



BETH3 - Simplifying the BCM Strategy Selection Process

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Agenda

1. Welcome & Introduction

2. Background – BCM Approach Big Picture

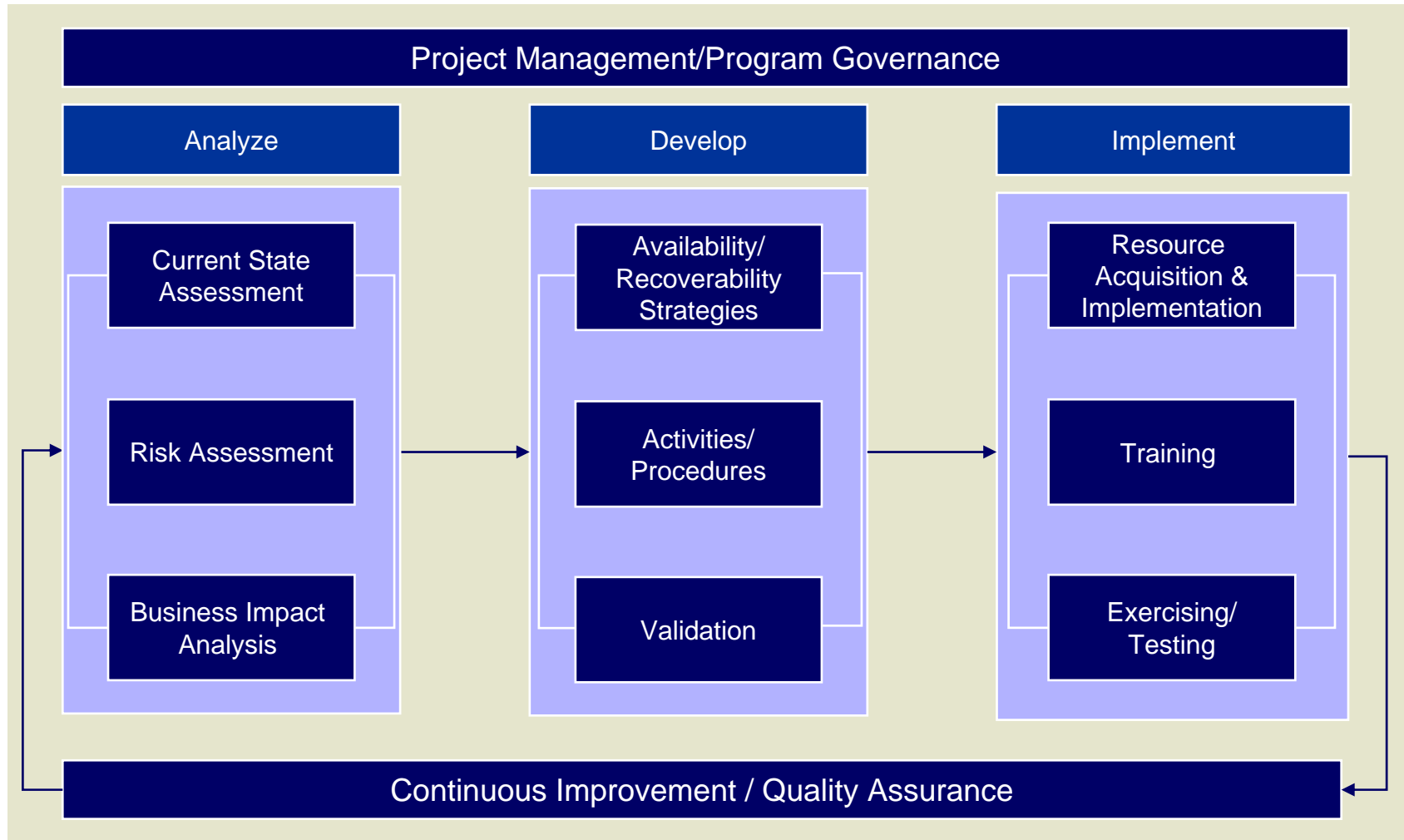
3. BETH3 – What is it?

4. Advantages of Utilizing BETH3

5. How does it work?

6. Questions & Answers

Background – BCM Approach Big Picture



What is BETH3?

- **BETH3** summarizes the types of assets that can be impacted by a disaster that ultimately interrupt the ability to perform a given business process.

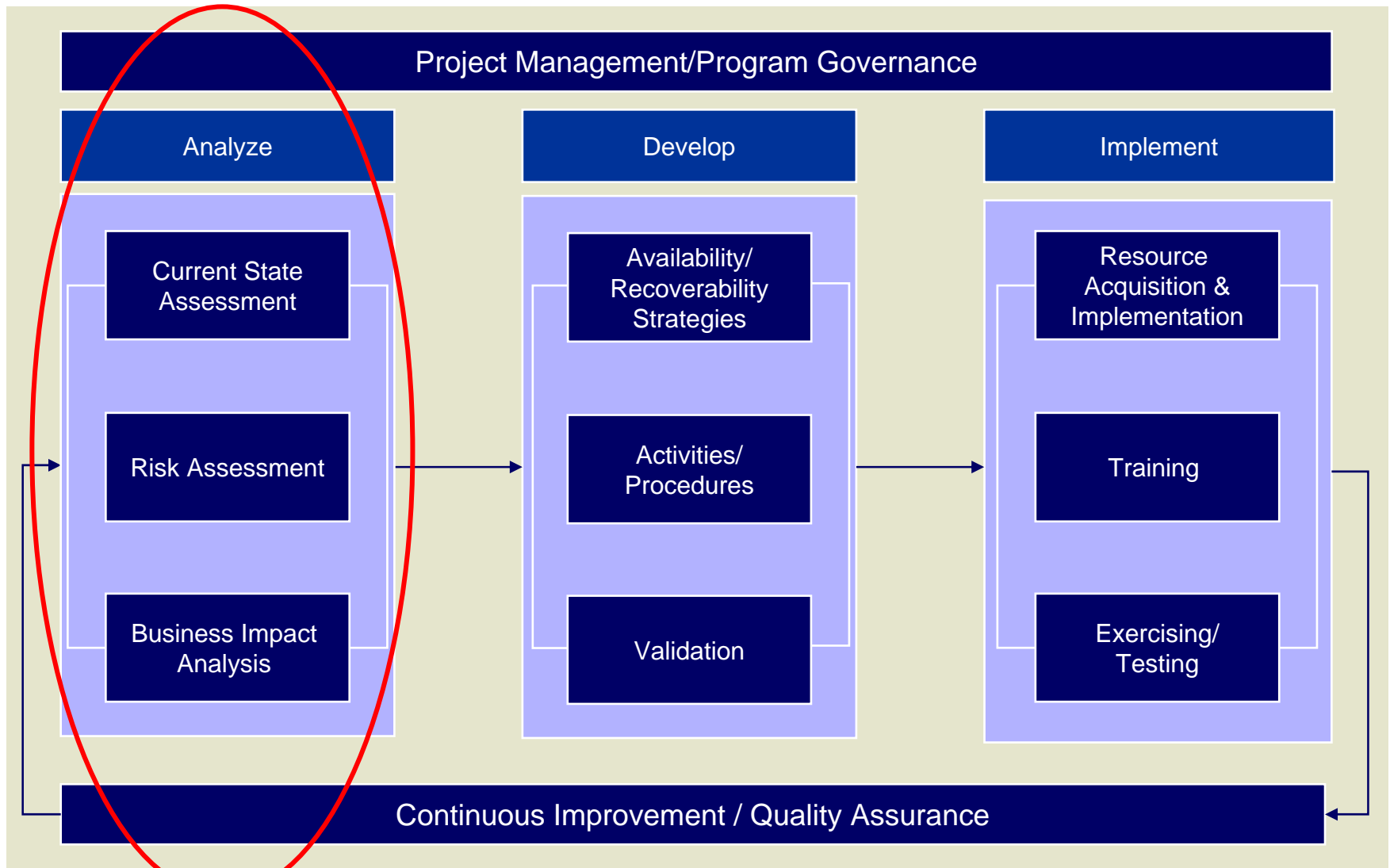
The BETH3 elements are:

- **B**uildings (Facilities)
- **E**quipment
- **T**echnology (IT Hardware/Software
/Infrastructure)
- **H**uman Resources
- **3rd** Parties (Dependencies)

Advantages of Utilizing BETH3

Utilizing the BETH3 approach allows the Company to assess the requirements around each critical element (**B**uilding, **E**quipment, **T**echnology, **H**uman **R**esource and **3rd** Party) for each of the Company's processes and use them to drive the identification and selection of recovery strategies.

How does it work? - Analyze



Risk Assessment

- General Risk Analysis (Risk Assessment: Part 1)
 - The NFPA1600 classifies general risks into three categories:
 - **Natural events** – Risks driven by nature or acts of God
 - **Technological events** – Risks driven by technology, broadly defined
 - **Human events** – Event driven by the acts of specific individuals both internal and external to the organization
- Specific Risk Assessment (Risk Assessment: Part 2)
 - Single points of failure
 - Reliance on few individuals
 - Reliance on third parties
- Exposure Reducing Opportunities (Avoidance Controls)
 - Short term (tactical) enhancements, modifications and/or additions to people, processes or technology
 - Medium to long term (strategic) changes for same

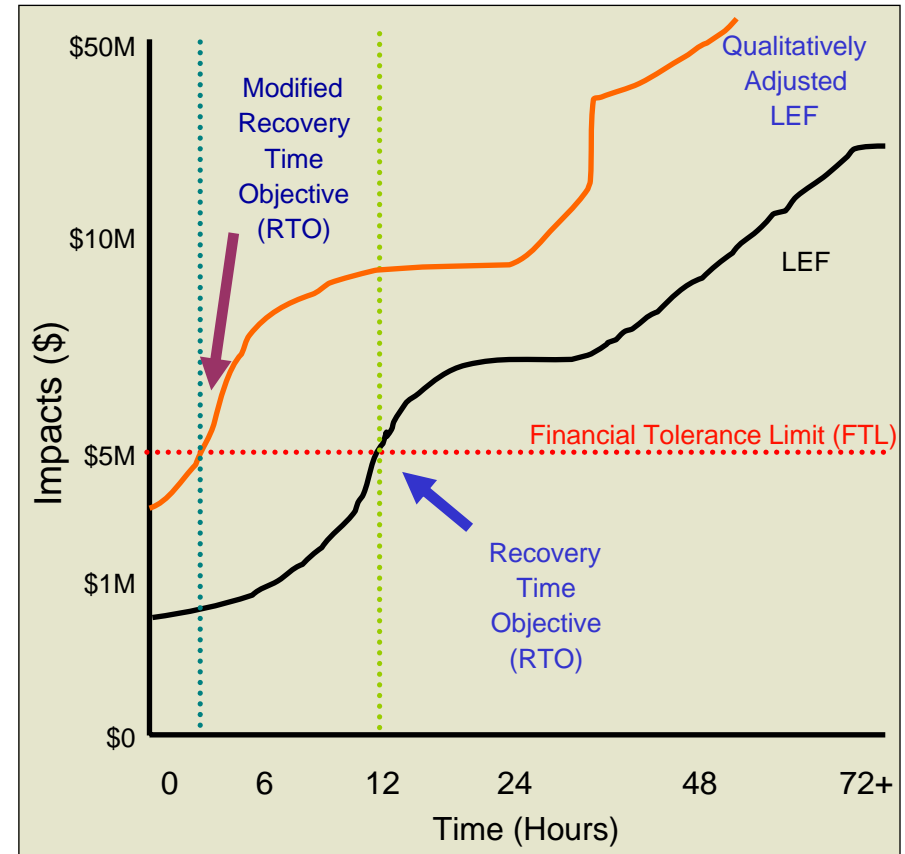
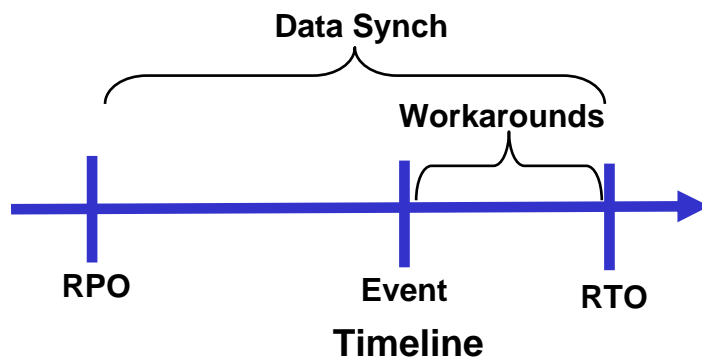
Risk Assessment

Threat Category	Threat Event	Magnitude of Impact	Likelihood of Occurrence	Duration of Event	Avoidance Controls	Residual Risk Level
Natural Hazards	Tornado	Moderate	Low	Immediate	Elmerton Data Center Partially Below Grade	Moderate
	HAZMAT: Industrial Chemical Release	Insignificant	Low	Evolving	Damper Shutdown at All Facilities	Low
Accidental Hazards	HAZMAT: Highway Transport Spill	Moderate	Low	Evolving	Damper Shutdown at All Facilities	Moderate
	HAZMAT: Railroad Transport Spill	Major	Very Low	Evolving	Damper Shutdown at All Facilities	High
	Nuclear Power Plant Accident	Catastrophic	Very Low	Evolving	None	High
	Terrorism: Brute Force Attack	Major	Very Low	Immediate/ Evolving	Elmerton Data Center Partially Below Grade	High
Intentional Acts	Terrorism: Bio-Terrorism	Moderate	Very Low	Evolving	U.S. Postal Service Detection Systems	Moderate
	Terrorism: Dirty Bomb	Moderate	Very Low	Evolving	None	Moderate
	Terrorism: Nuclear Power Plant Attack	Catastrophic	Low	Evolving	None	High
	Terrorism: Chemical Attack	Moderate	Low	Evolving	Damper Shutdown at All Facilities	Moderate
Utility Disruption	Power Utility Disruption	Moderate	Moderate	Immediate	Diesel Generators at All Facilities	Low

