



Indianapolis International Airport

Enterprise Risk Management

Creating a Process





What would ERM look like at an airport?

- A process, ongoing & flowing through all Airport Operations
- Effected by people at every level of the operation
- Applied within the overall Airport strategy & culture
- Designed to identify potential events that, if they occur, will affect the Airport and to manage risk within our risk appetite
- Able to provide reasonable assurance to our government boards and senior management
- Geared to achievement of objectives in one or more separate but overlapping categories





ERM in an Airport's Culture

- Board / Management supported strategy
- Incorporate ERM into Annual Business Planning Process
- Formal semi-annual review process
- Management ownership of each risk specifically identified & tied into individual performance goals
- Bottom up ERM development
- Incorporate into operation and decision making processes





FAA Safety Management System (SMS)

- Current pilot program within FAA
- Pilot program primarily focuses on air operations:
 - Identification of operational risks
 - Application of controls to mitigate risks
- Will ultimately become a requirement for Part 139 airport certification, subject to regulatory oversight
- Ties ERM to operational processes throughout all levels of the organization





Methodical application of ERM

- Tracking mechanism – Risk Register
- Detailed departmental level assessment
- Ability to roll-up for Senior Management / Board level reporting
- Consistent measurement process to assess:
 - Likelihood
 - Consequence





Creating the Risk Register **OVERVIEW**

- 1. Risk Identification (from worksheets)**
- 2. Root Cause Analysis - Asking yourself, “What Can Go Wrong?”**
- 3. Plotting a Graph using the Criticality Matrix (Likelihood and Consequence)**
- 4. Early Warning Indicators (EWI’s) and Embedded Monitors (EM’s) - Control Measures (In place, effective?)**
- 5. “Inherent” v. “Residual” Risk**
- 6. Using the Risk Register as an Ongoing Management Tool**



