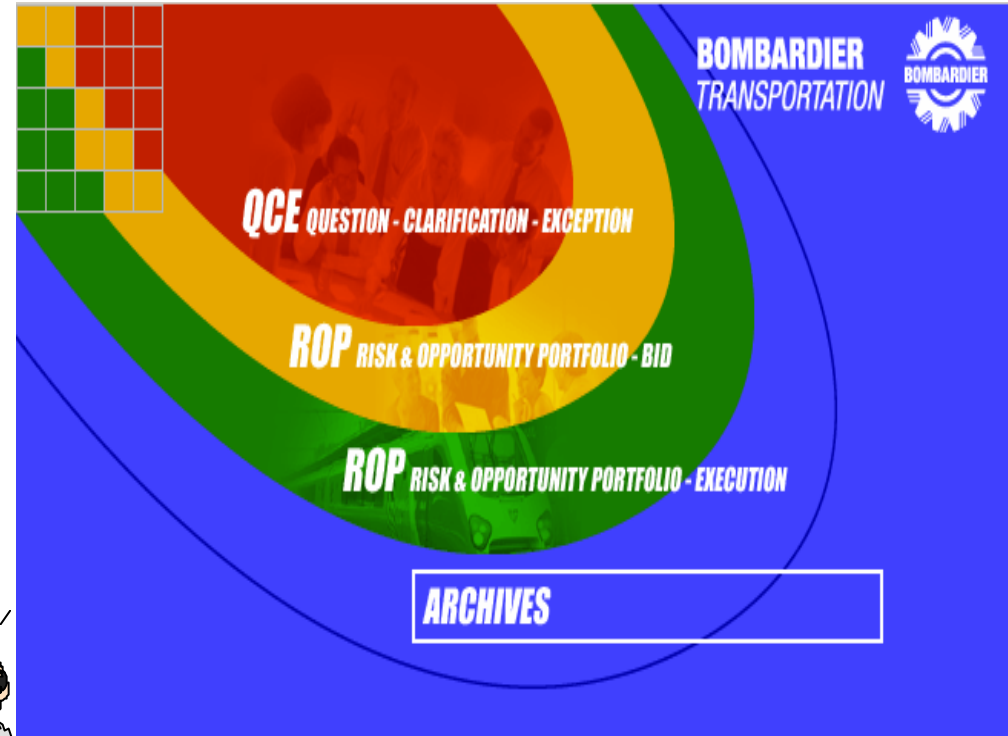
## How to Capture

 <b>BOMBARDIER</b> <i>TRANSPORTATION</i>				<i>Risk Identification Sheet</i>																																
Project Name	Division			Impact Phase																																
RIS Creator	PM			Impact Date																																
Risk Type/Source	Risk Coordinator			Review Date																																
Risk No. & Rev.	Risk Owner			Max Cost																																
Open Date	Risk Status			Min Cost																																
Risk Statement (3 C's format:- Condition, Cause, Consequence)				Most Likely Cost																																
There is a risk that...					1 2 3 4 5																															
The risk is caused by...				Cost Impact																																
The direct impact of the risk will be....				Schedule Impact																																
				Performance Impact																																
				Quality Impact																																
Closure Criteria / Closure Statement	Closure Date			Probability																																
				Precision																																
Mitigation Action	Actionee	Action Deadline Date	Action Deadline Phase	<b>Risk Matrix</b>  Probability <table border="1" style="display: inline-table; margin-left: 20px;"> <tr><td>5</td><td>Yellow</td><td>Red</td><td>Red</td><td>Red</td></tr> <tr><td>4</td><td>Green</td><td>Red</td><td>Red</td><td>Red</td></tr> <tr><td>3</td><td>Green</td><td>Yellow</td><td>Red</td><td>Red</td></tr> <tr><td>2</td><td>Green</td><td>Yellow</td><td>Yellow</td><td>Red</td></tr> <tr><td>1</td><td>Green</td><td>Green</td><td>Yellow</td><td>Yellow</td></tr> <tr><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr> </table> Impact		5	Yellow	Red	Red	Red	4	Green	Red	Red	Red	3	Green	Yellow	Red	Red	2	Green	Yellow	Yellow	Red	1	Green	Green	Yellow	Yellow		1	2	3	4	5
5	Yellow	Red	Red			Red																														
4	Green	Red	Red			Red																														
3	Green	Yellow	Red			Red																														
2	Green	Yellow	Yellow			Red																														
1	Green	Green	Yellow			Yellow																														
	1	2	3	4	5																															