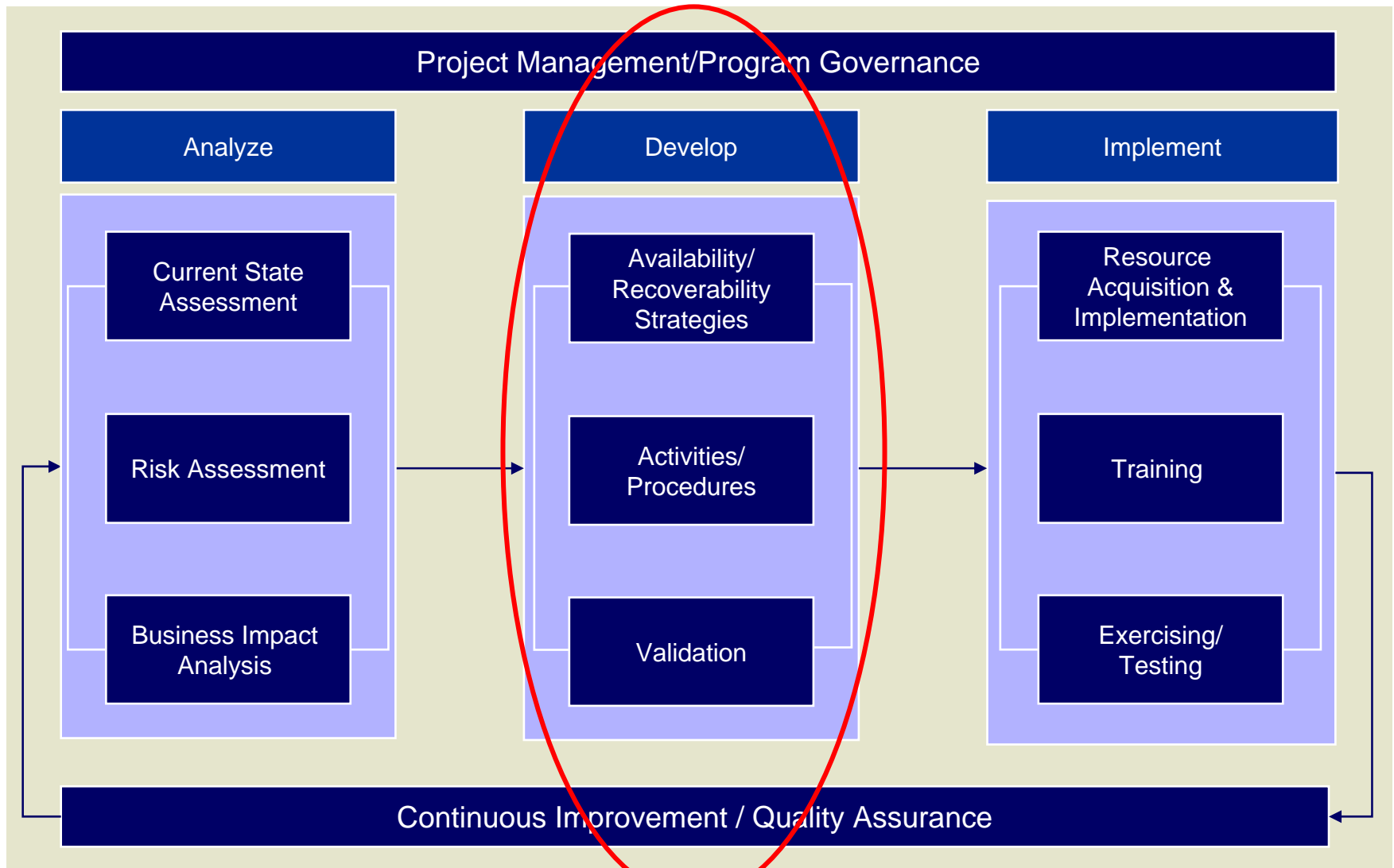
Business Impact Analysis (BIA)

- Key Objectives

- Business process review, interdependencies and priorities
- Critical applications
- Recovery Time Objective (RTO)
- Recovery Point Objectives (RPO)
- Minimum operating requirements



How does it work? – Develop



Governance

Leadership

- What is the overall direction for the business and related IT within the corporation?
- What are the cultural values regarding risk management?
- How should key stakeholders be represented?

Policy

- What should the fundamental BCM operating principles be?
- What internal BCM standards, rules and protocols are needed?

Monitoring & Control

- What qualitative benchmarking should be performed?
- How should periodic BCM progress reports be created and reviewed?
- What corrective action should be taken as key findings are made?
- How should the organization ensure corrections take place?

BCM Governance Decisions

Planning

- What should the corporate business recovery strategy include?
- What should be the corporate IT recovery goals?
- How should BCM program management be measured?

Allocating Capital

- How should limited resources be efficiently allocated?
- What capital is available for investment?
- What criteria should be used to dictate BCM investment decisions?
- What process should be used to review expenditures?

Coordination & Compliance

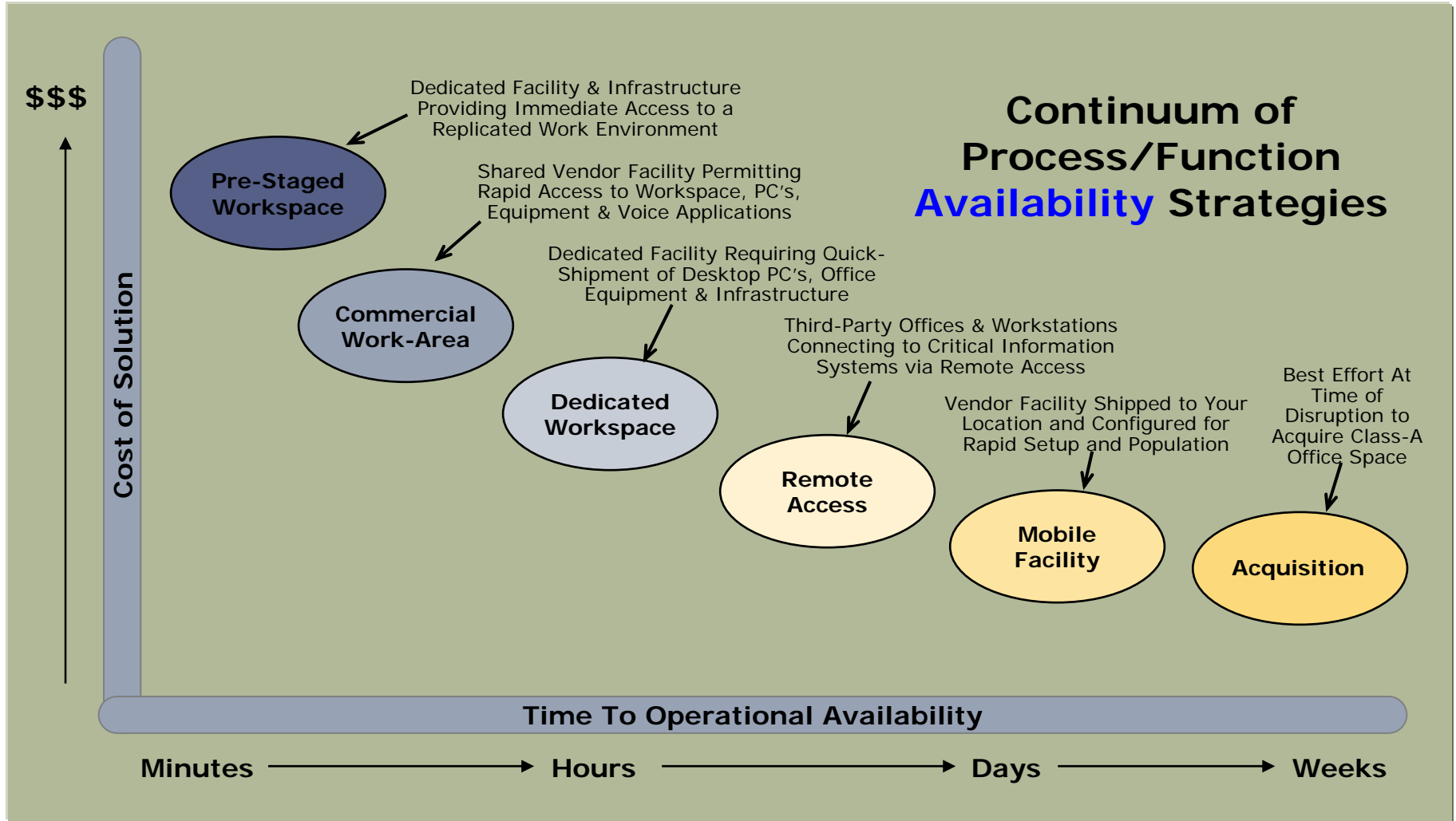
- What process should be used to ensure compliance with BCM standards and obligations?
- How should Corporate BCM coordinate recovery activities between organizational units?