Risk Register Composition

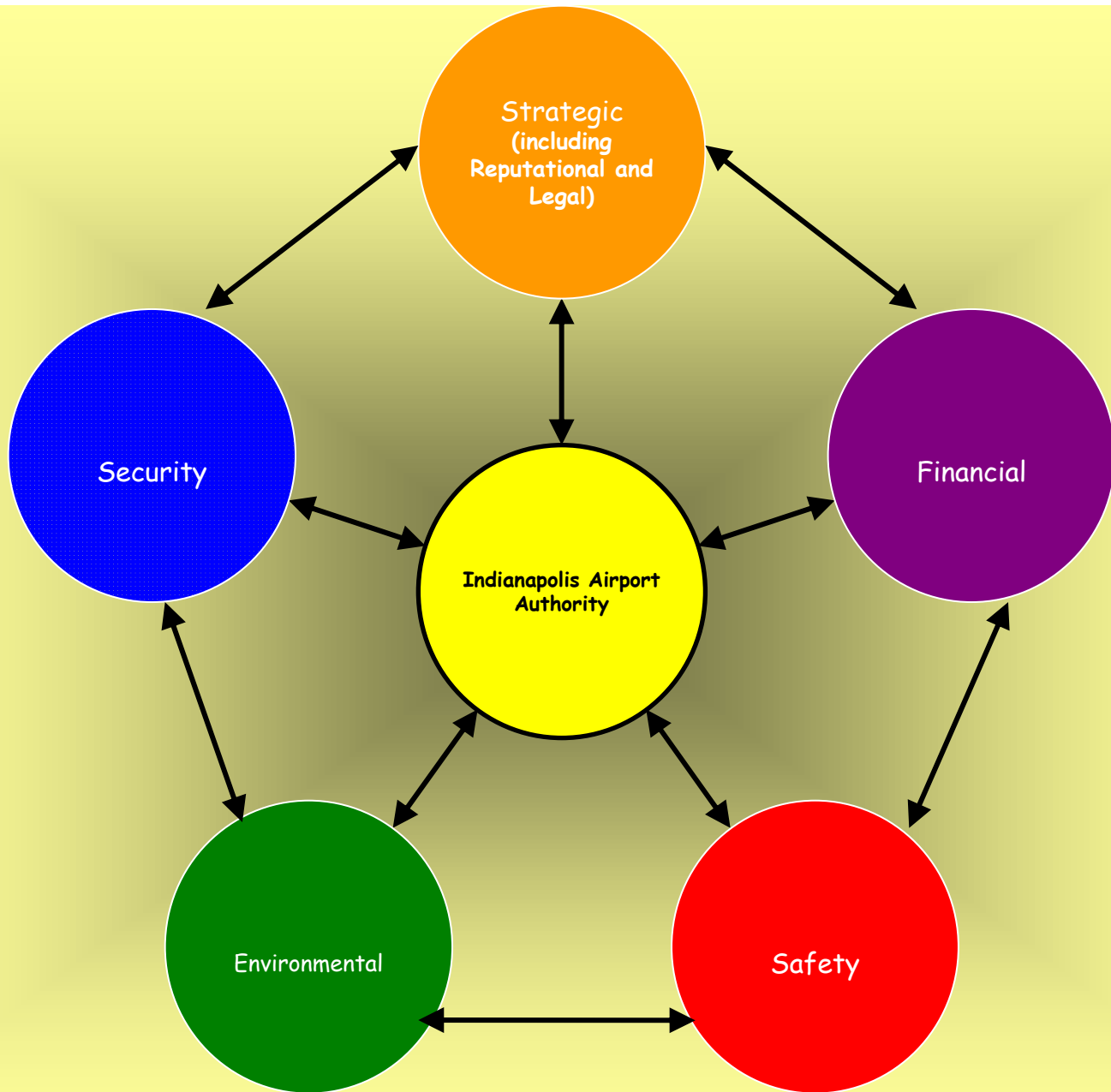


Indianapolis International Airport

For every identified risk, we will record:

- Risk Definition Statement
- Identification of Root Causes of Risk
- Designated Risk Owner
- Risk Assessment at Inherent Level (Determined through Matrix Zone and Likelihood and consequence scores)
- Mitigating Actions Taken and Proposed
- Embedded Monitors (EM) and Early Warning Indicators (EWI)
- Assessment of Controls by Those Involved in the Management of Risks... **EVERYONE**
- Current and previous Risk Assessments at Residual Level (Determined through Matrix Zone and Likelihood and consequence scores)





Risk Definition Statement



Indianapolis International Airport

Underlying Question that must be answered.....

What can go wrong and interfere with the achievement of a particular business objective?

1. Clearly identify/understand the objective being reviewed
2. Use Various Risk Identification Tools
 - Past Experience (personal, corporate, 3rd party)
 - Accident / near-miss reports
 - Event history and/or data records
 - Inspections and audits
 - Formal risk assessments
 - Open communications with other team members (“no blame” culture)
 - Prompt lists
3. List ALL threats to the objective
 - What could go wrong...and how?
 - What must go right in order to achieve objective...and how?
4. Determine level of risk
 - If Strategic...What will impact be on Corporate Objectives?
 - If Operational...What will impact be on Business Objectives?

Risk Definition Statement



Indianapolis International Airport

Format: EVENT leads to a **CONSEQUENCE** which results in a negative **EFFECT ON BUSINESS OBJECTIVE**

Example

If the entire baggage distribution system failed (**RISK EVENT**), flights would be severely delayed or cancelled (**CONSEQUENCE**) which would result in negative publicity and possible financial settlements (**IMPACT**).

If the ramp leading to Upper Terminal Drive collapsed (**RISK EVENT**), vehicular access to the terminal for both arriving and departing patrons would be greatly restricted (**CONSEQUENCE**) which would lead to loss of revenue and negative publicity (**IMPACT**).



Root Cause



Indianapolis International Airport

To determine ROOT CAUSE, answer the following 10 questions:
(As they relate to your objective)

1. What can go wrong (or not go right) (WCGW)?
2. How (or why) can it go wrong (HCIGW)?
3. Is it likely?
4. What is the impact?
5. Are we prepared to live with the WCGW? If not...
6. Are there sufficient controls to prevent the HCIGW?
 - If not, what action is required now?
7. If it does go wrong is there sufficient mitigation?
 - If not, what needs to be put in place before things go wrong?
8. How will we know that actions are in place and work?
9. What are the alternatives?
10. What are the consequences of not taking this action?

Owner / Control Owner



Indianapolis International Airport

Owner

The person ultimately responsible for the management of a specific RISK.

