Application Portfolio Sustainability: A Holistic Approach

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Solutions Management Office

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Perfection in Architectural Design

"Perfection is attained not when there is nothing left to add, but when there is nothing left to take away."

- Antoine de Saint Exupéry

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Introduction

Application Portfolio Management

Continuous Improvement Process

Enterprise Architecture

Project Portfolio Management

Case Study and Best Practices

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Application Portfolio Sustainability

Application Portfolio Sustainability

Continuous Improvement Process

Enterprise Architecture

Project Portfolio Management

Case Study and Best Practices

The Beauty and Complexity of Nature

Nature has a beautiful complexity that is, at the same time, a simplicity that mankind will never be able to duplicate.

The Beauty and Complexity of Nature

The Complexity of the Modern World

Mankind finds a way to make simple things complicated.

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The Complexity of the Modern World

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The Complexity of the Modern World
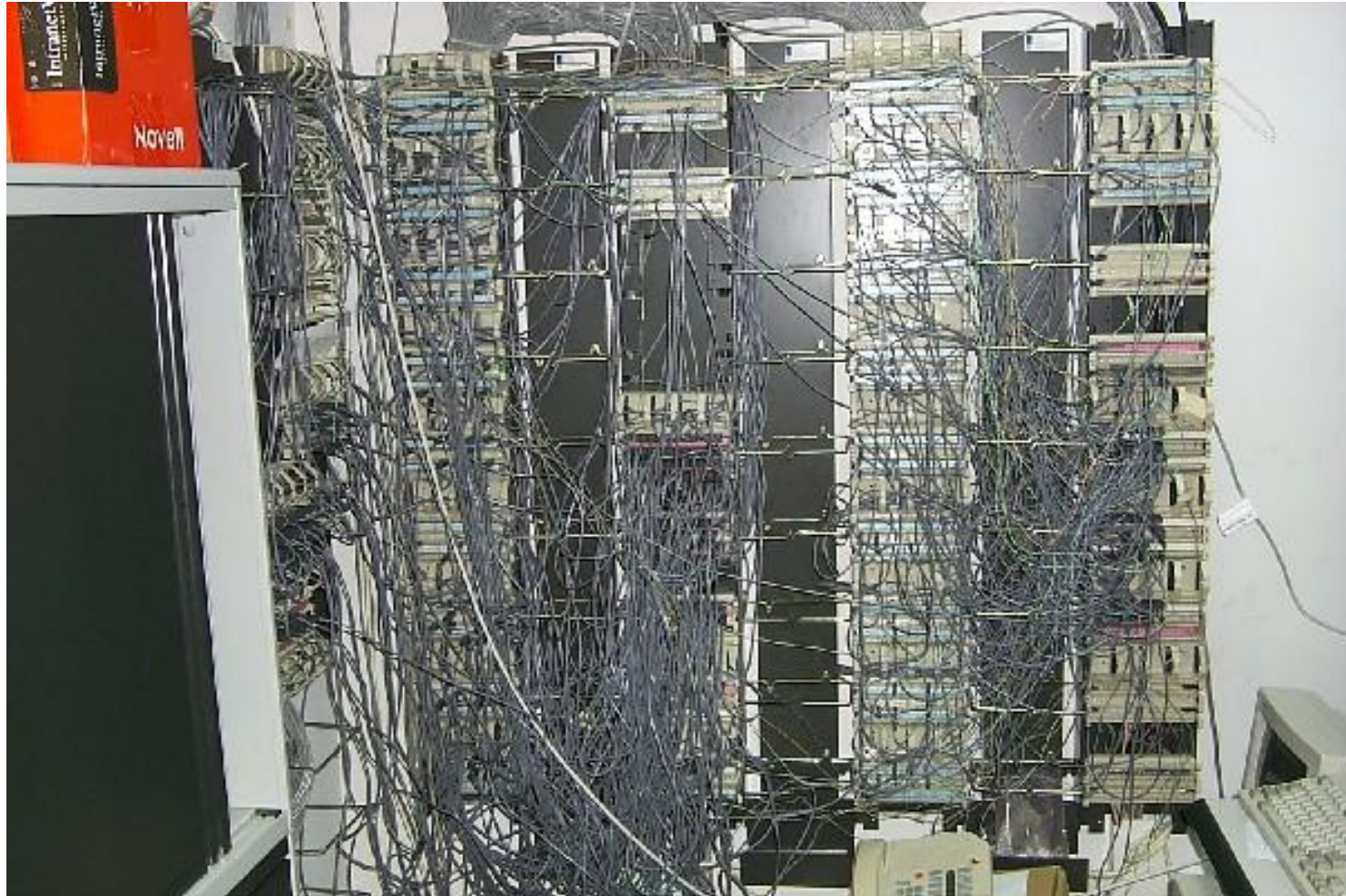
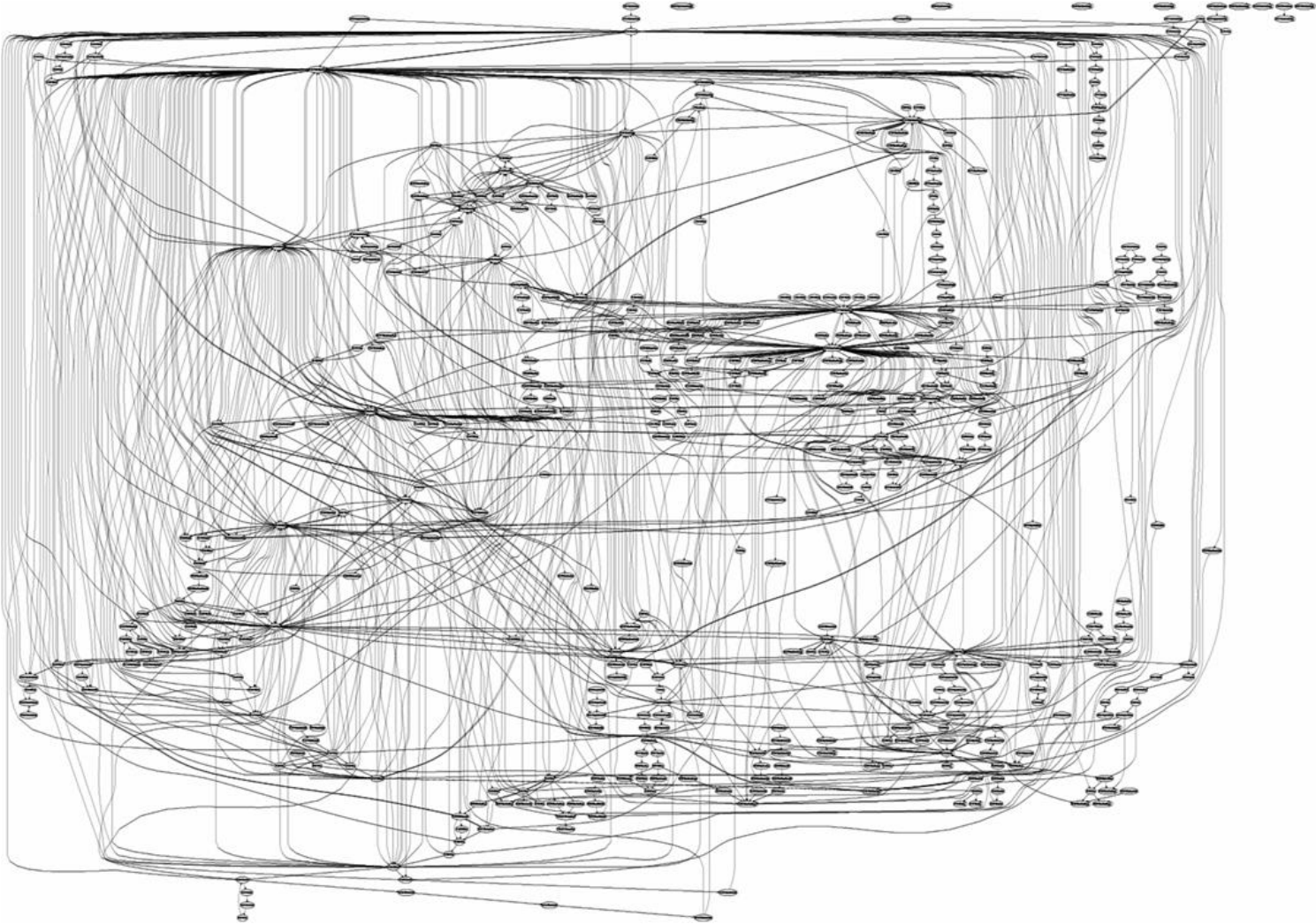Sometimes overly complicated.

