# Operational Resiliency Management

## An Introduction to the Resiliency Engineering Framework

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# Agenda

Who are we?

Introduction to Operational Resiliency and the Resiliency Model

Characterizing the Problem Space .

Introducing the Resiliency Engineering Framework

Summary

Questions

# Financial Services Technology Consortium

Established in 1993

Member-owned consortium for collaboration between financial services-focused organization

Explore new technologies and methodologies to address today's business requirements .

Projects:

- Technology Review
- Compliance
- Business Continuity Maturity Model

# Software Engineering Institute

Established in 1984

Federally Funded Research and Development Center (FFRDC)

College-level unit of Carnegie Mellon University

Includes five technical programs aimed helping defense, government, industry, and academic organizations to continually improve software-intensive systems

Widely-known “brands”

- CERT Coordination Center
- Capability Maturity Model Integration (CMMI)

# Managing Today’s Operational Risk Challenges

Regulations

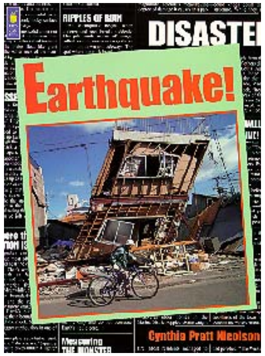
Cyber Security

Resiliency Engineering

An Emerging Management Discipline

Terrorism

Disasters



Supply Chain

Infrastructure

# Resiliency…more than a buzzword

Resiliency is the ability of an object to return to its original shape

Operational resiliency refers to an organization's ability to function and adapt through the lifecycle of disruptions .

A resiliency model is a roadmap for managing the consistent delivery of products and services

# Managing resiliency

Requires

- Ongoing measurement and monitoring
- Balancing cost and risk tradeoffs
- Taking an enterprise focus

Financial Services organizations recognize a need to be able to manage resiliency in a systematic, consistent, measurable, and improvable way