Availability/Recovery Strategies

- **GOAL = “Continuous Operations” = Resiliency**
- **Any event** (nearly unlimited # of risks) can **lead to a limited set of impacts** on one or more of the following:
 - **B**uildings (Facilities)
 - **E**quipment
 - **T**echnology (IT Hardware/Software/Infrastructure)
 - **H**uman Resources
 - **3rd** Parties (Dependencies)
- **Prioritization of Business Functions** drive recovery strategy and spend on alternative protection mechanisms. One size/strategy does not “fit” all.

Process/Function Strategies

- Alternative functional work-area recovery strategies aligned with RTO.

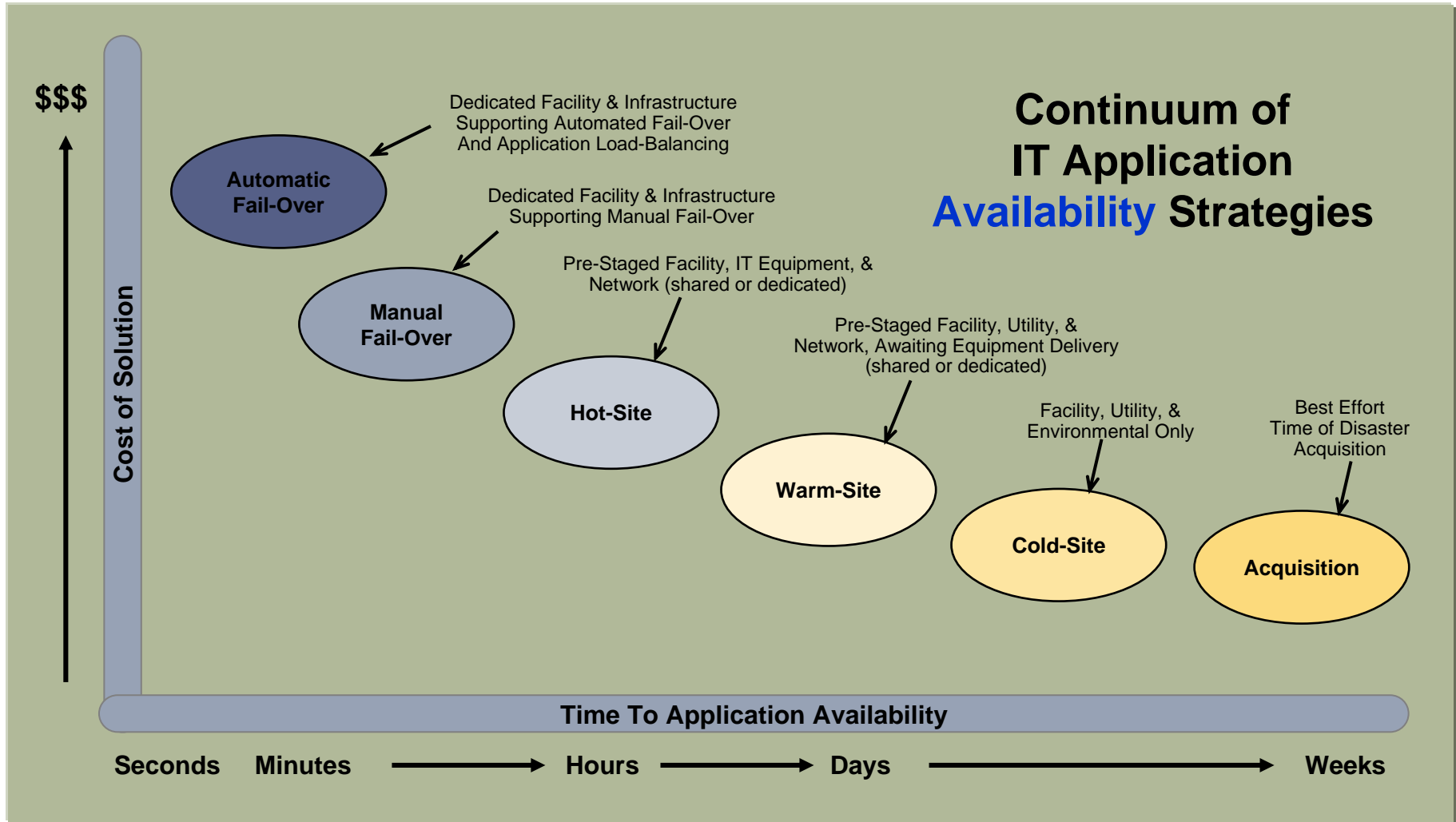


Process/Function Strategies – Selection Criteria

	Description of Recovery Alternative	On-Going Cost	Expected Recovery Time	Risk in Execution
Pre-Staged Workspace	Dedicated Facility & Infrastructure Providing Immediate Access to a Replicated Work Environment	Floor Space: \$\$\$\$ Equipment: \$\$\$\$ Network: \$\$\$\$ Total Cost: \$\$\$\$	Zero to 8-Hours	LOW
Commercial Work-Area	Shared Vendor Facility Permitting Rapid Access to Workspace, PC's, Equipment & Voice Applications	Floor Space: \$\$\$ Equipment: \$\$ Network: \$\$\$ Total Cost: \$\$\$	4-Hours to 24-Hours	LOW
Dedicated Workspace	Dedicated Facility Requiring Quick-Shipment of Desktop PC's, Office Equipment & Infrastructure	Floor Space: \$\$\$\$ Equipment: \$ Network: \$\$\$ Total Cost: \$\$\$	4-Hours To 72-Hours	LOW MEDIUM
Remote Access	Third-Party Offices & Workstations Connecting to Critical Information Systems via Remote Access	Floor Space: N/A Equipment: \$\$\$ Network: \$\$ Total Cost: \$\$	4-Hours To 5-Days	MEDIUM
Mobile Facility	Vendor Facility Shipped to a Specified Location and Configured for Rapid Setup and Quick-SHIP Population	Floor Space: \$\$\$ Equipment: \$\$ Network: \$\$ Total Cost: \$\$	3-Days To 10-Days	MEDIUM HIGH
Acquisition	Best Effort At Time of Disruption to Acquire Available Class-A Office Space	Floor Space: N/A Equipment: N/A Network: N/A Total Cost: \$	5-Days to 21-Days	HIGH

Application Availability Strategies

- Alternative IT application recovery strategies aligned with RTO.