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The Complexity of the Modern World
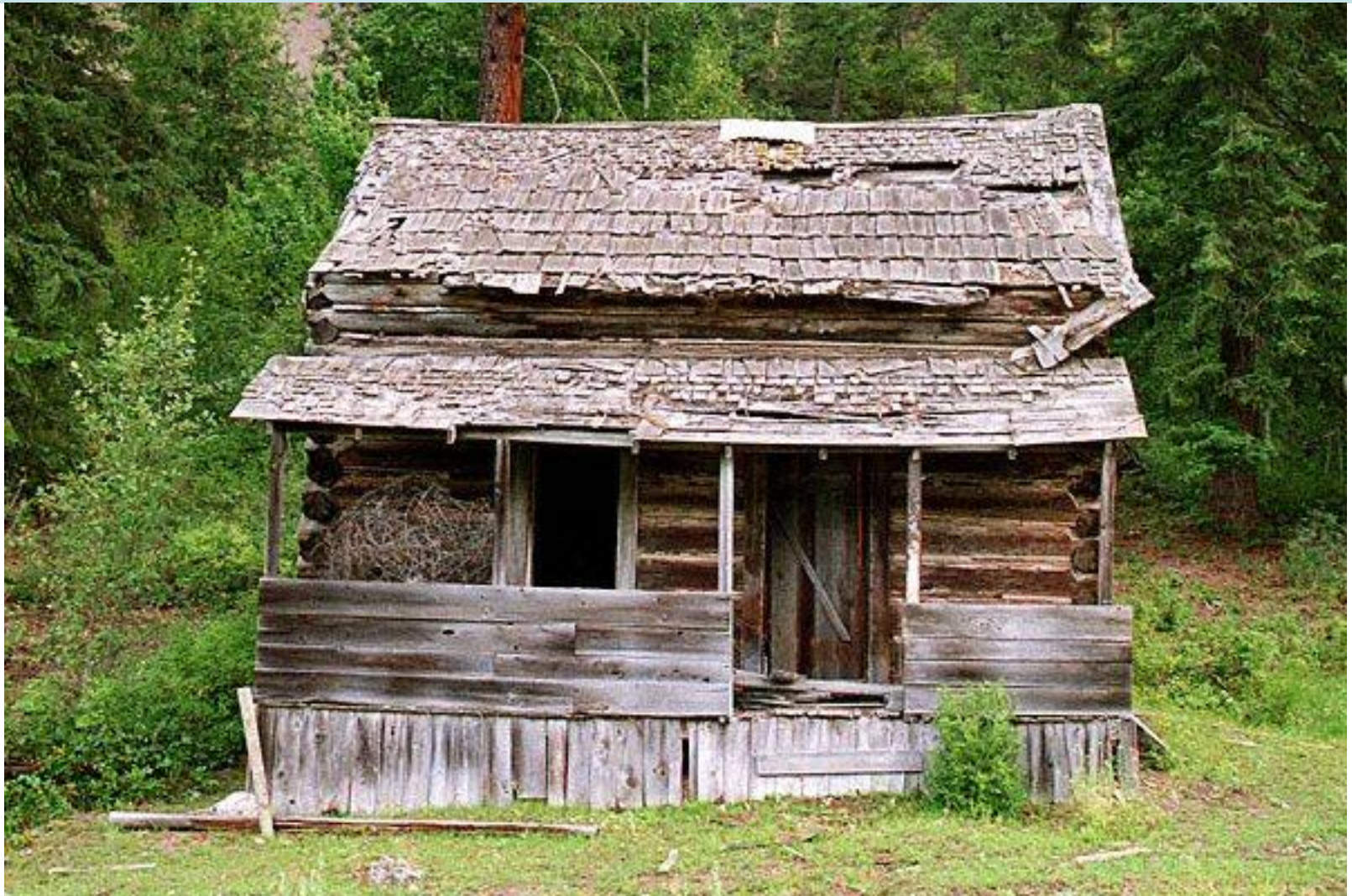
The Complexity of IT

The Complexity of IT

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The Complexity of IT

The Neglected

The Forgotten

The Need for Proper Custodianship

Ownership has its privileges

http://www.westin.com/villalacupola

The Need for Proper Custodianship

And its obligations

# The Need for Proper Custodianship

The Need for Proper Custodianship

Application Portfolio Sustainability

Application Portfolio Sustainability

- A holistic view of the application portfolio
- Optimize efficiencies in the design, delivery, and maintenance of the portfolio
- Ensure that the portfolio remains aligned (or is realigned) with business
- Part of a comprehensive IT asset management approach
- Enables organizations to make informed decisions about their applications
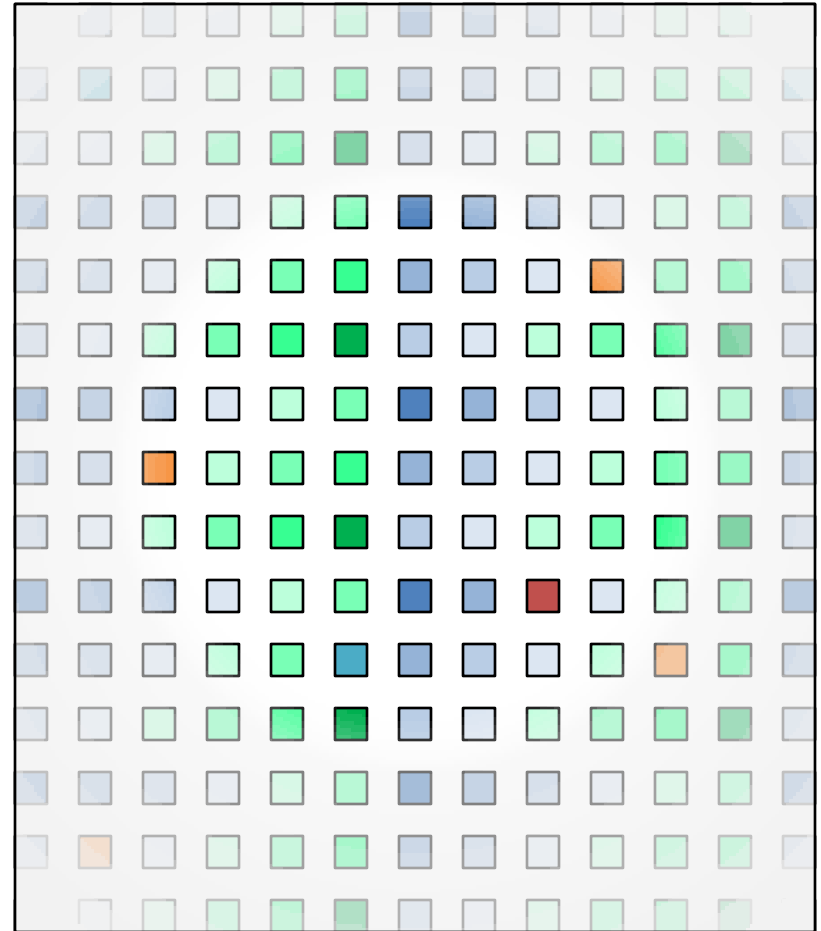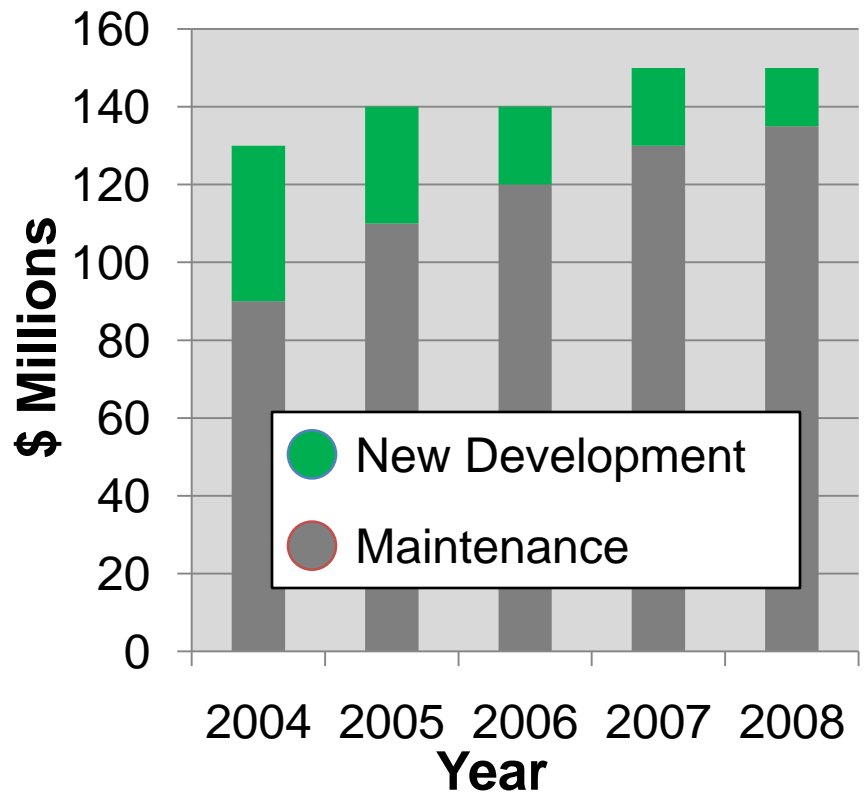
Application Portfolio Management Benefits