# A model is needed to. . .

Identify and prioritize risk exposures

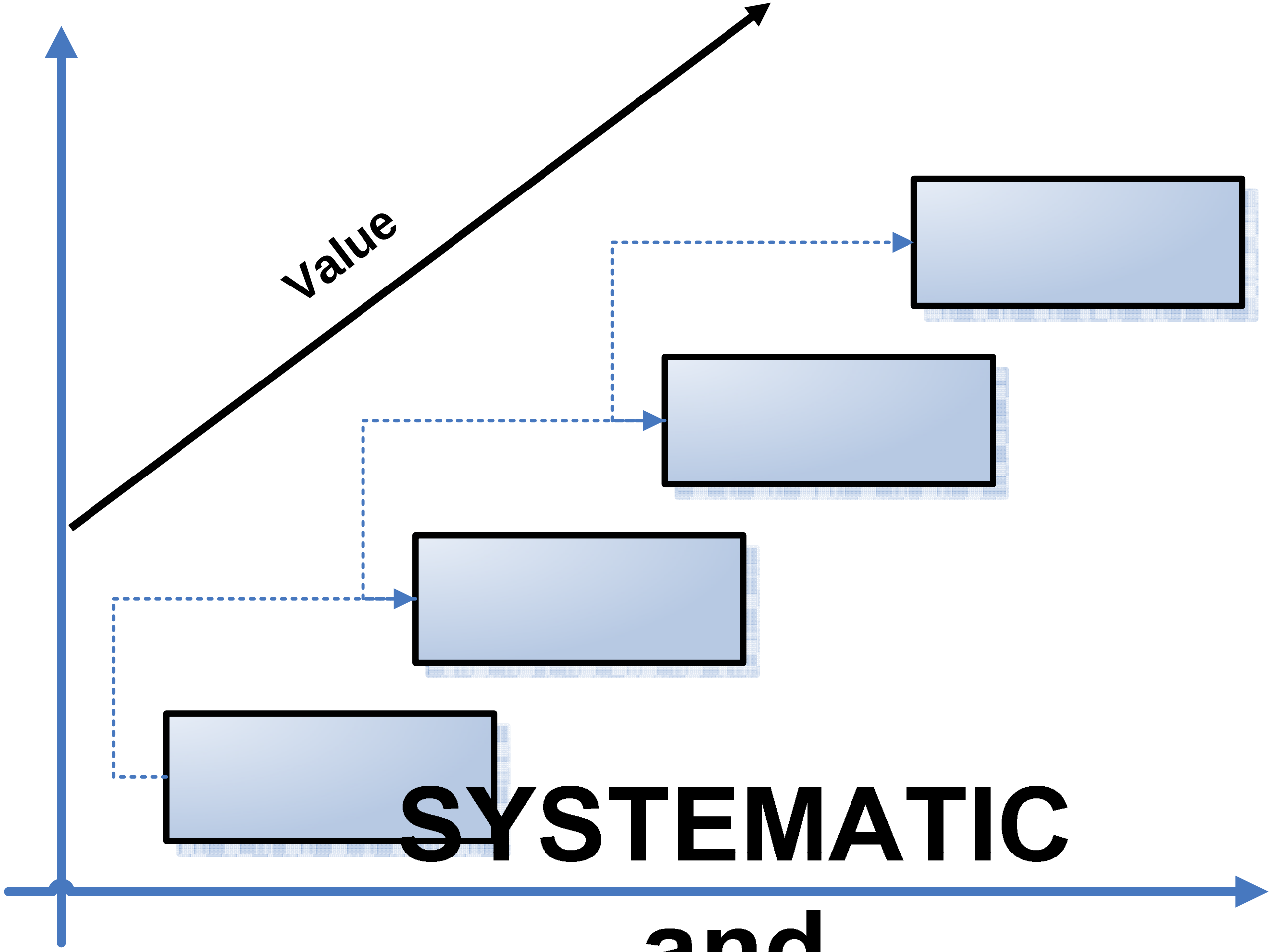
Define a process improvement roadmap

Measure and facilitate strategic planning

Address interdependencies

Promote pro-active regulatory compliance

# Goal: continuous improvement of resiliency processes



SYSTEMATIC

and

# Why use a “model” approach?

Provides an operational risk roadmap

Vendor-neutral, standardized, unbiased assessment vehicle

Can be leveraged for process improvement at any organization, public or private

Avoids the pitfalls of prescriptive solutions by promoting resiliency engineering and the use of organization-appropriate practices

# Teaming with the SEI

Fieldwork history with OCTAVE$^{SM}$

Best-in-Class IT Operations Roundtable

Enterprise Security Management and PrISM

Resiliency Maturity Model

Resiliency Engineering Framework

# Defining the problem

Typical organizational approach to operational risk management activities:

- Poorly planned and executed function
- Business units not involved
- No asset management function
- Seen as a technical function or responsibility
- Searching for magic bullet: CobiT, ITIL, ISO17799, NFP1600
- Poorly defined and measured goals
- Funding model reactive, not strategic

# Organizational impact

Misalignment of operational, security, and continuity goals

False sense of accomplishment

Failure to recognize/utilize all skills/resources

Compliance at the expense of effectiveness

Static, inflexible approach that can't evolve

# The changing view of security

Security is an operational risk management activity

Security has two purposes:

- Prevent disruption to core business drivers
- Sustain the survivability of the organization’s mission

Security is not an end, but a means to achieving higher organizational goals

# Operational risk and resiliency

Operational risk is the risk that results from

- Failed internal processes
- Inadvertent or deliberate actions of people
- Problems with systems and technology
- External events

Operational resiliency is the organization’s ability to sustain the mission in the face of these risks

# Managing operational resiliency

Requires more than traditional security activities

Continuity of operations (COOP) planning is essential

Derives benefits from process excellence in areas such as IT operations and service delivery management