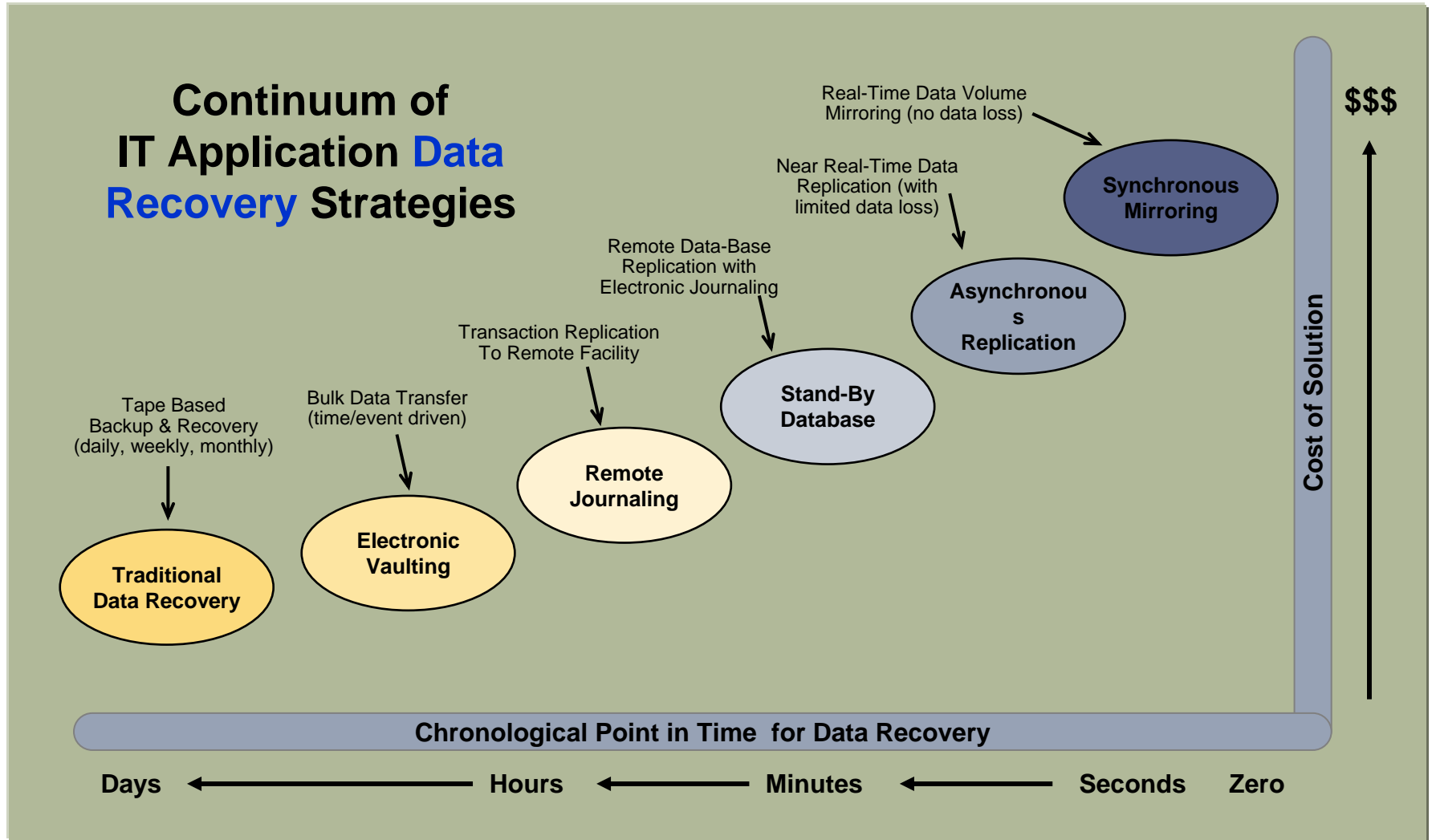


Application Availability Strategies – Selection Criteria

	Description of Strategy Alternative	On-Going Cost	Expected Recovery Time	Risk in Execution
Automatic Fail-Over	Remote Server Clustering with Application Load Balancing and/or Intelligent Fail-Over Processing	Storage: \$\$\$\$ Hosts: \$\$\$\$ Network: \$\$\$\$ Facilities: \$\$\$\$	Zero to 60-Minutes	LOW
Manual Fail-Over	Remote Server Clustering with Manual Fail-Over Requiring Operator Intervention	Storage: \$\$\$\$ Hosts: \$\$\$\$ Network: \$\$\$ Facilities: \$\$\$\$	60-Minutes to 12-Hours	LOW
Hot-Site	Restoration of Application Processing to Pre-Staged Network and Dedicated IS Infrastructure	Storage: \$\$\$ Hosts: \$\$\$ Network: \$\$\$ Facilities: \$\$\$	12-Hours To 72-Hours	LOW
Warm-Site	Restoration of Application Processing to Pre-Staged Network and Limited IS Infrastructure	Storage: \$\$ Hosts: \$\$ Network: \$\$ Facilities: \$\$\$	48-Hours To 5-Days	LOW MEDIUM
Cold-Site	Restoration of IS to Pre-Staged Facility & Utility. Infrastructure Acquired at Time of Disaster	Storage: N/A Hosts: N/A Network: \$ Facilities: \$\$\$	96-Hours to 14-Days	MEDIUM HIGH
Acquisition	Best Effort At Time of Disaster to Acquire Facility & Infrastructure. Data Restored From Tape Backup	Storage: N/A Hosts: N/A Network: N/A Facilities: N/A	10-Days to 30-Days	HIGH

Application Data Recovery Strategies – Selection Criteria

- Alternative electronic application data recovery strategies aligned with RPO.