Main Benefits of APM

- Reduce application maintenance costs
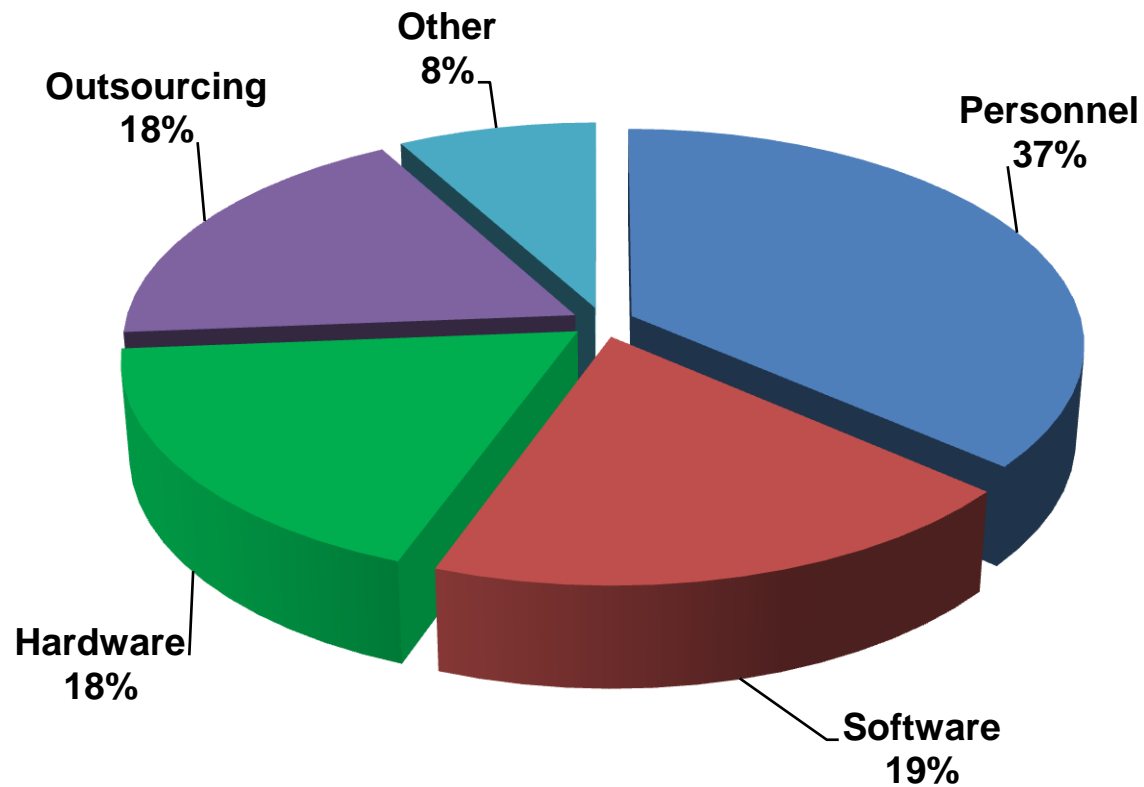- Improve software quality
- Reduce application sustainability risks
- Reduce carbon emissions!
- Reduce duplication within the portfolio
- Enable architectural transformation

Some organizations spend as much as 90% of their IT budget on application maintenance.

Chart: $ Millions by Year (2004–2008), stacked bars showing New Development (green) and Maintenance (gray).

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Show Me the Money

2009 IT Spending Profile – All Industries

- Other 8%
- Outsourcing 18%
- Personnel 37%
- Hardware 18%
- Software 19%

Source: Gartner 2009 IT Spending and Staffing Report

Where are the Savings?

1 • Application Portfolio Rationalization

2 • Infrastructure Rationalization

3 • Human Resource Alignment

4 • Process Maturity Improvement

5 • Project Portfolio Alignment

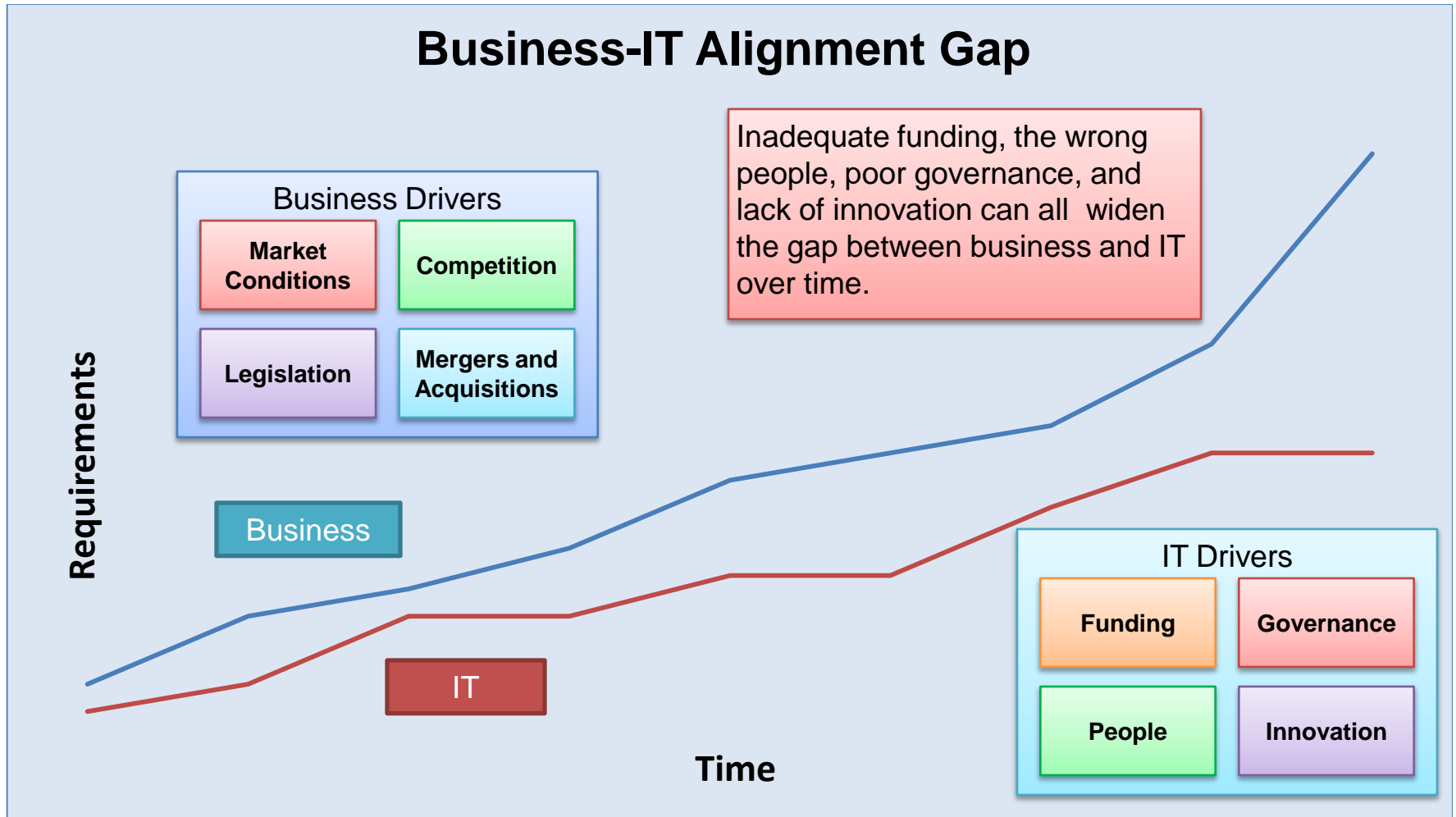6 • Outsourcing

7 • Enterprise Architecture

Do the Math

Example 1		Example 2	
IT Budget:	$10M	IT Budget:	$150M
Maintenance as % of Budget:	70%	Maintenance as % of Budget:	80%
Application Development:	$3M	Application Development:	$30M
Application Maintenance:	$7M	Application Maintenance:	$120M
Maintenance Savings:	15% $1M	Maintenance Savings:	20% $24M
New Development Budget	**$4M**	**New Development Budget**	**$54M**
Development Budget Increase	**33%**	**Development Budget Increase**	**80%**

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Business and IT Alignment Drift

Business-IT Alignment Gap

Business Drivers
- Market Conditions
- Competition
- Legislation
- Mergers and Acquisitions

Inadequate funding, the wrong people, poor governance, and lack of innovation can all widen the gap between business and IT over time.