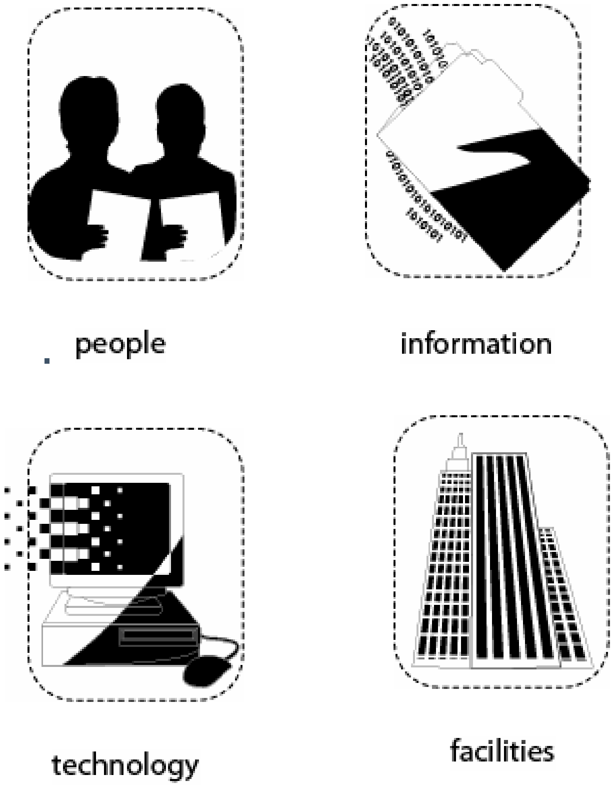
# Security and operational resiliency

Focus on keeping critical assets safe from harm

Limiting threats and managing impacts

Manage confidentiality, integrity, and availability

Manage “condition”

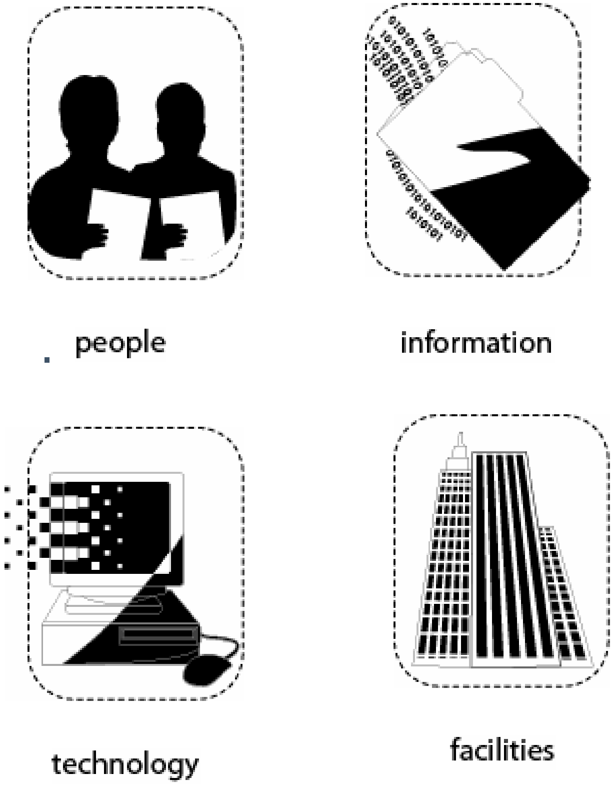


# Business continuity and operational resiliency

Limit unwanted effects of realized risk

Ensure availability and recoverability

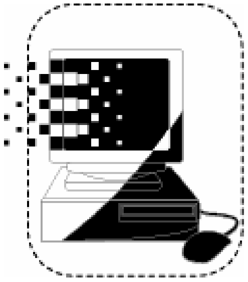
Manage “consequence”