Control Owner

The person responsible to ensure that controls are operating, effective and responsive to ongoing changes in the environment

Understanding the Criticality Matrix



Indianapolis International Airport

L
I
K
E
L
I
H
O
O
D

High

L I K E L I H O O D	High	Build					
		into Operating Plan			Change Management System		
		Handle when it happens			Contingency Planning		
	Low						

Low

CONSEQUENCE

High



Quantifying Risks



Indianapolis International Airport

Likelihood

1. Improbable
2. Unlikely
3. Less than likely
4. More than likely
5. Probable

Consequence

1. Minor
2. Moderate
3. Significant
4. Substantial
5. Grave

Classifying Risk



Indianapolis International Airport

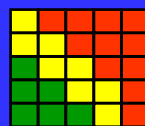
1. Safety
2. Security
3. Environment
4. Business Financial
5. Reputation & Legal

Likelihood / Consequence Ranking



Indianapolis International Airport

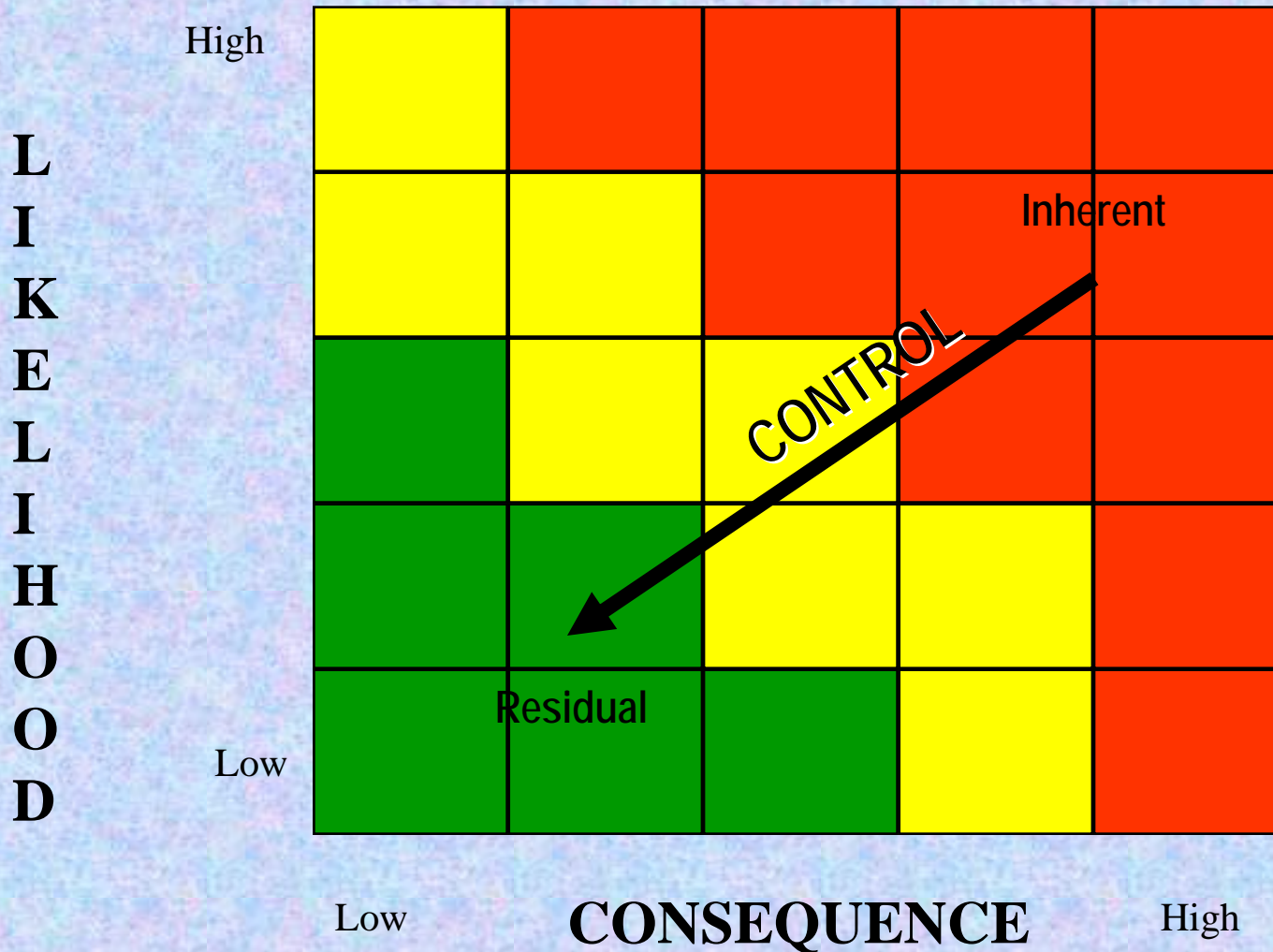
Likelihood Ranking: (suggested timeframe 1-3 years)	1=Improbable (<10%) 2=Unlikely (10-30%) 3=Less than likely (30-50%) 4=More than likely (50-80%) 5= Probable (>80%)
Consequence Ranking:	1=Minor 2=Moderate 3=Significant 4=Substantial 5=Grave
Consequence Category:	
Safety	1=Minor injuries 2=Major injuries 3=Single fatality 4=Multiple fatalities (<100) 5=Multiple fatalities (>100)
Security	1=Minor breach of regulations 2=Reportable breach of regulations 3=Prosecution 4=Short airport closure 5=Long airport closure
Environment	1=Short term local damage 2=Short term regional damage 3=Long term local damage 4=Long term widespread damage 5=Widespread permanent damage
Business Financial (user defined)	1= < \$100K 2= \$101K to \$1M, 3= \$1M to \$10M, 4= \$10M to \$100M 5= > \$100M
Reputation & Legal	1=Improvement notice, minor local reputation damage 2= Violation notice with or without fine and major local reputation damage 3=Prosecution with fine and national adverse media coverage 4= Directors charged with mismanagement, fraud, etc. and International adverse media coverage (Short-term) 5= Directors convicted of mismanagement, fraud, etc. and International adverse media coverage (long term).
Control Rating:	
1. Excessive	Controls exceed the level required to manage the risk
2. Optimal	Controls are comprehensive and commensurate with the risk. All controls are evidenced as working as intended
3. Adequate	Some shortfall in level of controls but these do not materially affect the level of residual risk
4. Inadequate	Weaknesses and inefficiency in controls do not treat the risk as intended. Remedial action in place and residual risk rating has been adjusted accordingly