Page 1

# Paper to ROP Database

- **Condition:** Conflict will occur over the acceptance criteria
- **Cause:** Consultants historically uncompromising over acceptance criteria
- **Consequence:** Delay during the product introduction phase



Risk Identification Sheet																							
Project Name	Division	Impact Phase																					
RIS Creator	PM	Impact Date																					
Risk Title/Source	Risk Coordinator	Review Date																					
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# Risk & Opportunity Identification

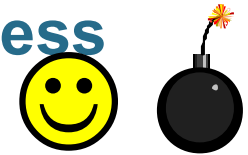
## When to Look

- The earlier the better
- All the time

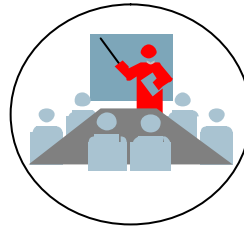


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# The BT Risk & Opportunity Management Process



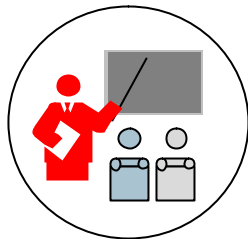
Risk & Opportunity Closure



Risk & Opportunity Identification

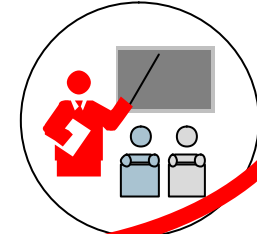
New Risk or Opportunity

Tracking and reporting

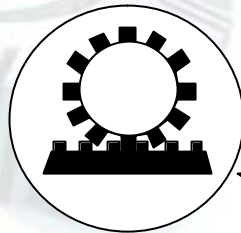


The Project

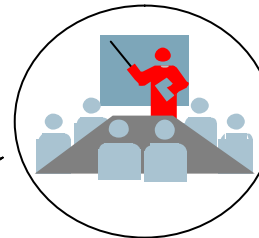
Risk & Opportunity Assessment



Risk & Opportunity Response Implementation



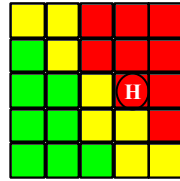
Risk & Opportunity Response Planning



# Risk & Opportunity Assessment Techniques

There are two types of Risk & Opportunity Assessment :

◆ Qualitative



◆ Quantitative



Cost



Schedule (Time)