Requirements

Business

IT

IT Drivers
- Funding
- Governance
- People
- Innovation

Time

A Brief History of Application Architecture

Application architecture has evolved over time to become increasingly decoupled from the underlying technology.

Monolithic

Two-tier

Client-Server

N-Tier

SOA

Language decoupling

Hardware decoupling

Platform decoupling

Organizational decoupling

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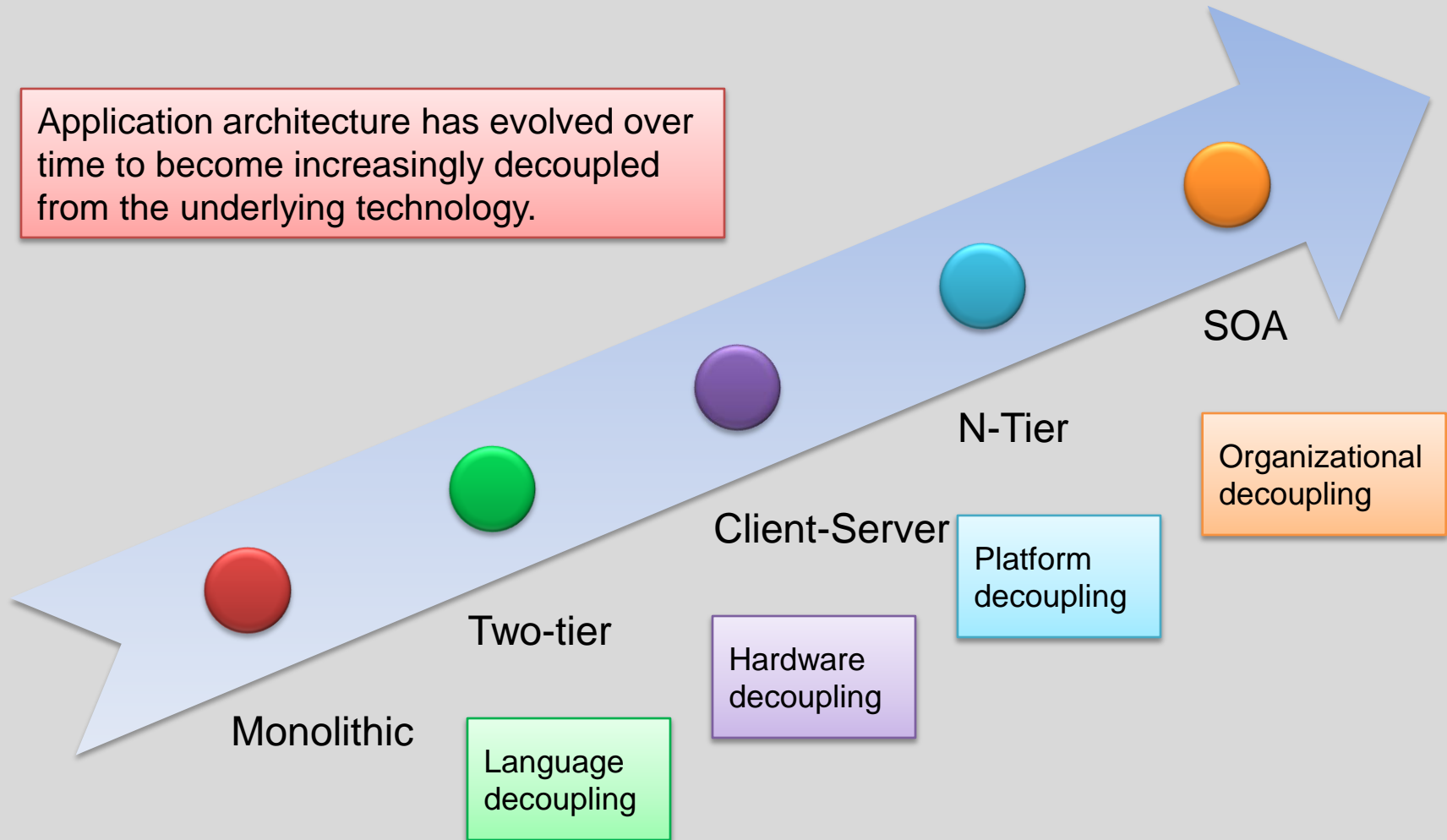
Application: What's in a Name?

Application Definition

- Definition has evolved with application architecture
- Monolithic applications were complied and deployed as a single entity
- Successive decoupling, dynamic runtime binding, component reuse, SaaS, and cloud computing make a definition more difficult

Application (noun): "Exhaustive set of executable software components and artefacts required to fulfill a collection of logically bundled business services."
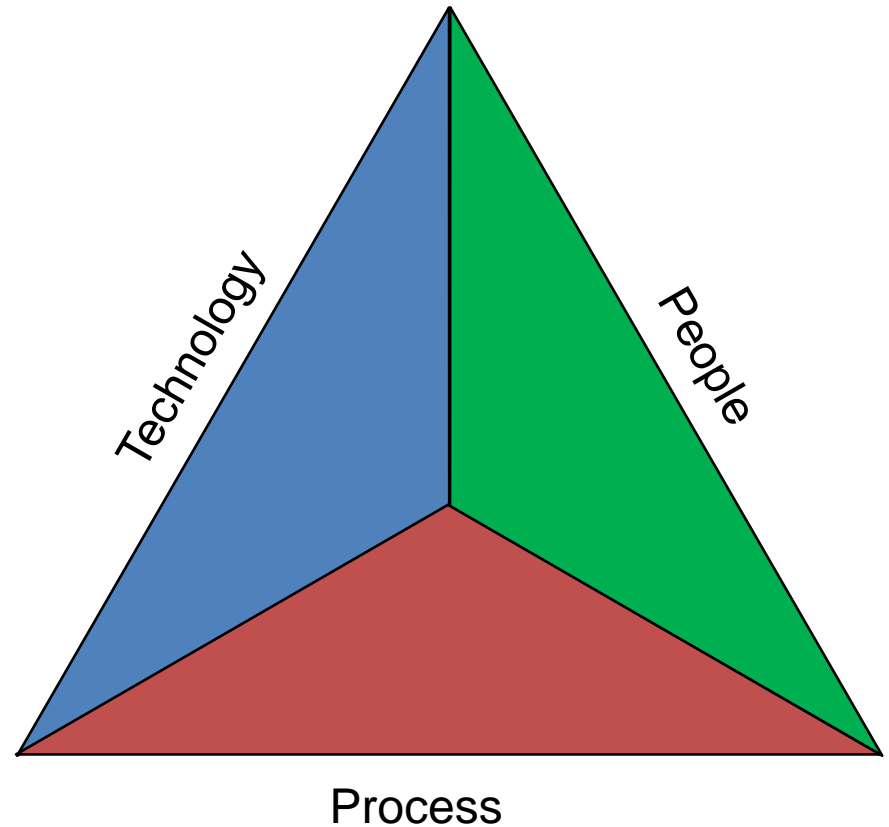- me
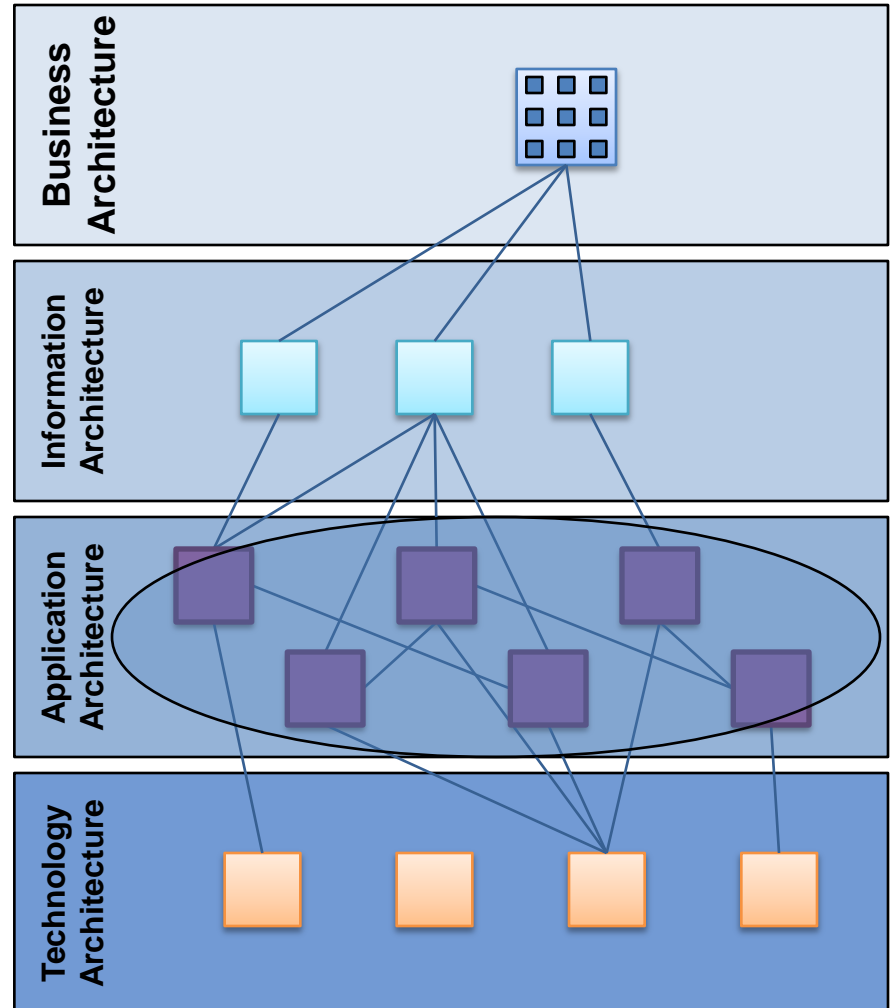
Taking an Application Inventory