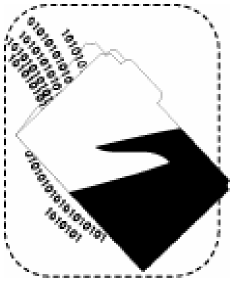


# IT Operations Management and operational resiliency

Limit vulnerabilities and threats that originate in the technical infrastructure

Ensure availability and recoverability of technology


technology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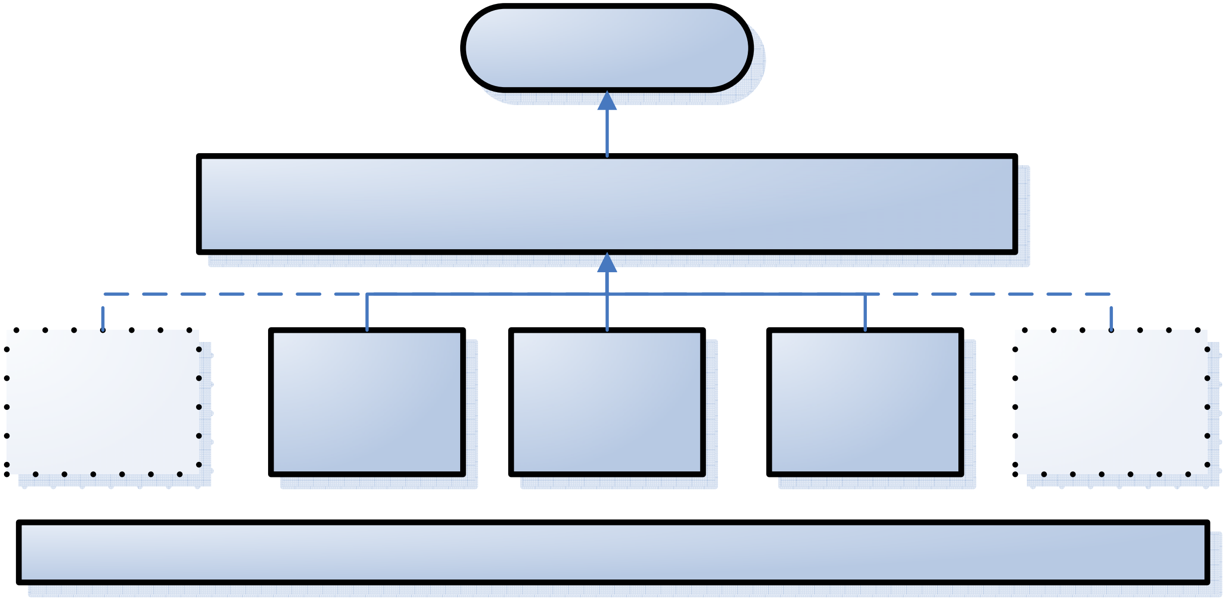
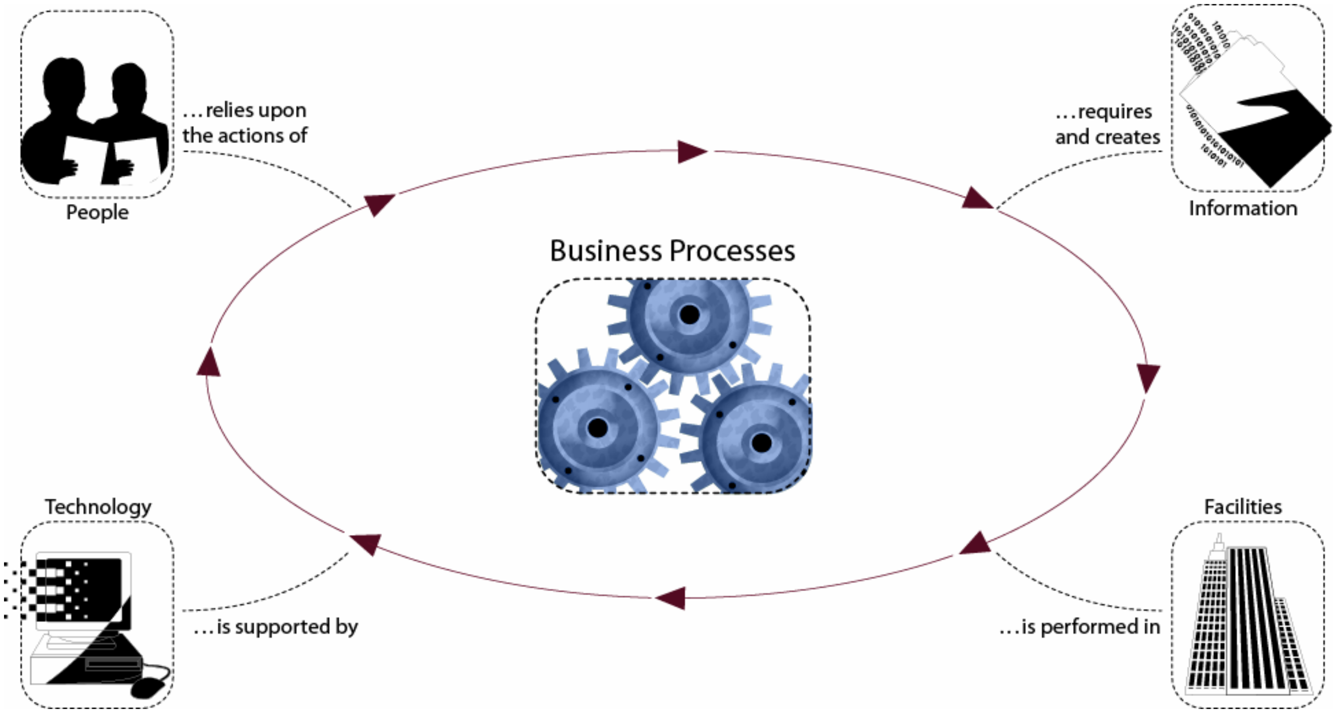
# Collaborating toward a common goal