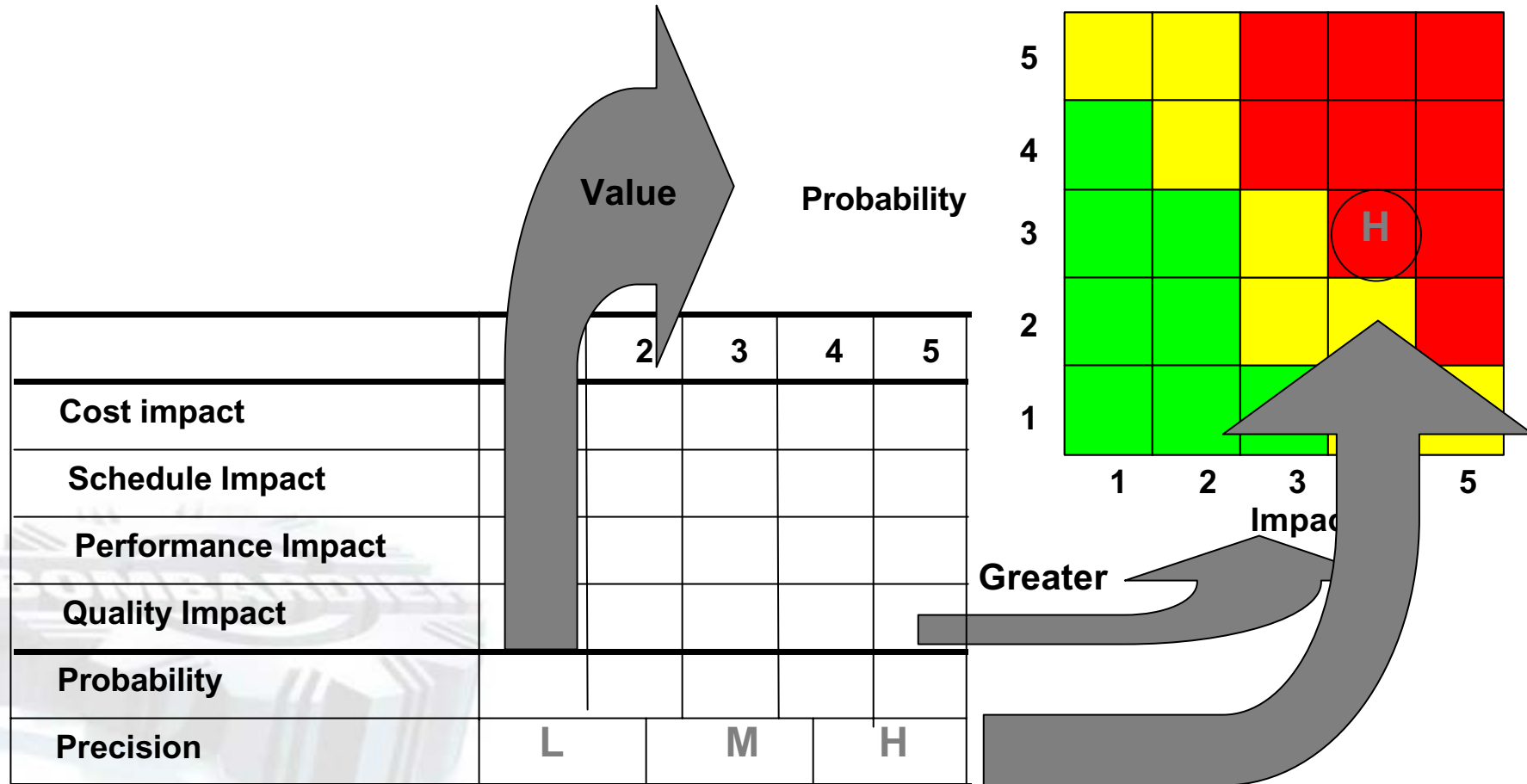
We shall cover **Qualitative** just now and Quantitative is covered in a separate presentation.



# Risk Assessment

Lets use Risk only now to explain the concept...

## Risk Matrix

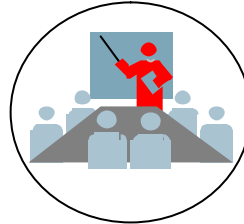


# The BT Risk & Opportunity Management Process



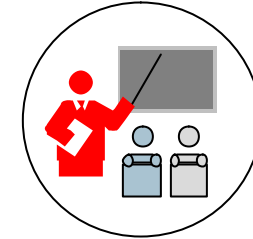
New Risk or Opportunity

Risk & Opportunity Closure



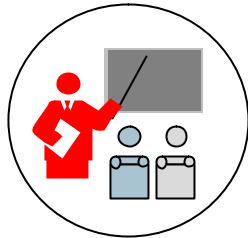
Risk & Opportunity Identification

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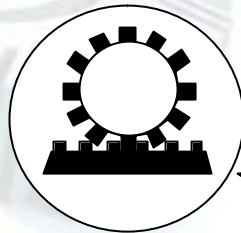


The Project

Tracking and reporting



Risk & Opportunity Response Implementation



Risk & Opportunity Response Planning



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# Risk Response Planning

In the following order we will try and:-

- **Avoid** the Risk
- **Transfer** the Risk
- **Mitigate** the Risk by
  - Reducing the **Probability** of a Risk occurring
  - Reducing the **Impact** if the Risk were to occur
- **Accept** the Risk



.....WE SHOULD NOT IGNORE RISK!