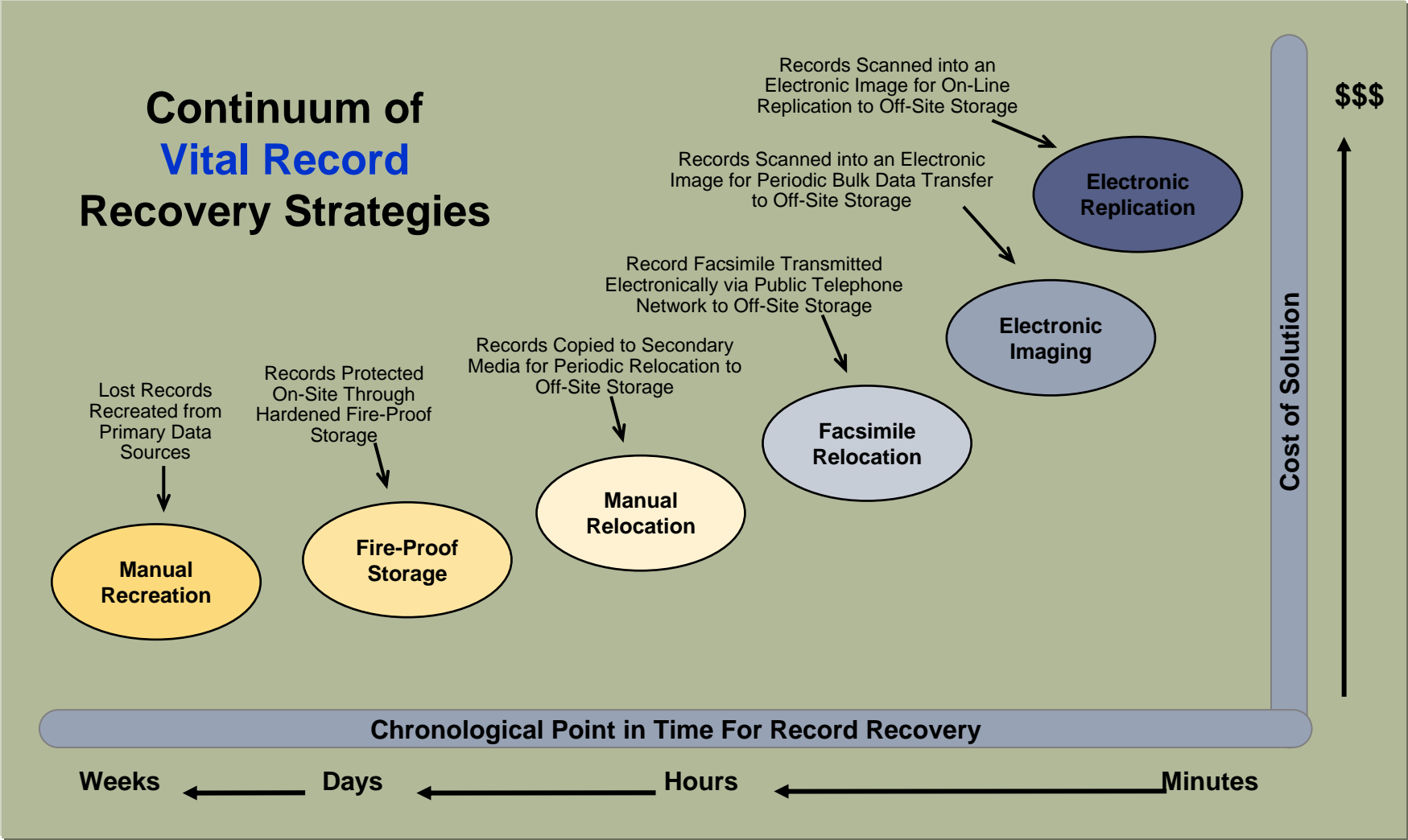


Application Data Recovery Strategies – Selection Criteria

	Description of Strategy Alternative	On-Going Cost	Expected Recovery Time	Risk in Execution
Synchronous Mirroring	Real-Time Remote Disk Volume Mirroring (equivalent to remote RAID-1)	Storage: \$\$\$\$ Hosts: \$\$\$ Network: \$\$\$\$ Tape: N/A	Zero Data Loss	LOW
Asynchronous Replication	Near Real-Time Remote Disk Volume Mirroring or Data Replication	Storage: \$\$\$\$ Hosts: \$\$\$ Network: \$\$\$\$ Tape: N/A	Data Recovery Within Seconds to Minutes	LOW
Stand-By Database	Remote Transaction Journaling or Vaulting as Applied To a Standing Database	Storage: \$\$\$ Hosts: \$\$ Network: \$\$\$ Tape: \$	Data Recovery Within Seconds or Minutes	LOW
Remote Journaling	Remote Transaction Data Recovery Near to Point of Failure	Storage: \$\$ Hosts: \$\$ Network: \$\$\$ Tape: \$	Data Recovery Within Seconds or Minutes	LOW MEDIUM
Electronic Vaulting	Bulk Data Transfer to Remote Tape/Disk as Triggered By Time or Event	Storage: \$\$ Hosts: \$ Network: \$\$ Tape: \$	Data Recovery Within Minutes or Hours	LOW MEDIUM
Traditional Data Recovery	Weekly, Nightly or Intra-Day Backup To Off-Line Tape Media That Is Manually Moved Off-Site	Storage: \$ Hosts: \$ Network: \$ Tape: \$\$	Data Recovery Within Hours or Days	MEDIUM

Vital Record Recovery Strategies – Selection Criteria

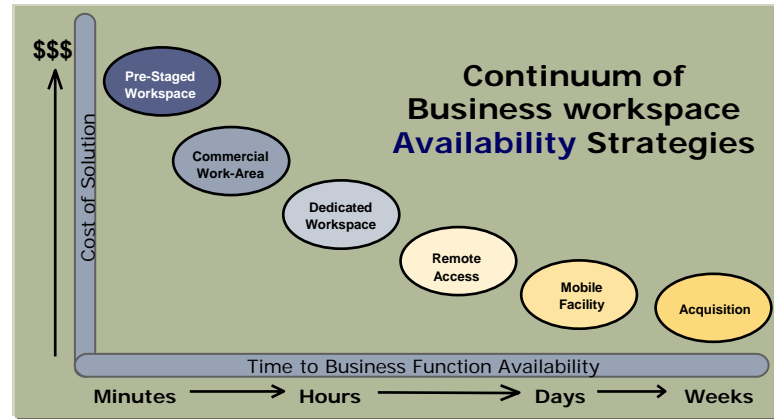
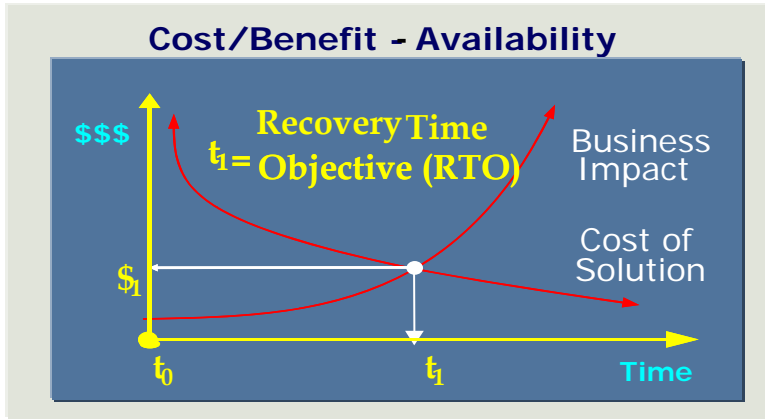
- Alternative physical vital record recovery strategies aligned with RPO.