Application Registry

- A definitive and authoritative list of all applications within the enterprise
- The application registry should keep information about these applications, including:
  - Application inter-relationships
  - Application-database interactions
  - Database accessed
  - Data elements used
  - Deployment configuration
  - Incident history
- Information comes from multiple sources within the organization

An application registry is at the core of an APM approach.

quality

cost

age

size

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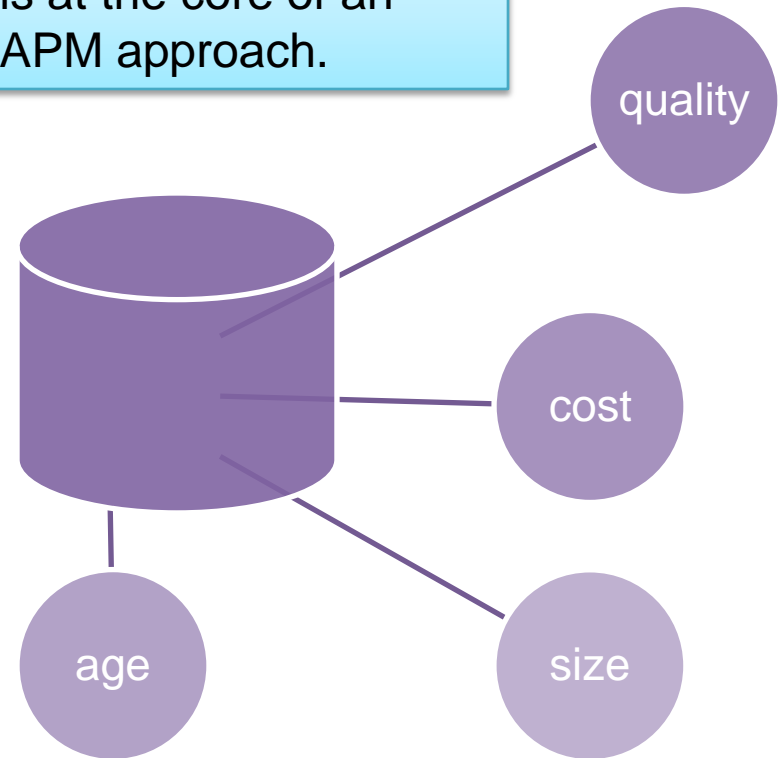
Create a Balanced View of Application Health

People
- Organization and People
- Business architecture
- Alignment with Business

Process
- Operational alignment
- Policies and Procedures

Technology
- Application, Information, and Technology Architectures

Technology

People

Process

What to Measure?

Technology	People and Organization	Process	Business Criticality
• Cost of application development / maintenance	• Business cost	• Cost of operations to support application	• Strategic value
• Alignment with architectural standards	• Alignment with Business objectives	• Alignment with policies and procedures	• Revenue generated
• Quality	• Business Agility	• IT asset utilization	• Mission critical
• Complexity	• Client satisfaction	• Availability of support skills	• Priority to Senior Management
• Responsiveness of IT to implement changes	• Quality (Business Perspective)	• Process Quality	• Number of users/transactions
			• Overall ROI for application

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Continuous Improvement Process
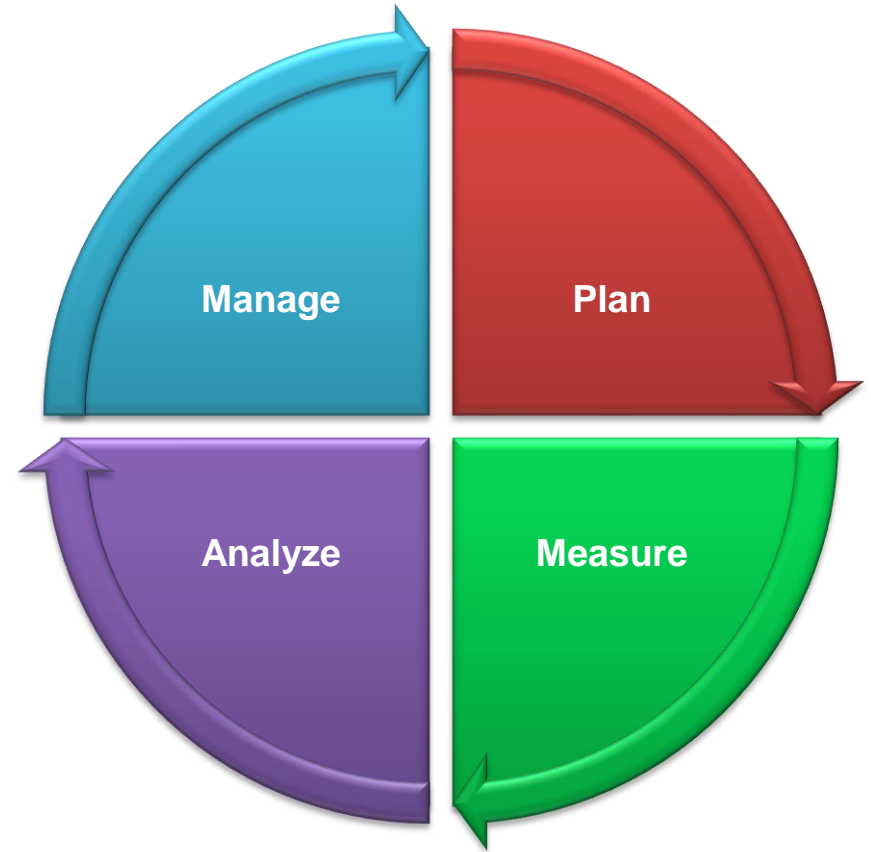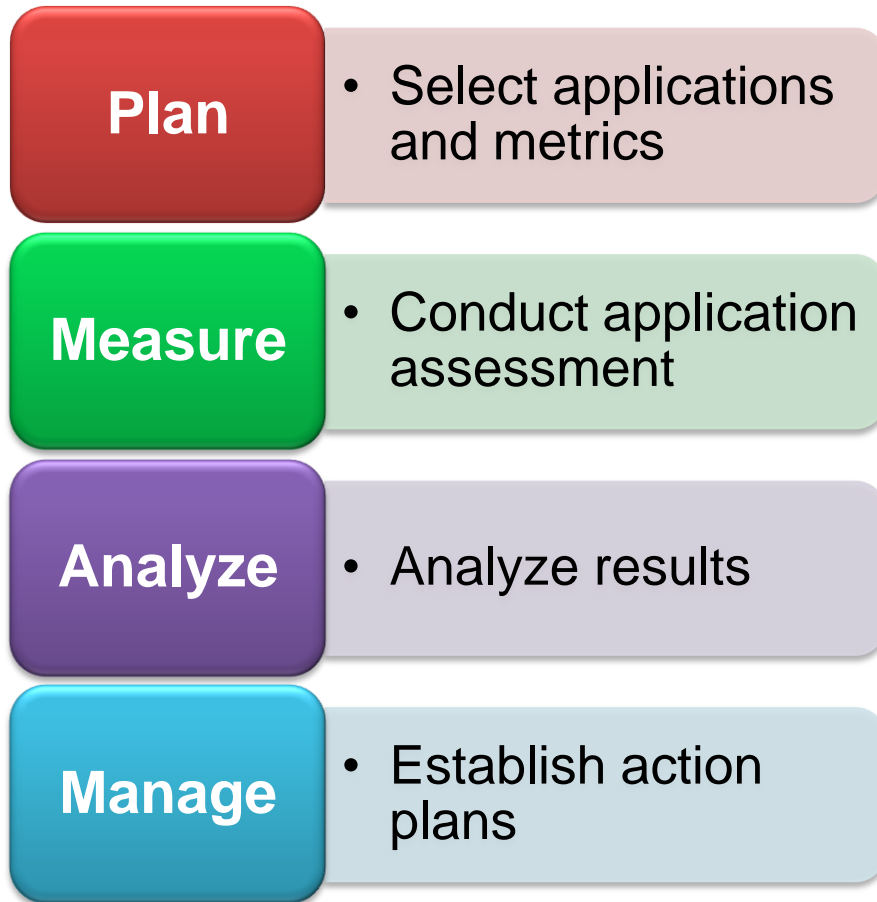
Application Portfolio Sustainability