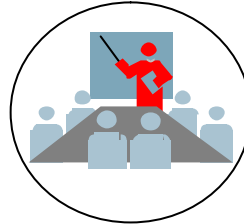
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# The BT Risk & Opportunity Management Process



Risk & Opportunity Closure

New Risk or Opportunity

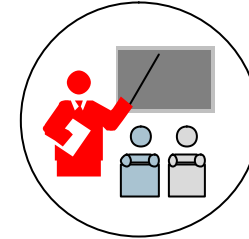


Risk & Opportunity Identification

Tracking and reporting

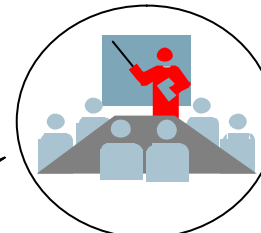
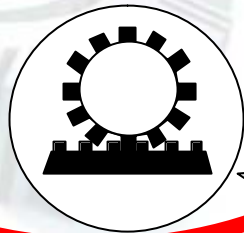
Risk & Opportunity Assessment

The Project



Risk & Opportunity Response Implementation

Risk & Opportunity Response Planning



# Risk & Opportunity Response Implementation

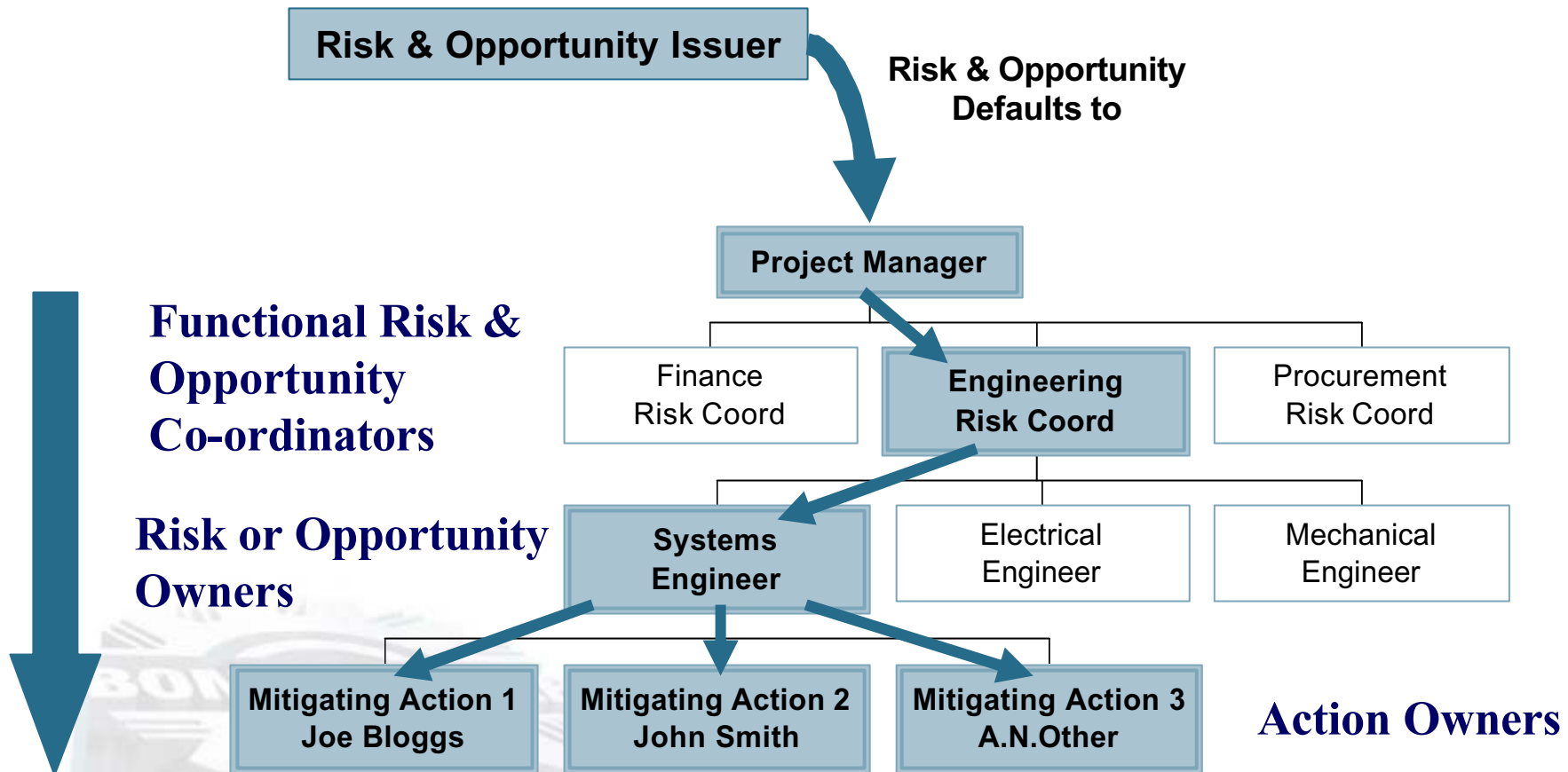
This is the important part!