Vital Record Recovery Strategies – Selection Criteria

	Description of Strategy Alternative	On-Going Cost	Expected Recovery Time	Risk in Execution
Electronic Replication	Records Scanned into an Electronic Image for On-Line Replication to Off-Site Storage	Floor Space: \$\$ Infrastructure: \$\$\$ Network: \$\$\$ Total Cost: \$\$\$	Seconds to Minutes	LOW
Electronic Imaging	Records Scanned into an Electronic Image for Periodic Transfer to Off-Site Storage	Floor Space: \$\$ Infrastructure: \$\$\$ Network: \$\$ Total Cost: \$\$\$	Minutes to Hours	LOW
Facsimile Relocation	Record Facsimile Transmitted Electronically via Public Telephone Network to Off-Site Storage	Floor Space: \$\$ Infrastructure: \$\$ Network: \$ Total Cost: \$\$	Minutes To Hours	LOW
Manual Relocation	Records Copied to Secondary Media for Periodic Relocation to Off-Site Storage	Floor Space: \$\$ Infrastructure: \$ Network: \$ Total Cost: \$\$	Hours To Days	LOW
Fire-Proof Storage	Records Protected While On-Site Through Hardened Fire-Proof Storage	Floor Space: \$ Infrastructure: \$ Network: N/A Total Cost: \$	Hours To Days	MEDIUM
Manual Recreation	Lost Records Manually Recreated from Original Primary Data Sources	Floor Space: N/A Infrastructure: N/A Network: N/A Total Cost: N/A	Hours to Total Loss	HIGH

Strategy Selection Methodology



Guidelines for Selecting a Recovery Strategy

- Assess potential business impacts (e.g. loss of revenue, productivity impacts, regulatory fines) resulting from a worst-case disruption scenario.
- Use impacts assessed to model the company's cost associated to the business function's downtime, also identified as tolerance for impact or financial loss.
- Based on this tolerance, establish specific Recovery Time Objectives (RTO) representing a boundary point in time following a disruption within which recovery should be achieved in order to keep impacts or loss within acceptable and manageable levels.
- Use RTOs to qualify recovery strategy alternatives and identify those which reduce impacts and/or loss to acceptable levels. Typically, the shorter the expected recovery time for a specific strategy alternative, the more expensive it is to implement.
- Weight the cost of alternate recovery strategies against their best estimates of potential impact and/or loss resulting from disruptive events.

Sample Disaster Recovery Strategies per RTO

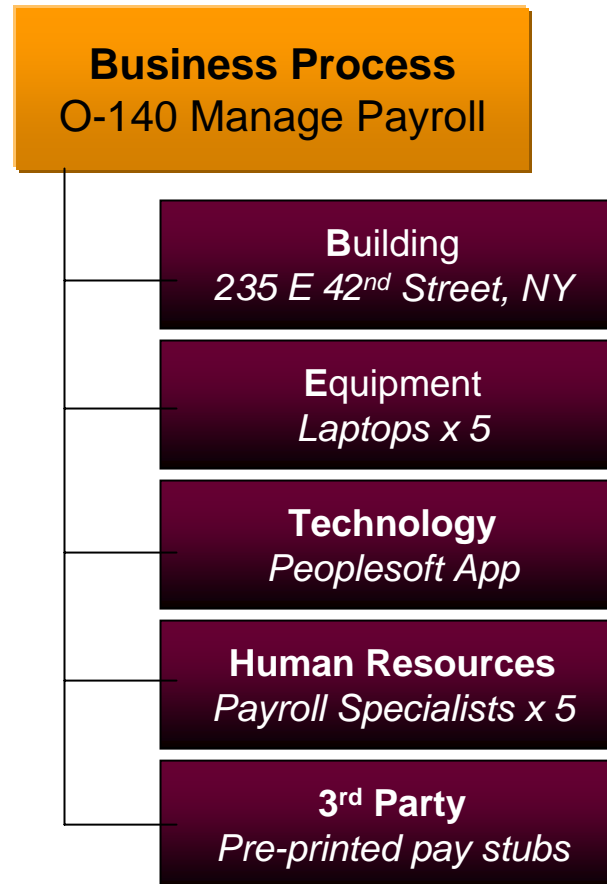
Recovery Time Objective (RTO)	Possible Alternative Strategy	Actual Implementation
Nearly Immediate (Infrastructure)	<ul style="list-style-type: none"> • 100% resilient infrastructure • Fully redundant, failsafe WAN/LAN technology • Fully secured redundancy • In-house developed/Outsourced • Redundant Power 	<ul style="list-style-type: none"> • Multi-path, multi-carrier communications providers • Real time rerouting of network • Alternate data center for highly critical applications
Less than 1 hour	<ul style="list-style-type: none"> • Clustering/Active-Active & Clustering/Active-Passive • Redundant Power/NICs/HBA • Data Replication/Data Mirroring or RAID • Continuous Monitoring 	<ul style="list-style-type: none"> • Develop/contract for alternative data center out of region (hot-site) • Full infrastructure redundancy • Data mirroring/Off-site Vaulting
1 - 24 hours	<ul style="list-style-type: none"> • Clustering/Active-Active • Redundant Power/NICs/HBA • Data Replication/Data Mirroring or RAID • Continuous Monitoring 	<ul style="list-style-type: none"> • Use alternate data center (hot-site) • No Active-Passive Clustering
25 -48 hours	<ul style="list-style-type: none"> • Clustering/Active-Passive • Redundant Power/NICs/HBA • Data Replication/Data Mirroring or RAID • Continuous Monitoring 	<ul style="list-style-type: none"> • Specific Application Tape Recovery • Asynch Tape Backup at Redundant Site • Asynch Remote Vaulting Disk • Mirroring of SAN Remote Vaulting to Tape (Avoid data corruption)
2 – 7 Days	<ul style="list-style-type: none"> • Redundant Power/NICs/HBA • Data Replication/Data Mirroring or RAID • Continuous Monitoring 	<ul style="list-style-type: none"> • Tape recovery – Dedicated tapes • Remote Tap Vault at 3rd party site • Remote Tape Vault at alternative location
7 – 14 Days	<ul style="list-style-type: none"> • Redundant Power/NICs/HBA • Data Replication/Data Mirroring or RAID • Continuous Monitoring 	<ul style="list-style-type: none"> • Tape recovery – Shared tapes with drop ship for hardware

Develop Recovery Strategies using BETH3

From the data collected in the BIA and other environmental factors, a Business Process Profile may be created by mapping a Business Process to its BETH3 components:

Building
Equipment
Technology
Human Resources
3rd Party

BETH3 Example



BETH3 Recovery Strategies – Illustrative Example

B	E	T		H	3
BUILDING	EQUIPMENT	TECHNOLOGY – APPLS/TELECOM	TECHNOLOGY – DATA	HUMAN RESOURCES	3RD PARTIES
Work from home or remote site (remote access)	Replicate Task Manually	Replicate Task Manually	Replicate Task Manually	Automate Task	Replicate Task Manually
Load balance work across two or more sites	Load balance work across two or more sites	Transfer work to another location	Transfer work to another location	Transfer work to another Pfizer location	Transfer work to another location
Replicate Task Manually	Transfer work to another Pfizer location	Stockpile Business Process outputs (if possible)	Transfer work to contingent resources (outsource or reciprocal agreement)	Transfer work to contingent resources (outsource or reciprocal agreement)	Transfer work to contingent resources (outsource or reciprocal agreement)
Transfer work to another Pfizer location	Transfer work to contingent resources (outsource or reciprocal agreement)	Transfer work to contingent resources (outsource or reciprocal agreement)	Stockpile Business Process outputs (if possible)	Multi-sourcing (e.g., load-balance work across two or more sites)	Alternate source (e.g., temporary 3 rd party vendor or supplier)
Transfer work to contingent resources (outsource or reciprocal agreement)	Borrow/commandeer equipment (or substitute) from alternate Pfizer facility	<i>Application Only:</i> Perform Tier 1 IT Recovery - Automatic Failover	Off-site storage	Succession Planning	Multi-sourcing (e.g., load-balance goods or services provided across multiple vendors)
Relocate to another facility (hot or cold)	Use personal equipment (or substitute)	<i>Application Only:</i> Perform Tier 2 IT Recovery - Manual Failover	Duplication (e.g., hard copy of data)	Stockpile Business Process outputs (if possible)	Stockpile Business Process outputs (if possible)
Relocate to vendor-owned workspace (hot or cold)	Lease/rent temporary equipment (or substitute) from outside vendor	<i>Application Only:</i> Perform Tier 3 IT Recovery - Recovery Site	Salvage	Do Nothing	Do Nothing
Delivery of mobile workspace (hot or cold)	Pre-purchase and pre-configure spare equipment (stockpile)	<i>Application Only:</i> Perform Tier 4 IT Recovery - Best Efforts	Perform Tier 1 IT Recovery - Synchronous Mirroring		
Stockpile Business Process outputs (if possible)	Resources acquired at the time of a disruption	<i>Telecom Only:</i> VPN	Perform Tier 2 - Asynchronous replication		
<i>Infrastructure Only:</i> Alternate source (e.g., N+1 redundancy, backup generator, UPS, SLA, etc.)	Quick ship new equipment (or substitute) with pre-selected vendor (SLA)	<i>Telecom Only:</i> Alternate source (e.g., cell phone, etc.)	Perform Tier 3 IT Recovery - Traditional Data Recovery		
<i>Infrastructure Only:</i> Multi-sourcing (e.g., multiple suppliers of building electricity).	Stockpile equipment (or substitute) (on site or off site)	<i>Telecom Only:</i> Multi-sourcing (e.g., multiple carriers)	Do Nothing		
Do nothing	Stockpile Business Process outputs (if possible)	<i>Telecom Only:</i> Redirect (e.g. ATM / frame relay)			
	Do Nothing	Do Nothing			

Recovery Solution Cost Benefit Analysis

Recovery Strategies should be considered and evaluated at a high-level.

Sample Recovery Strategy Decision Template

Business Process Name	Manage Payroll			
BETH3 Component	HR FTEs (x 5)			
	Proposed Recovery Strategy 1 Variation A	Proposed Recovery Strategy 1 Variation B	Proposed Recovery Strategy 2 Variation A	Proposed Recovery Strategy 2 Variation B
Proposed Recovery Strategy Description	{ Description }	{ Description }	{ Description }	{ Description }
Proposed Recovery Strategy Pros	- Pro 1 - Pro 2 - Pro 3	- Pro 1 - Pro 2 - Pro 3	- Pro 1 - Pro 2 - Pro 3	- Pro 1 - Pro 2 - Pro 3
Proposed Recovery Strategy Cons	- Con 1 - Con 2 - Con 3	- Con 1 - Con 2 - Con 3	- Con 1 - Con 2 - Con 3	- Con 1 - Con 2 - Con 3
Cost Estimate	\$200K	\$1M	\$1M	\$1.5M
Risk	High	Medium	High	Low
Reliability	High	High	Medium	Low
Availability	High	Medium	Medium	Low
Proposed Strategy Recommendation	Recovery Strategy 2, Variation B			
Proposed Strategy Recommendation Rationale	Lowest Risk Option, provided greatest reliability and availability			

* High, Medium, Low for Risk, Availability, Reliability and defined in Methodology Manual

Recovery Solution Selection

Recovery Strategy Recommendations should be presented to management and a Recovery Solution should be selected and approved. The selected recovery solution will be the backbone of the Business Continuity/Disaster Recovery Plan.

Example Recovery Solution Selection

Business Process Name	Manage Payroll			
BETH3 Component	HR FTEs (x 5)			
	Proposed Recovery Strategy 1 Variation A	Proposed Recovery Strategy 1 Variation B	Proposed Recovery Strategy 2 Variation A	Proposed Recovery Strategy 2 Variation B
Proposed Recovery Strategy Description	{ Description }	{ Description }	{ Description }	{ Description }
Proposed Recovery Strategy Pros	- Pro 1 - Pro 2 - Pro 3	- Pro 1 - Pro 2 - Pro 3	- Pro 1 - Pro 2 - Pro 3	- Pro 1 - Pro 2 - Pro 3
Proposed Recovery Strategy Cons	- Con 1 - Con 2 - Con 3	- Con 1 - Con 2 - Con 3	- Con 1 - Con 2 - Con 3	- Con 1 - Con 2 - Con 3
Cost Estimate	\$200K	\$1M	\$1M	\$1.5M
Risk	High	Medium	High	Low
Reliability	High	High	Medium	Low
Availability	High	Medium	Medium	Low
Proposed Strategy Recommendation	Recovery Strategy 2, Variation B			
Proposed Strategy Recommendation Rationale	Lowest Risk Option, provided greatest reliability and availability			

Identify and Assess Recovery Strategies

For each BETH3 component, identify your Recovery Strategy.

Business Process O-140 Manage Payroll	Identify your Recovery Strategies	Meets RTO?*
B uilding 235 E 42nd Street, NY	Staff can temporarily work from home if the building is inaccessible (immediate to 2 hours to deploy)	Yes
E quipment Laptops x 5	Manual forms are available if laptops are lost or destroyed (immediate to 2 hours to deploy)	Yes
T echnology Peoplesoft App	Manual forms are available if Peoplesoft is down for an extended period of time (immediate to 2 hours to deploy)	Yes
H uman Resources Payroll Specialists x 5	Work can be transferred to Corporate Finance at 150 building (immediate to 2 hours to deploy)	Yes
3rd Party Pre-printed pay stubs	Utilize alternate supplier	Yes

Illustrative Examples

**If identified strategy does not meet RTO, alternative strategies need to be considered.*

Suggested Approach for Recovery Strategies Development



Objective	For each division, consolidate list of Business Process that require BCPs with BETH3 process requirements	For each division, conduct Recovery Strategy Workshop to identify potential scenarios and associated recovery strategies.
Location	On-Site	On-Site
Responsible Party	Site BCM Cross Division Leader	<ul style="list-style-type: none"> • Site BCM Leader(s)
Participants		<ul style="list-style-type: none"> • Business Process SMEs
Input	Validated BIA	<ul style="list-style-type: none"> • Consolidated Business Process List • Strategy Option List
Process		Recovery Strategy Workshop(s)
Tool/ Template	Business Process Profile Template	Strategy Option List Recovery Strategy Worksheet
Output	Consolidated Business Profile List	<ul style="list-style-type: none"> • Identified Recovery Strategies • Potential Recovery Strategies

Suggested Approach for Recovery Strategy Development



Objective	For the division, identify associated cost for the identified recovery strategies	Present recommended recovery strategies to management, confirm funding, and identify next steps
Location	On-Site	On-Site
Responsible Party	Site BCM Leader	Site BCM Leader(s)
Participants		Site Line Management
Input	Potential Recovery Strategies	Recovery Strategy Cost Analysis
Process		Recovery Strategy Review Meeting
Tool/ Template	Cost Estimation Template	
Output	Recovery Strategy Cost Analysis	Selected Recovery Strategies

A Final Word & For More Information

“Plans are nothing...

...Planning is Everything.”

-- Dwight Eisenhower

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