# Operational resiliency in practice

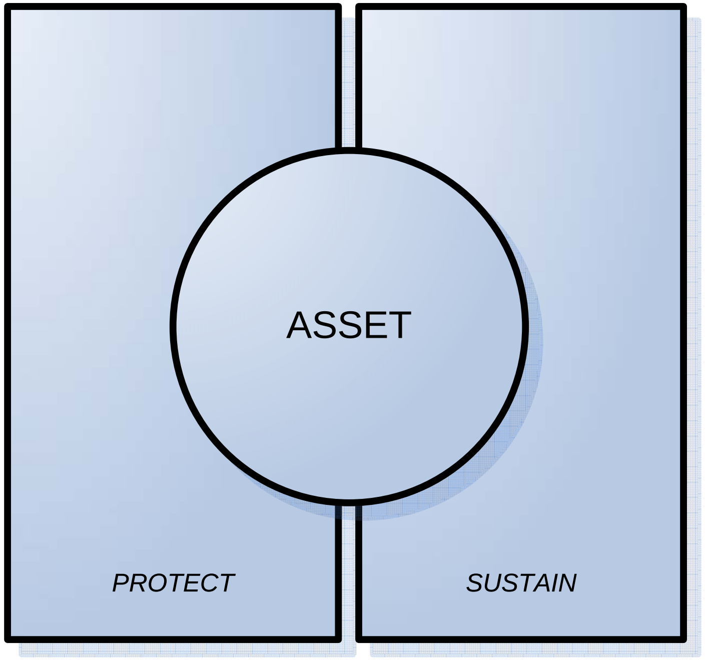


# An emerging holistic view

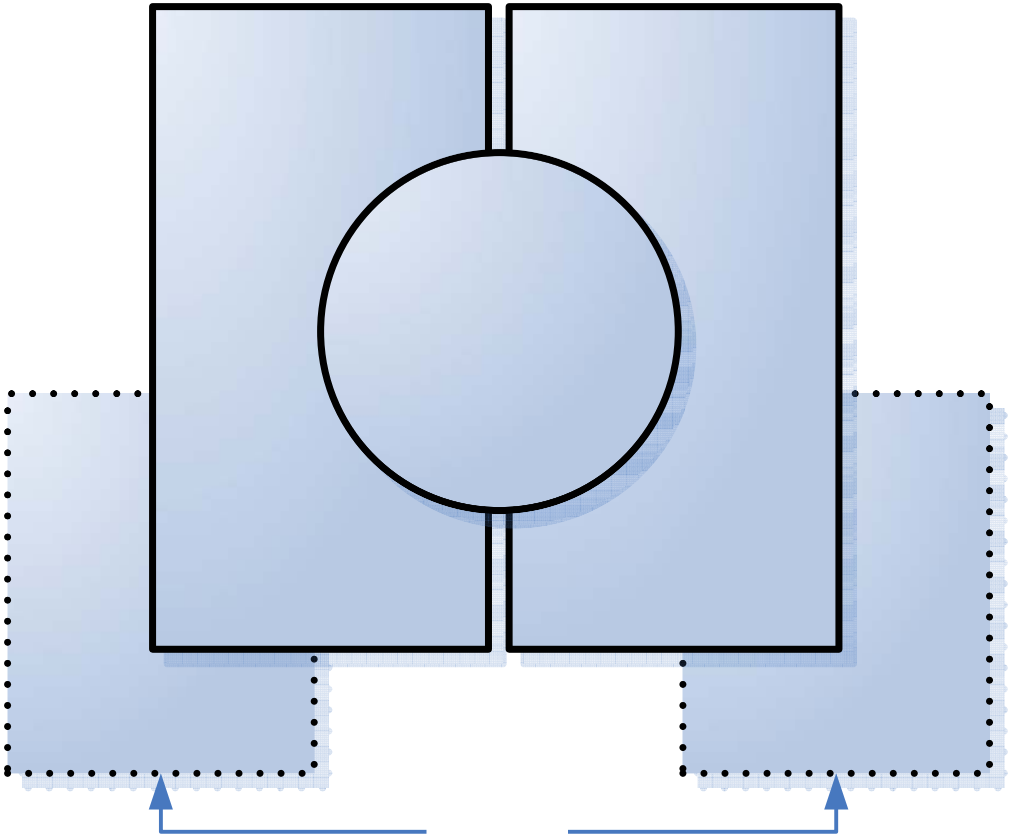
Organization is dependent on the productivity of four assets:

- People
- Information
- Technology
- Facilities

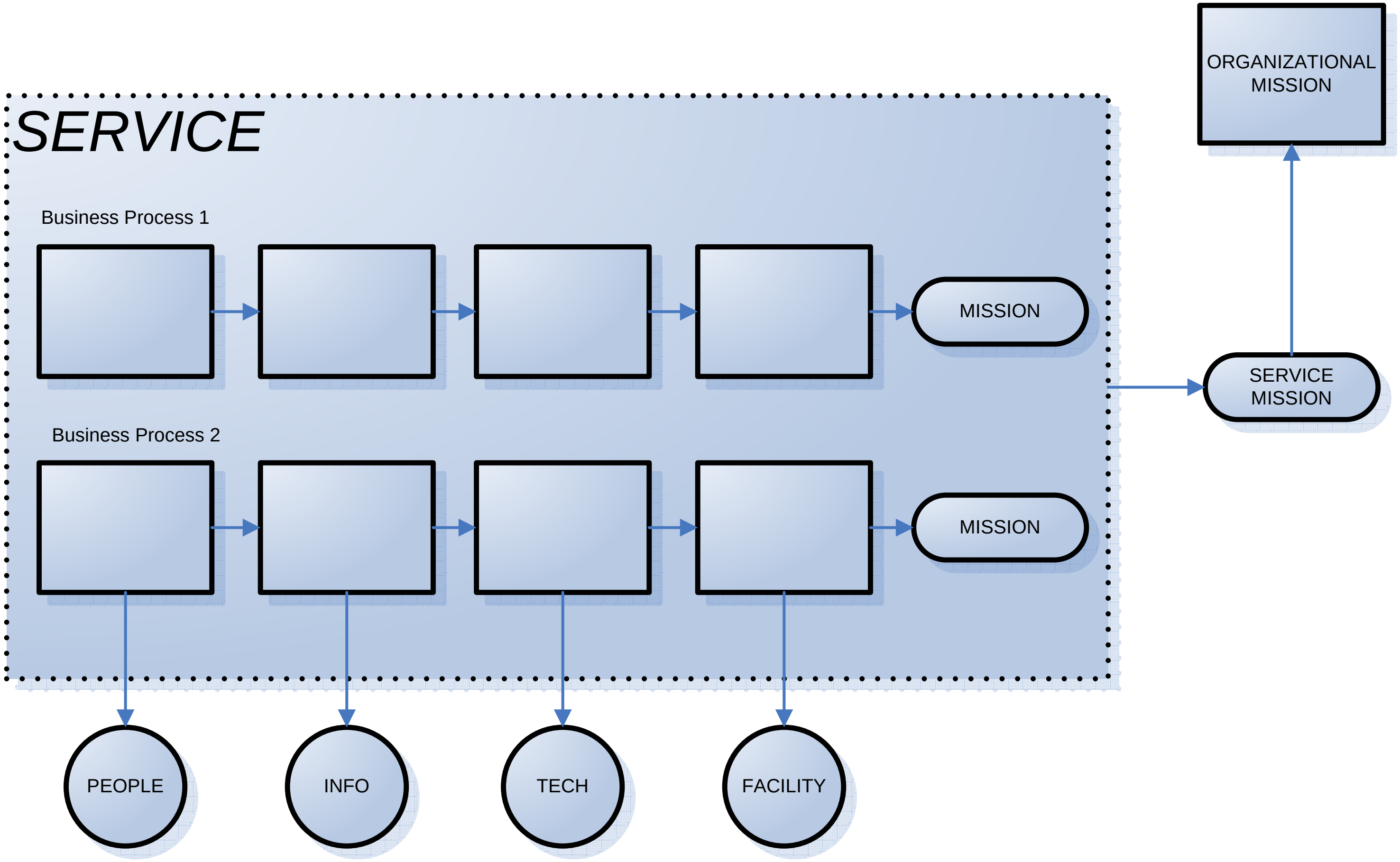
Each asset must be protected and sustainable