Continuous Improvement Process

Enterprise Architecture

Project Portfolio Management
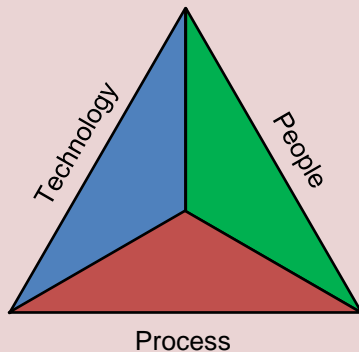
Case Study and Best Practices
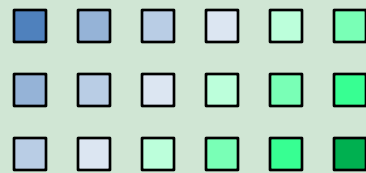
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A Continuous Improvement Process

Plan
- Select applications and metrics

Measure
- Conduct application assessment

Analyze
- Analyze results

Manage
- Establish action plans

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Plan

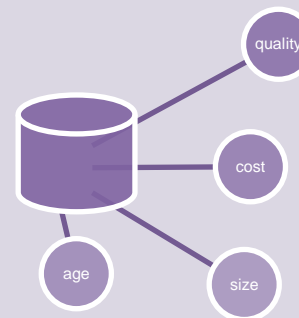| Determine Stakeholders	Select Applications	Select Metrics	Develop Material
• Find project champion in senior management • Engage stakeholders from technology, business, and operations • Communicate!	• Determine sources for application lists • Expect differences in these lists! • Use a CMDB or application registry if available • Merge and splice as required, but do not boil the ocean	• Determine metrics and select sources • Make sure metrics are readily available or easily collectable • Remember the human factor: people will have to work to get this information	• Assessment plan and project schedule • Interview guides • Questionnaires • Set up or identify a database to hold the assessment results

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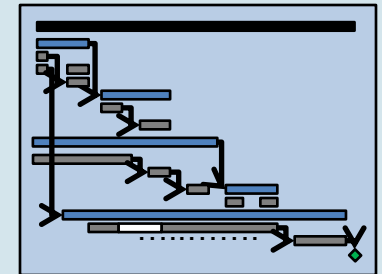
Measure

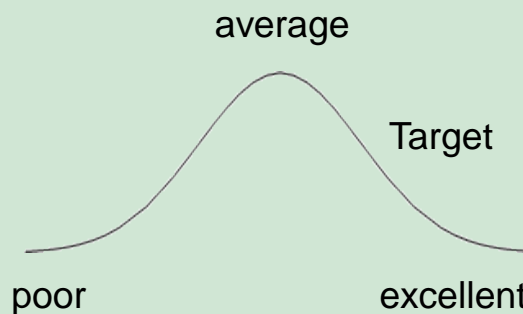| Create Measurement Plan	Establish Score Targets and Rating Scales	Record Measurements

Create Measurement Plan

- Create measurement plan
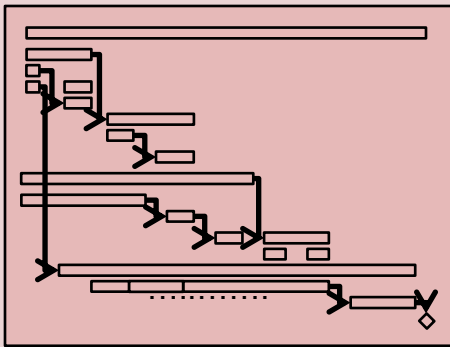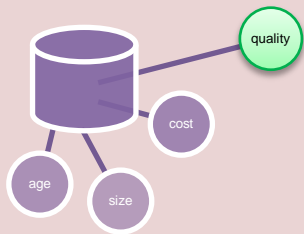
Establish Score Targets and Rating Scales

- Create a rating scale for each metric based on how well they reach target values

- Select scoring criteria *before* assessment is conducted

average

Target

poor   excellent

Record Measurements

- Record measurements

- Summarize by category

- Summarize by application

People
Cost
Alignment
Other metric
Sub-total

Process
Cost
Alignment
Other metric
Sub-total

Technology
Cost
Alignment
Other metric
Sub-total

Overall
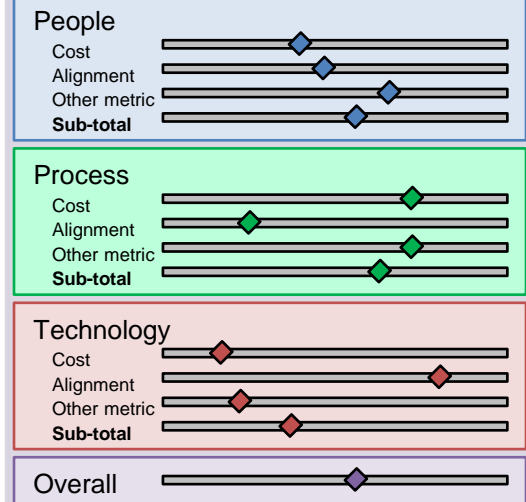
Analyze

Look for Patterns

- Patterns in:
  - Technology
  - Business
  - Operations

- Compare year-over-year results

- Identify enterprise-wide risks and issues
- Identify singletons
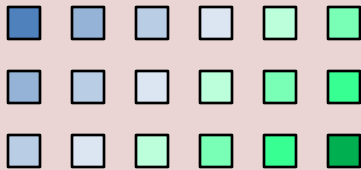
Analyze Risks

- Assess "portfolio risk" for each application

- Determine mitigation strategy

		LOW	MEDIUM	HIGH
PORTFOLIO RISK	**HIGH**	Moderate management required: actively monitor risk and business value	Significant management required: consider business transformation and architectural renewal	Extensive management required: consider architectural renewal and business transformation
	MEDIUM	Moderate management required: actively monitor risk and business value	Moderate management required: consider business transformation and architectural fine-tuning	Significant management required: consider business transformation and architectural fine-tuning
	LOW	Insignificant management required: consider application retirement or business transformation	Moderate management required: consider business transformation and architectural fine-tuning	Considerable management required: proactively monitor application risk and business value
		LOW	MEDIUM	HIGH
		BUSINESS VALUE		

Summarize Results

- Determine assessment scores for individual applications

- Plot applications into matrix according to business value and portfolio risk

- Examine results for trends by technology, line of business, etc…

Analyze

Risk Matrix

- Each cell in the risk matrix corresponds to a specific mitigation strategy
- Applications with high business value require constant vigilance

| PORTFOLIO RISK				
	HIGH	Moderate management required: actively monitor risk and business value	Significant management required: consider business transformation and architectural renewal	Extensive management required: consider architectural renewal and business transformation
	MEDIUM	Moderate management required: actively monitor risk and business value	Moderate management required: consider business transformation and architectural fine-tuning	Significant management required: consider business transformation and architectural fine-tuing
	LOW	Insignificant management required: consider application retirement or business transformation	Moderate management required: consider business transformation and architectural fine-tuning	Considerable management required: proactively monitor application risk and business value
		LOW	**MEDIUM**	**HIGH**
	BUSINESS VALUE			

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Manage

Improve Portfolio

- Determine which applications present the highest risk to the portfolio
- Risk mitigation strategy is determined by matrix position
- Establish plan to mitigate risks
- Create strategic and tactical holistic plans to improve portfolio

| PORTFOLIO RISK		LOW	MEDIUM	HIGH
	HIGH			★
	MEDIUM			2009
	LOW			2012
		LOW	MEDIUM	HIGH
		BUSINESS VALUE		

Communicate

Communications Plan

- Communicate the right message to the right people at the right time

  - Who, What, When, How, Why

  - **Strategic, Tactical and Operational communications**

Technology

People

Process
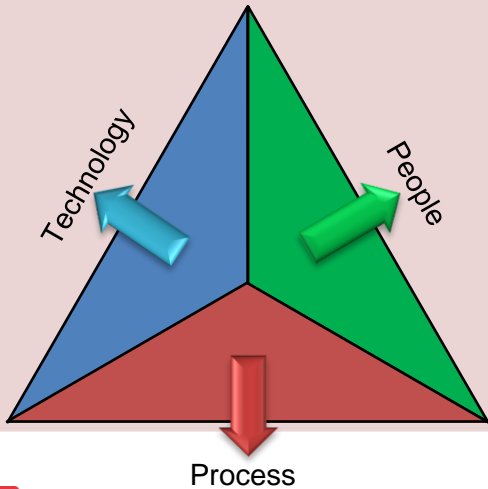
Communications Material

- Status Reports

- Assessment Results

- Application Scorecards
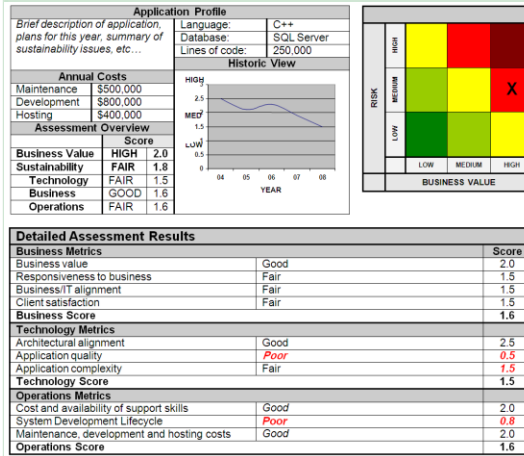
Communications Vehicle