If we do not ***implement*** our response ***actions*** -  
we do not close Risks & realise Opportunities!



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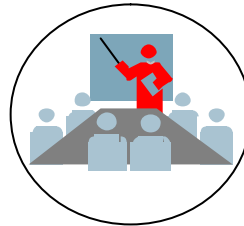
# Ownership in Risk & Opportunity Management



# The BT Risk & Opportunity Management Process



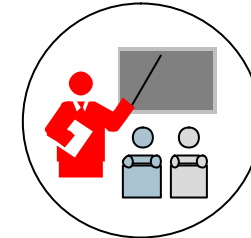
Risk & Opportunity Closure



Risk & Opportunity Identification

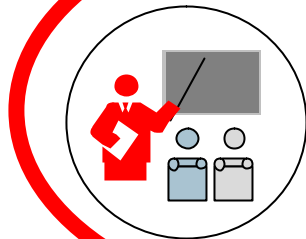
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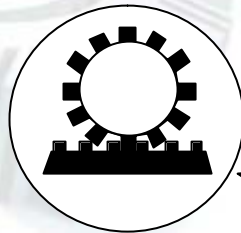


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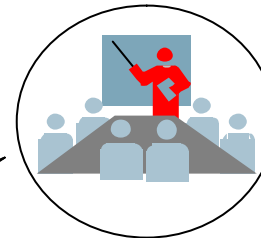
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Risk & Opportunity Response Implementation



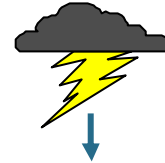
Risk & Opportunity Response Planning



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# R&O Management in the MOR

Unforeseen Issue: Request Contingency Money



R&O In EAC

Include in EAC

Request Accepted



Risks & Opportunities



Not Include in EAC

Request Denied

2.3 <Project Name> Risks & Opportunities included in the EAC

Risks & Opportunities included in the EAC  
Variance Analysis

DESCRIPTION	APPROVED EAC	PROPOSED LATEST EAC	VARIANCE LATEST VS. APPROVED	COMMENTS ON VARIANCE
R1	0.0	0.0	0.0	
R2	0.0	0.0	0.0	
R3	0.0	0.0	0.0	
R4	0.0	0.0	0.0	
R5	0.0	0.0	0.0	
R6	0.0	0.0	0.0	
R7	0.0	0.0	0.0	
R8	0.0	0.0	0.0	
R9	0.0	0.0	0.0	
R10	0.0	0.0	0.0	
TOTAL RISK & OPPORTUNITIES	0.0	0.0	0.0	
CONTINGENCY	0.0	0.0	0.0	
TOTAL	0.0	0.0	0.0	

Risk Occurs



Key Issues

Re-submit for Inclusion in EAC

R&O not In EAC

2.3 <Project Name> Risks & Opportunities not included in the EAC

M currency	CURRENT MOR	PREVIOUS MOR	VARIANCE
High	0.0	0.0	0.0
Medium	0.0	0.0	0.0
Low	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0

2.3 <Project Name> Key Issues

ISSUE	CRITICALITY FACTOR	ACTION PLAN
1. <>		1. <>
2. <>		2. <>
3. <>		3. <>



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# Project Risk Maturity Matrix

Project Name :  
 Project Risk Category (A,B, C or D):  
 Risk Manager :  
 Division:  
 Lead Division for Project : **Yes / No**

