CERT Resiliency Engineering Framework

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Software Engineering Institute

Established 1984

Federally Funded R&D Center (FFRDC)

College-level unit of Carnegie Mellon University

Five technical programs help organizations improve software-intensive systems

Widely-known “brands”

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

Agenda

Context and problem

Resiliency Engineering

Process Improvement

The CERT Resiliency Engineering Framework

Future Plans and Summary

Today's operational environment

No operational boundaries

Pervasive & rapidly changing technology

Dynamic & expanding risks

Fewer resources, more demands

Dependency on third-parties

Increasing regulation

Criticality of data and information

Distributed workforce

Heightened threat level and increasing uncertainty

Shorter-lived skills

A new environment in which business continuity & security must be increasingly effective & efficient

Operational risk management problems

Poor planning and execution

No asset management function

Seen as a technical function or responsibility

Searching for magic bullet: CobiT, ITIL, ISO17799, NFP1600

Poorly defined and measured goals

Reactive (not strategic) funding model

Compartmentalization of security and continuity activities

Business units not involved

Many organizations are struggling with operational risk management

Our approach

Resiliency Engineering
An integrated approach to protecting & sustaining critical business services

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Process Improvement
A model-based approach to maturing enterprise capabilities

CERT Resiliency Engineering Framework
A process improvement model for resiliency engineering

Top benefits of approach

Greater efficiency of resilience activities

- Optimized resource allocation
- Appropriate and strategic investment

Objective benchmarking of resilience capabilities

- For internal improvement
- To evaluate third parties

Improved operational risk management

- Measured processes lead to measured improvement
- Better risk management yields market rewards

Resiliency Engineering:

An integrated approach to protecting & sustaining critical business services

Resiliency engineering defined

The process by which an organization designs, develops, implements, and manages the protection and sustainability of business-critical services, related business processes, and associated assets such as people, information, technology, and facilities

“Requirements-driven security and business continuity”

Resiliency engineering body of knowledge

Based on

- Affinity analysis of 750 best practices in security, business continuity, and IT operations
- Collaboration with business continuity experts from numerous US financial institutions
- Security expertise in CERT