# Collaborating toward a common goal



# Focusing on the mission



# How do we get there?

Organizations are not structured today to facilitate collaboration toward a common goal of resiliency

- Deficient funding models
- Management direction and oversight lacking
- Practice-driven
- Compliance-focused

Need to view resiliency as a definable, manageable, enterprise-wide process

# Considering a process approach

Elevating the management and coordination of operational-resiliency focused activities to the enterprise level

- Shared goals and resources
- Elimination of redundancy and stovepipes
- Elimination of framework quagmire through practice integration
- Measuring process effectiveness
- Moving toward process improvement

# How does process differ from practice?

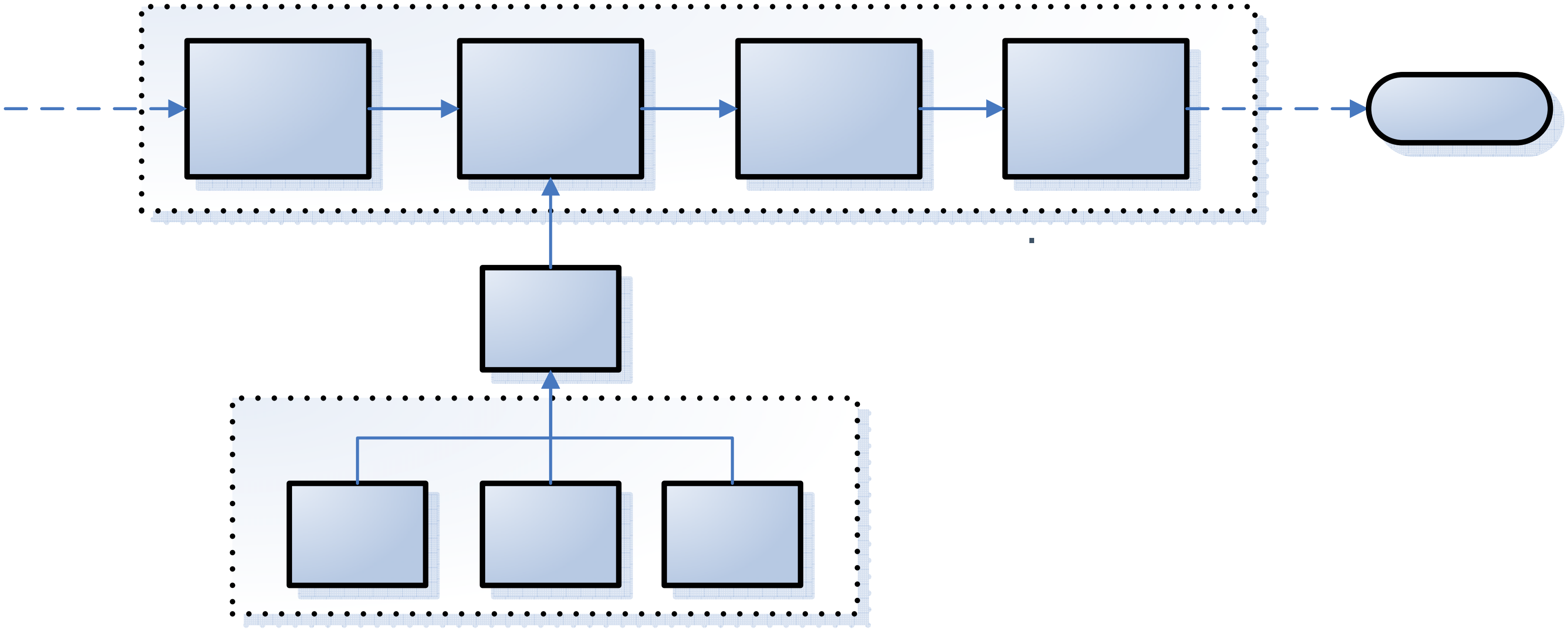
## Process

- *Describes* the "what"
- Set and achieve process goals
- Manage process to requirements
- Select practices based on process goals
- Can be defined, communicated, measured, and controlled