How Controls Work



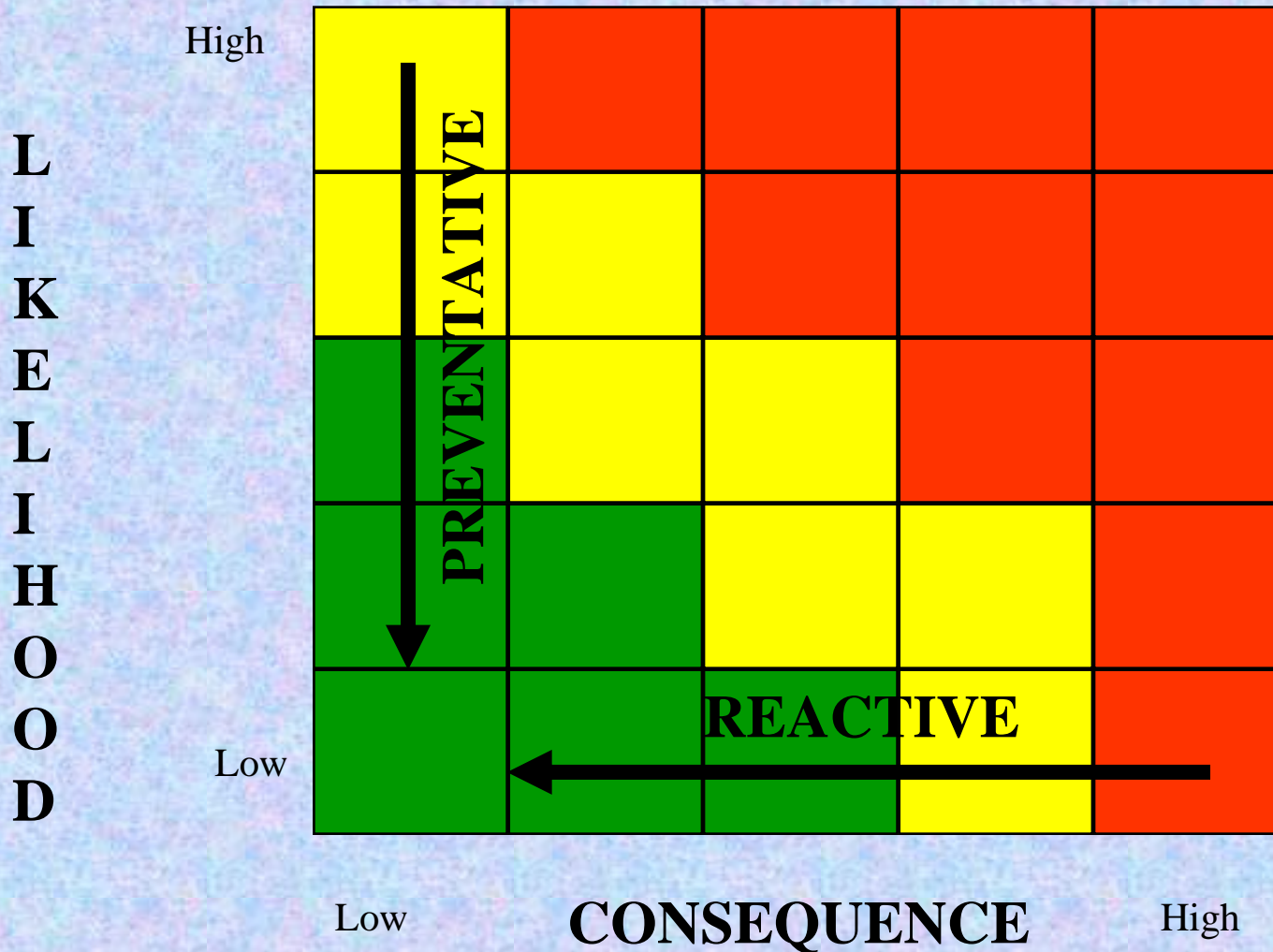
Indianapolis International Airport



The Effect of Controls



Indianapolis International Airport



Components of Optimal Controls



Indianapolis International Airport

1. Design

- Control should satisfactorily address the risk
- Control must be culturally compatible

2. Application

- Control must be applied constantly and consistently

3. Cost

- Operating costs must be proportionate to the risk



Preventative

- Before the event
- Impact likelihood of occurrence
- Often inefficient
- Bureaucratic
- Indiscriminate
- Stop things from going wrong
- Aligned with command/control
- Are often expensive

Reactive

- After the event
- Bear on consequence
- Tend to be efficient
- Non-bureaucratic
- Discriminatory
- Don't stop things from going wrong
- Aligned with empowerment
- Are often inexpensive

Early Warning Indicators (EWI) & Embedded Monitors (EM)

Early Warning Indicators

Events or observations that signal a change in the likelihood of a risk occurring or the significance of the consequences should it occur.

Embedded Monitors

Processes, equipment or other tools which are used to ensure that key controls that are being relied upon to mitigate major risks are operating, effective and responsive to ongoing changes in the environment.



Inherent vs. Residual Risk



Indianapolis International Airport

Inherent Risk

The amount of risk faced by the business unit at the point it assumes an interest or has an obligation to manage. It is therefore, assessed at a level before any treatment of risk is applied by the business unit managing the risk.

In assessing the likelihood of the inherent risk, the existence and reliability of the external control environment must be taken into consideration. If the external control environment is disregarded during this assessment it is likely that the inherent risk will be overstated.