Developed, collected, and codified over past two+ years

Forms the basis of our continuing work

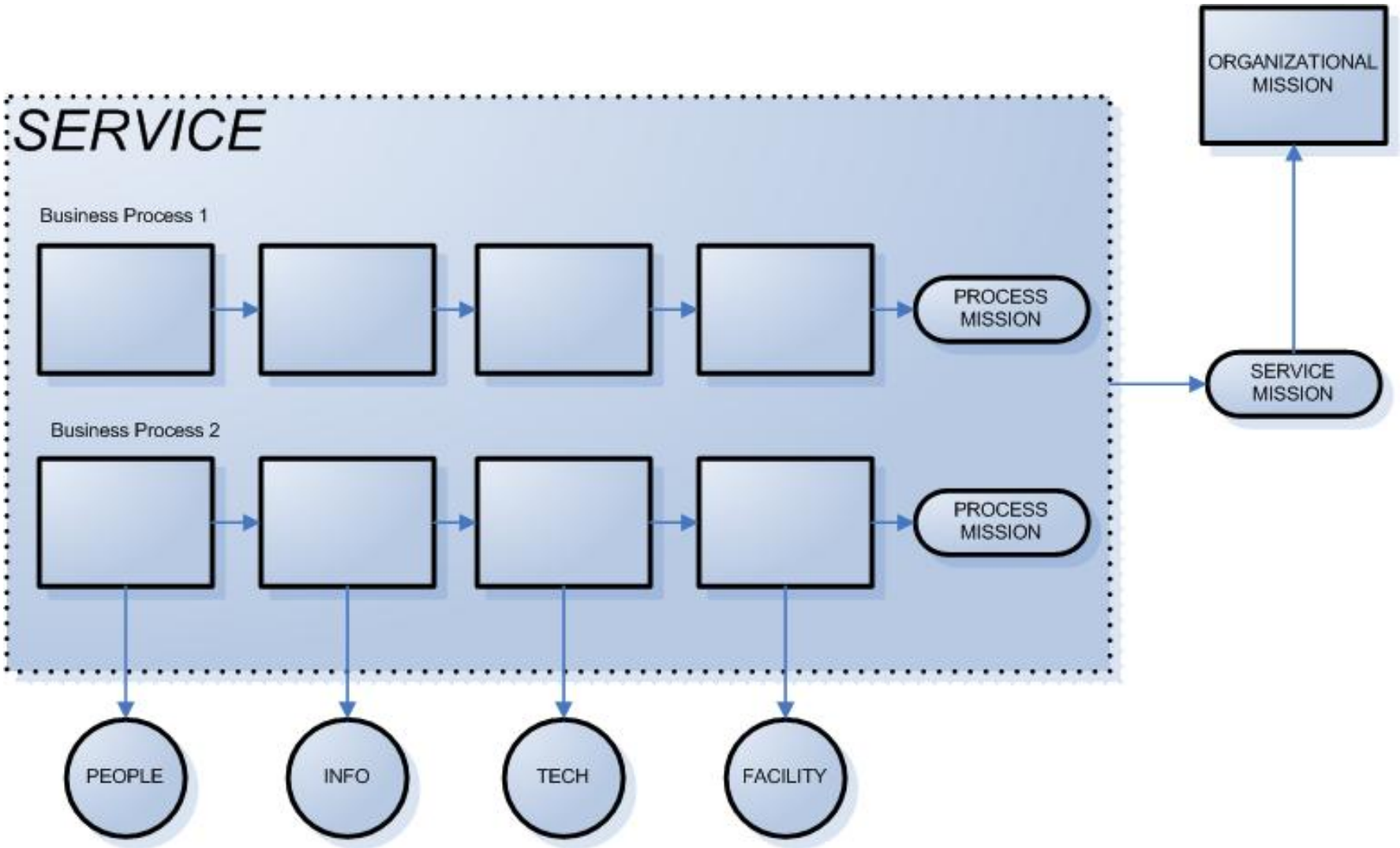
Operational risk and resiliency

Operational risk is from