## Practice

- *Prescribes* the "how"
- No practice goals
- Tends toward "set and forget" mentality
- Reinforces domain-driven approach
- One size does not fit all
- Regulatory vehicle

# The relationship between process and practice



# Embracing process improvement

Improvement in meeting resiliency goals is dependent on the active management of the process

Process maturity increases capability for meeting goals and sustaining the process

*“Are we resilient?”* or *“Are we secure?”* is answered in the context of goal achievement rather than what hasn’t happened

Meaningful, purposeful selection and implementation of practices

# Resiliency engineering defined

The process by which an organization establishes, develops, implements, and manages the operational resiliency of services, related business processes, and associated assets

“Requirements-driven security and COOP”

# Introducing the Resiliency Engineering Framework

# The Resiliency Engineering Framework

A process improvement framework for security and continuity of operations

Defines basic process areas and provides guidelines for improving security and COOP processes

Addresses operational risk management through process management

Vital linkages between security, COOP, and I/T ops are captured in the process definition

Establishes a capability benchmark

# Framework architecture

Represents processes that span four basic areas:

- Enterprise management
- Engineering
- Operations management
- Process management

Considers the resiliency of people, information, technology, and facilities in the context of services and business objectives

# Enterprise management processes

***Enterprise capabilities that are essential to supporting the resiliency engineering process***

**RSKM** – Risk Management

**EF** – Enterprise Focus

**COMP** – Compliance Management

**FRM** – Financial Resource Management

**HRM** – Human Resource Management

# Operations management processes

***Capabilities focused on sustaining an adequate level of operational resiliency***

**SAM** – Supplier Agreement Management

**SRM** – Supplier Relationship Management

**AMC** – Access Management and Control

**IMC** – Incident Management and Control

**VM** – Vulnerability Management

**EC** – Environmental Control

**KIM** – Knowledge and Information Management

**SOM** – Security Operations Management

**ITOPS** – IT Operations Management

# Engineering processes

***Capabilities focused on establishing and implementing resiliency for organizational assets, business processes, and services***

**RD** – Requirements Definition

**RM** – Requirements Management

**AM** – Asset Management

**COOP** – Continuity of Operations Planning

**REST** – Restoration of Operations Planning

**CSI** – Control Selection and Implementation

**RAD** – Resilient Architecture Development

# Process management processes

*Enterprise capabilities related to defining, planning, deploying, implementing, monitoring, controlling, appraising, measuring, and improving processes*

**OT** – Organizational Training

**OPF** – Organizational Process Focus

**OPD** – Organizational Process Definition

**MA** – Measurement and Analysis

**MON** - Monitoring

# Using the framework

Establish current level of capability

Set forward-looking resiliency goals and targets

Develop plans to close identified gaps

Build resiliency into important assets and architectures

Reduce reactionary activities; shift to directing and controlling activities

Align common practices with processes to achieve process goals

# Where do we go from here?

Release REF v1.0 in October 2006 for comments

Guidelines for improving the security and business continuity processes

Phase III expansion of model development and piloting

Exploration of integration with other existing models

Development of appraisal methodology to measure capability for managing resiliency

# Phase I and Phase II Project Members

Ameriprise

Bank of America

Carnegie Mellon

Capital Group

Citicorp

Discover

DRII

DRJ

IBM

JPMorgan Chase

Key Bank

KPMG

MasterCard

Marshall and Ilsley

NY Federal Reserve Bank

SunGard

Trizec Properties

US Bank

Wachovia

# Summary and questions

Operational resiliency must be actively managed

Security, BC/DR, and ITOps must collaborate

Model-based process improvement brings defined, systematic, repeatable, consistent, and improvable processes

Approach must be flexible and adaptable

No one-size-fits-all solution

# For more information

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