## PROJECT EXECUTION RISK MATURITY MATRIX

	Level 0	Level 1	Level 2	Level 3	Level 4
<b>1. Risk Org Support Structure's in place</b>	PM core team has <b>not</b> been allocated to project yet	<b>PM</b> responsibility <b>allocated</b> to Risk Mgt of project	<b>Functional Risk Coordinators</b> appointed	<b>Certified</b> <sup>(2)</sup> <b>Risk Mgr or Div/Area/Site Risk Coordinator nominated</b> to support project when required	<b>Divisional PM's</b> assigned Risk Mgt responsibility for <b>all divisions</b> involved in project
<b>2. Project Teams Risk Trained</b> <sup>(1 &amp; 2)</sup>	<b>No</b> training received by Project Team	<b>Informal training</b> received	Project <b>Team trained</b> <sup>(1)</sup> in BT Risk & Oppty Mgt <b>5 Step Process</b> (Module 2) emphasis on understanding <b>3C's methodology</b> (Module 3) <b>Roles &amp; Responsibility</b> (Module 4)	<b>Certified</b> <sup>(2)</sup> <b>Divisional or Area/ Site Risk Mgt support</b> coord allocated to support project core team assigned to project trained in <b>Facilitating Risk Workshops</b> (Module 5)	Project <b>Team trained</b> <sup>(1)</sup> in BT <b>ROP Database Use</b> (Module 6) and how to run a <b>Risk Meeting</b> (Module 7)
<b>3. Appropriate</b> <sup>(3)</sup> <b>Risk Workshops held</b> <sup>(3 &amp; 4)</sup>	<b>No</b> Risk & Opp Workshops run	Risk & Opp - ID, Assess & Mitigation workshops <sup>(3 &amp; 4)</sup> run by a <b>NON</b> certified facilitator	Risk & Opp - ID, Assess & Mitigation workshops <sup>(3 &amp; 4)</sup> run by a <b>NON</b> certified facilitator for lead & supporting Divisions involved in the Project	Risk & Opp Assess & Mitigating Action workshops <sup>(3 &amp; 4)</sup> run by <b>certified facilitator</b> <sup>(2)</sup>	Risk & Opp - ID, Assess & Mitigation workshops <sup>(3 &amp; 4)</sup> run by <b>certified facilitator</b> <sup>(2)</sup> for <b>lead &amp; supporting Divisions</b> involved in the Project
<b>4. Projects Set up in ROP</b>	Project <b>not</b> in ROP	Project set up in ROP with <b>only PM assigned</b> as Risk Coord for Risks & Opps	Project set up in ROP with <b>some Risk Coords assigned</b> for Risks & Opps	Project Set up in ROP with <b>all Risk Coords assigned</b> for Risks & Opps	Project set up in ROP for <b>all Divisions in Project</b> with <b>some Risk Coords assigned</b> for Risks & Opps
<b>5. % Risks with Action Plans</b>	<b>0</b> % Risks & Opps have Action Plan in place	<b>1 - 20%</b> Risks & Opps have Action Plan identified, dates and ownership assigned	<b>21 - 40%</b> Risks & Opps have Action Plan identified, dates and ownership assigned	<b>41 - 60%</b> Risks & Opps have Action Plan identified, dates and ownership assigned	<b>61 - 80%</b> Risks & Opps have Action Plan identified, dates and ownership assigned
<b>6. Maturity of Risk Meetings</b>	Risk & Opps <b>not</b> on any of the Projects Mtg agendas	Risk & Opps appear <b>adhoc</b> on the Projects Coordination Mtg agendas	Risk & Opps <b>consistently</b> on Project Coordination meeting agenda with Action Plans progress tracked	<b>Cross Divisional Risk&amp; Opp mtg</b> being held by lead Division in the project, with action plans being tracked	<b>Functional Risk &amp; Opps meetings</b> being run by Risk Coords with Action Plans progress tracked



# The Future for Risk Management

“There are risks and costs to a program of action, but they are far less than the long-range risks and costs of comfortable inaction.”

John F Kennedy

**Nur die tatsächliche Umsetzung von identifizierten  
Massnahmen zur Risikominderung bzw.  
Chancenverbesserung ist wertschöpfend.**



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