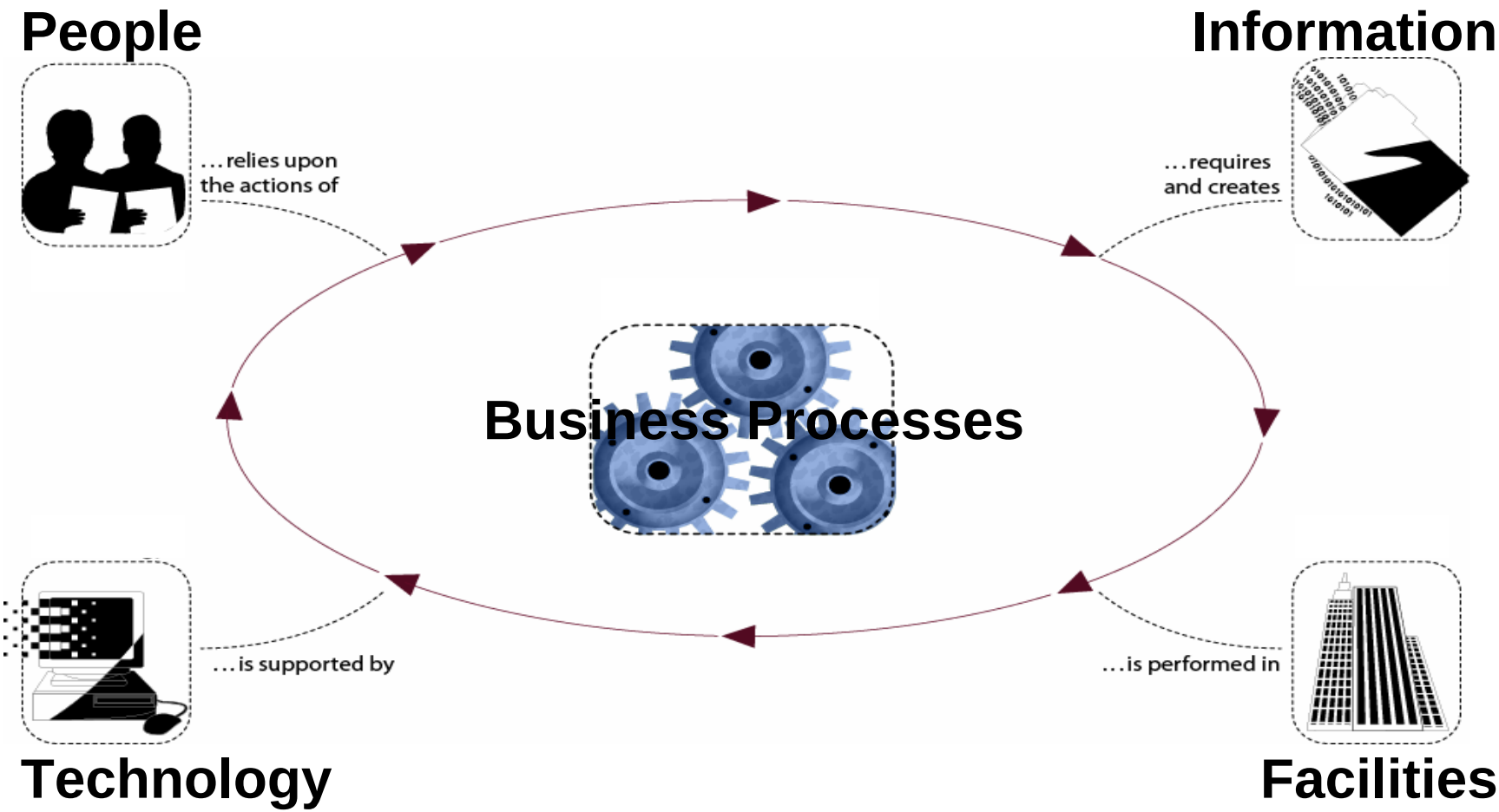
- Failed internal processes
- Inadvertent or deliberate actions of people
- Problems with systems and technology
- External events