Residual Risk

The likelihood and consequences of the risk after taking into account the actions that are actually in place to treat/mitigate the risk.

Probable	>80%	5					
More than likely	50-80%	4					
Less than likely	30-50%	3					
Unlikely	10-30%	2					
Improbable	<10%	1					

			1	2	3	4	5
--	--	--	---	---	---	---	---

Inherent	Impact on Business Objective		Minor	Moderate	Significant	Substantial	Grave
Residual	Safety		Minor injuries	Major injuries	Single fatality	Multiple fatalities (<100)	Multiple fatalities (>100)
	Security		Minor breach of regulations	Reportable breach of regulations,	Prosecution	Short airport closure	Long airport closure
	Environment		Short term local damage	Short term regional damage	Long term local damage	Long term widespread damage	Widespread permanent damage
	Legal /Reputation		Improvement notice, minor local reputation damage	Violation notice with or without fine and major local reputation damage	Prosecution with fine, national adverse media coverage	Directors charged with corporate mismanagement, fraud, etc. and International adverse media coverage results (short term)	Directors convicted of corporate mismanagement, fraud, etc. and International adverse media coverage results (long-term).
	Financial		< \$100 K	\$101K to \$1M	\$1M to \$10 M	\$10 M to \$100 M	> \$100 M

Residual Risk Considerations



Indianapolis International Airport

- Planned actions not taken (Example: those not already in place) do not reduce the likelihood scores
- Residual risks can be scored in one or more dimensions (Example: Safety and Reputational)
- Residual level scores should be estimated before the effect of any insurance cover. In other words, do not include insurance as a mitigating action.
- The highest residual consequence score determines the residual matrix zone. If a risk has a range of consequences it is rated based on the highest level.