- Use a web site to bring stakeholders together

- Take advantage of social computing tools to help people collaborate

Enterprise Architecture
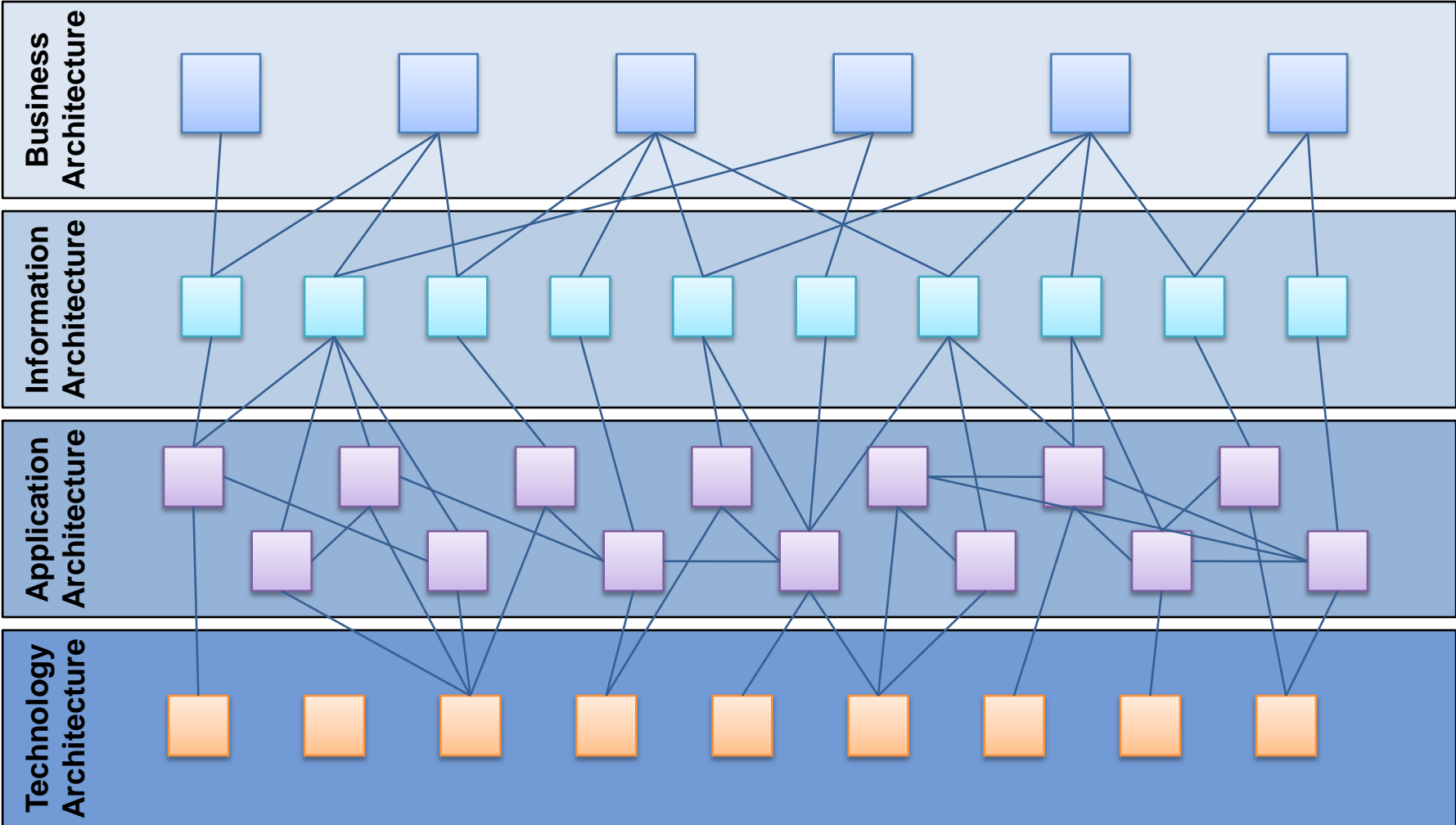
Application Portfolio Sustainability

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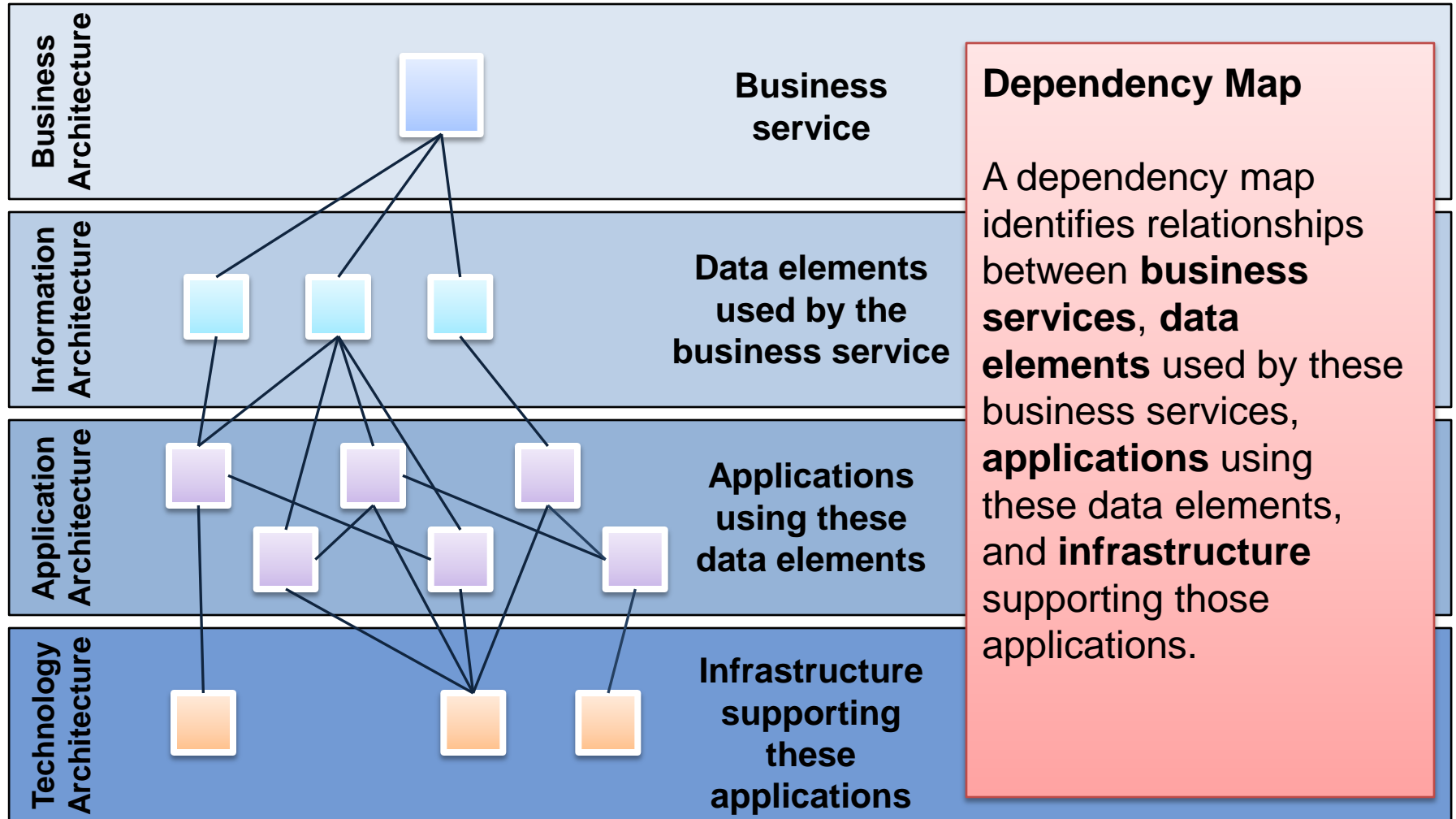
Enterprise Architecture