Operational resiliency is the ability to sustain the mission despite these risks

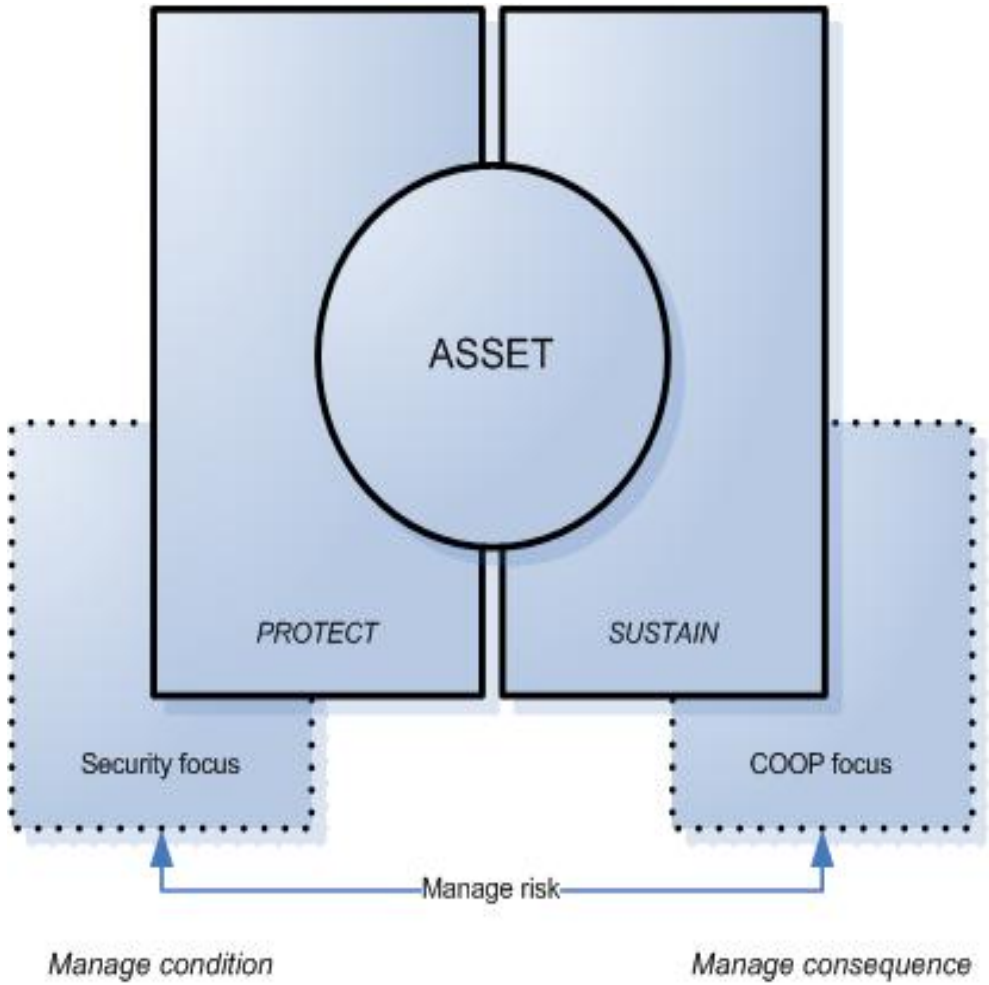
A mission focus



Dependence on four critical asset types



Asset focus

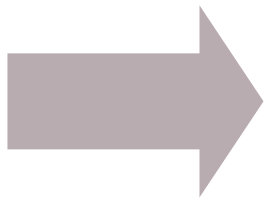


Resiliency emerges from effectively coordinating and managing the conditions and consequences of risk

Achieving resiliency

Shift the paradigm

- Technical problem
- Owned by IT
- Expense-driven
- Practice-centric
- Security and BCDR



- Business problem
- Owned by organization
- Investment-driven
- Process-centric
- Enterprise resiliency

Approach resiliency as a definable, manageable, improve-able, enterprise-wide process

Process Improvement:

A model-based approach to maturing enterprise capabilities

Process improvement defined

"A program of activities designed to improve the performance and maturity of the organization's processes, and the results of such a program."

Provides the basis for managing, sustaining, and improving the resiliency process over time

Distinguishes organizations that have good resiliency practices at one point in time from those who can be counted on to have good, ongoing resiliency practices

How does process differ from practice?

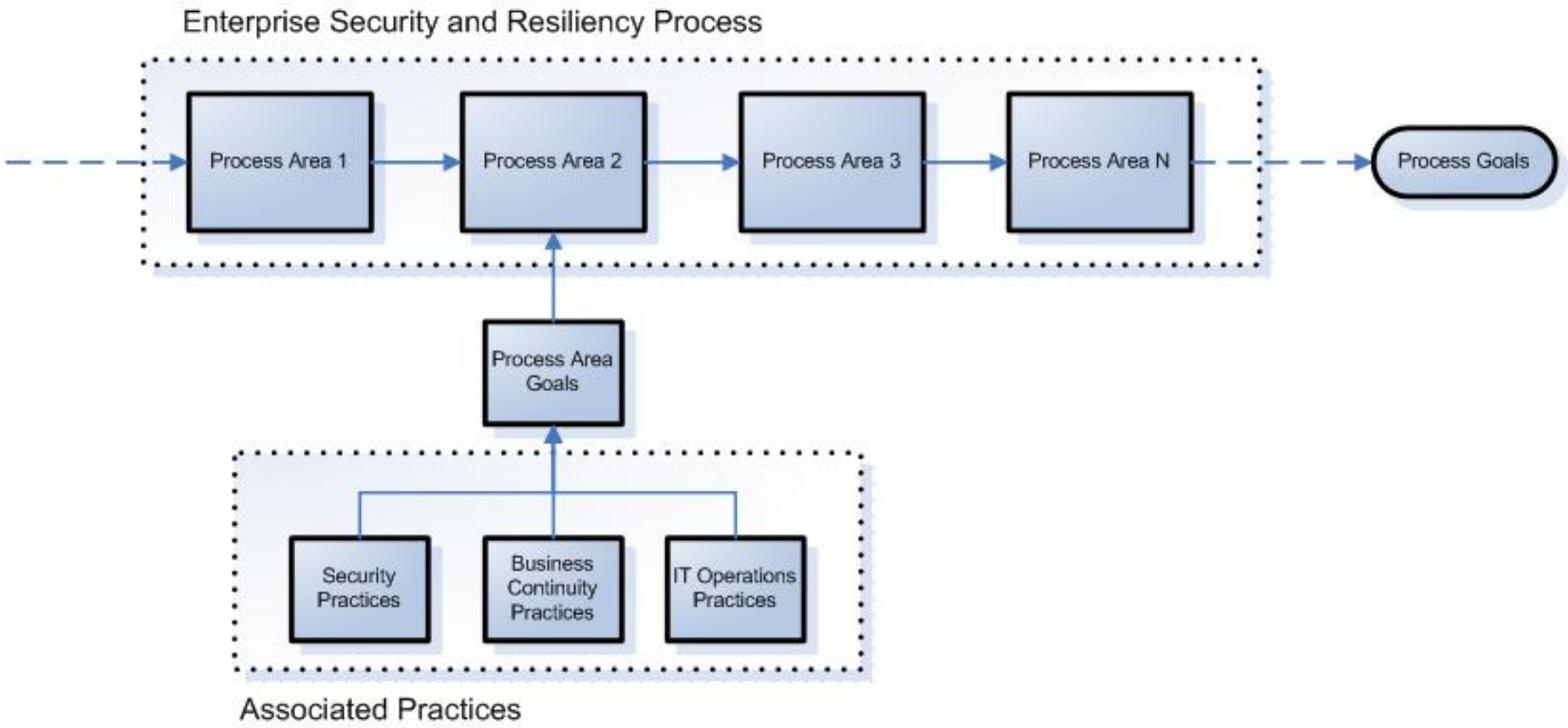
Process

- Describes the “what”
- Based on process goals
- Manage process to requirements
- Select practices based on process goals
- Can be defined, communicated, measured, and controlled
- Long-lived

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
- Short-lived

Relationship between process and practice



Embracing process improvement

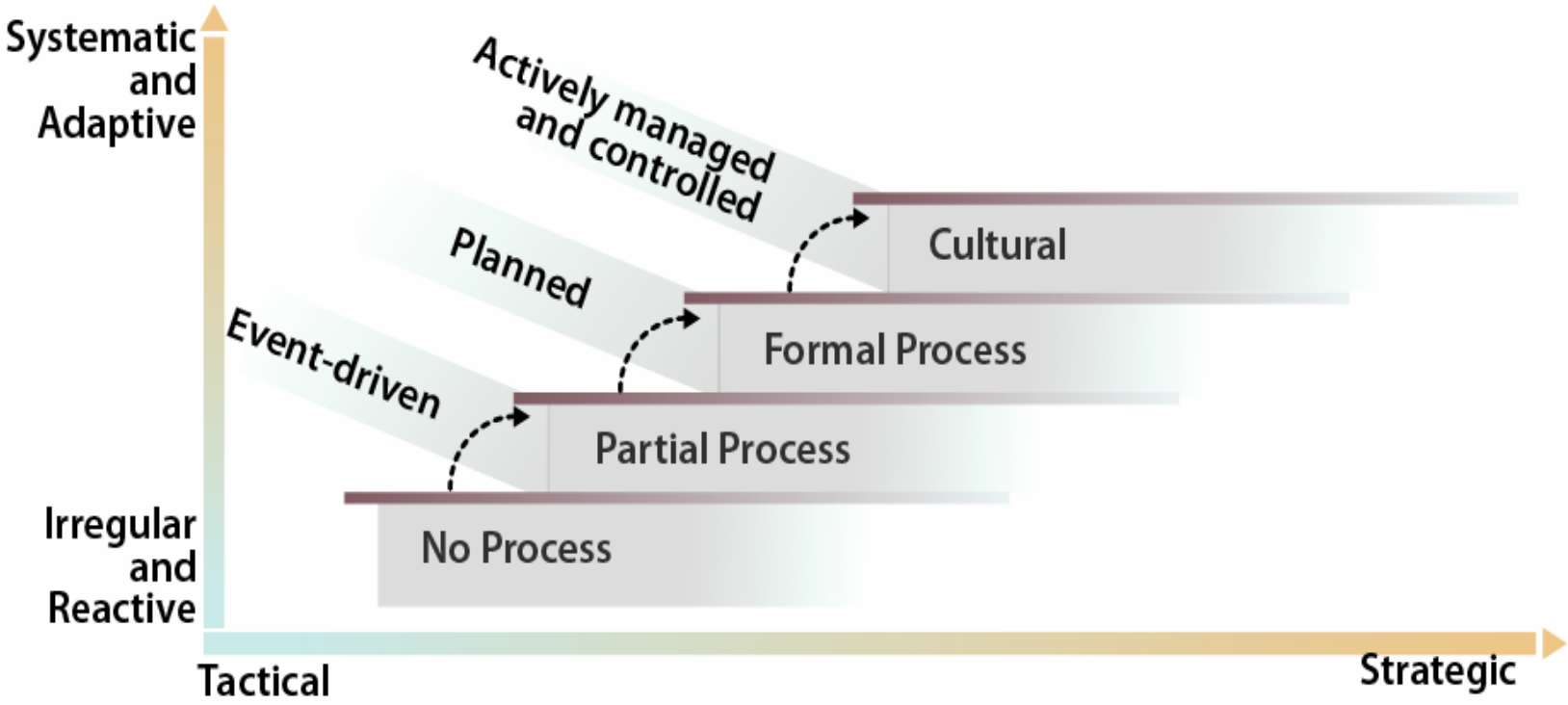
Improvement in meeting resiliency goals is dependent on the active management of the process

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

Facilitates meaningful, purposeful selection and implementation of practices

Process maturity shifts the paradigm



Process improvement model

Model or framework provides

- A common basis of comparison for planning and benchmarking process improvement
- Defined catalogue of capabilities to guide mastery in a particular domain
- Guidelines and goals for managing, sustaining, and maturing the processes that instantiate the organization's capabilities

CERT Resiliency Engineering Framework:

A process improvement model for resiliency engineering

The Resiliency Engineering Framework

A process framework for resiliency engineering

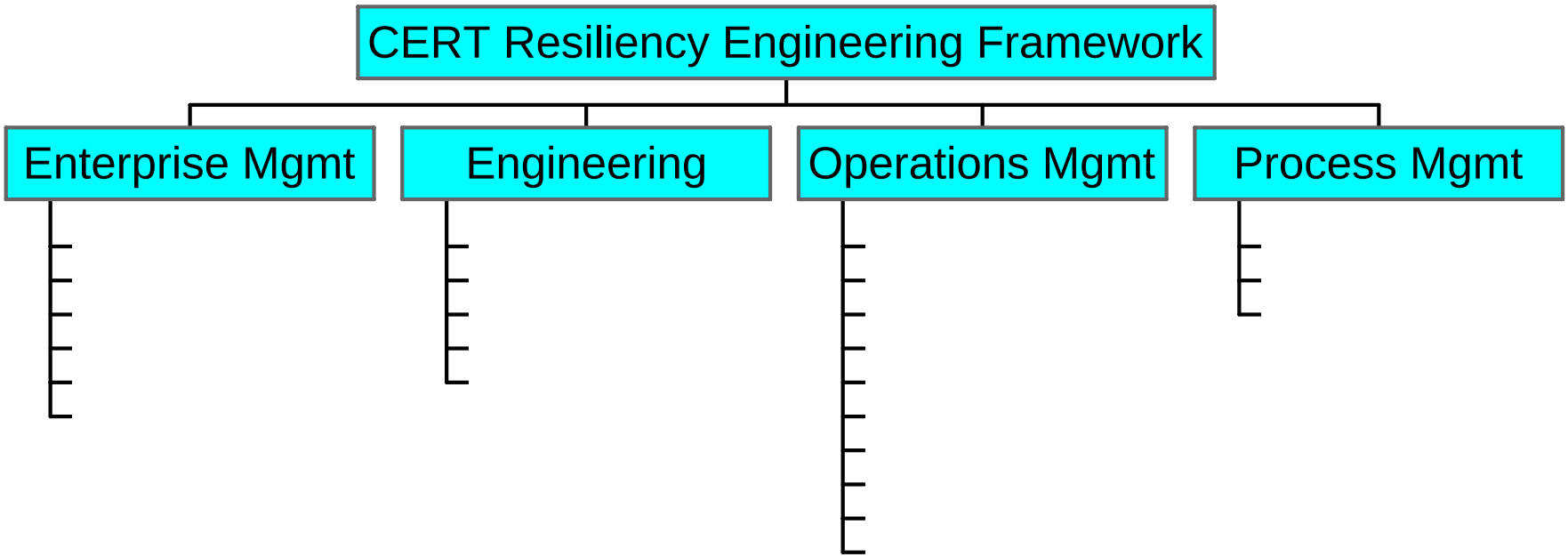
Defines basic capability areas and provides guidelines for security and business continuity process improvement

Captures vital linkages between security, business continuity, and IT operations

Addresses operational risk management through process management

Establishes a capability benchmark

Framework architecture



24 capability areas

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

Using the framework

Benchmark current level of capability

Set forward-looking capability 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

Framework status

Currently in outline

Based on resiliency engineering body of knowledge

Version 1.0 to be published this year

Future Plans and Summary:

ongoing work to mature and disseminate the framework

2007 Plans

Continued collaboration with financial sector through FSTC

Complete and publish framework version 1.0

Explore process maturity concepts

Pilot first assessment mechanism

Pilot early training curriculum

Conduct improvement pilots to validate model and approach

Expand REF community

Financial Services Technology Consortium

Member-owned consortium of financial services-focused organizations

Explores new technologies to address industry business needs

FSTC project participants:

AMD

Ameriprise

Bank of America

Bank of Oklahoma

Capital Group

Citigroup

Discover

DRII

DRJ*

IBM

JPMorgan Chase

Key Bank

KPMG

MasterCard

Marshall and Ilsley

NY FRB*

SunGard

Trizec Properties

US Bank

Wachovia

Wells Fargo

*observing participant

Beyond 2007

Continue outreach and community building

Expand and refine REF product suite

- Model
- Publications
- Training
- Assessment/Appraisal
- Professional certifications for instructors and appraisers

Continued piloting and case study development

Support community adoption

Summary

Today's environment calls for better operational risk management

Engineering and improving protection and sustainability processes will enhance operational resiliency

REF enables process improvement and benchmarking of operational resiliency capabilities

How can you be involved?

Add your name to our mailing list to be informed when the framework and other project artifacts are available

Participate in a pilot assessment

Explore other forms of collaboration

For more information

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