Project Portfolio Management
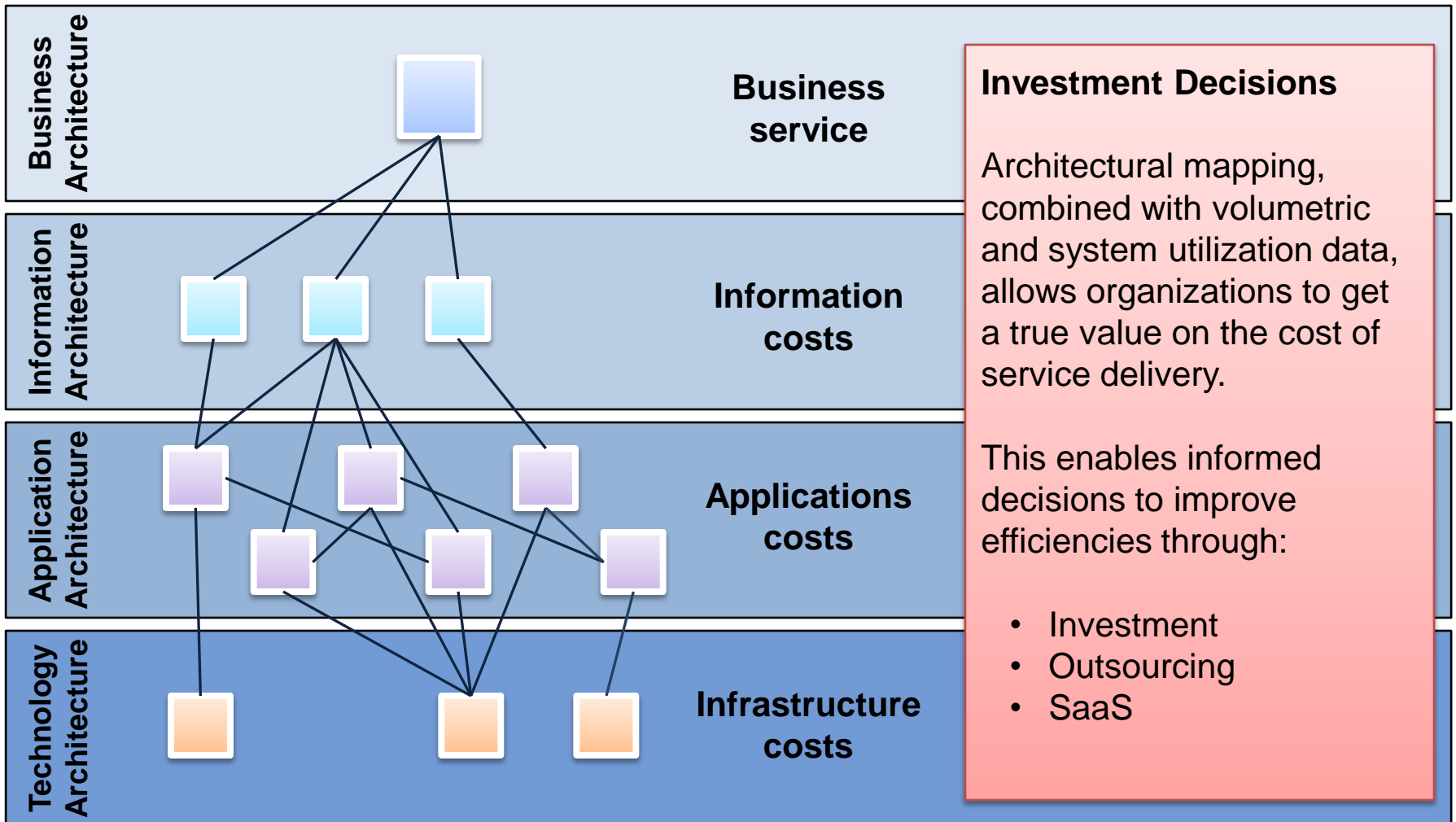
Case Study and Best Practices

Enterprise Architecture

Mapping the Dependencies

Business Architecture — Business service

Information Architecture — Data elements used by the business service

Application Architecture — Applications using these data elements

Technology Architecture — Infrastructure supporting these applications

Dependency Map

A dependency map identifies relationships between **business services**, **data elements** used by these business services, **applications** using these data elements, and **infrastructure** supporting those applications.

Mapping the Dependencies

Business Architecture — **Business service**

Information Architecture — **Information costs**

Application Architecture — **Applications costs**

Technology Architecture — **Infrastructure costs**

Investment Decisions

Architectural mapping, combined with volumetric and system utilization data, allows organizations to get a true value on the cost of service delivery.

This enables informed decisions to improve efficiencies through:

- Investment
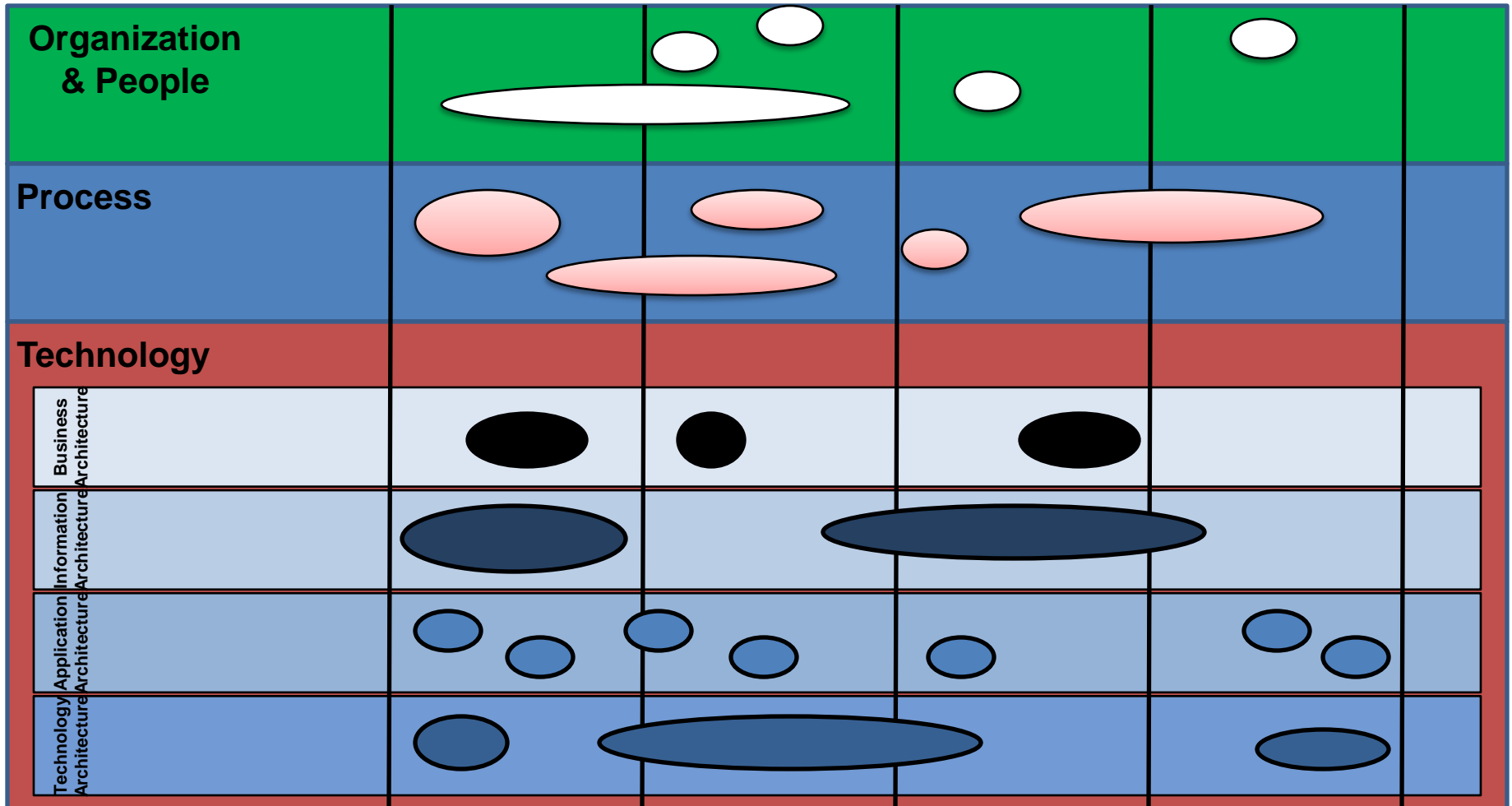- Outsourcing
- SaaS

Building a Holistic Transformation Roadmap

Project Portfolio Management

Application Portfolio Sustainability

Continuous Improvement Process

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Project Portfolio Management

Case Study and Best Practices

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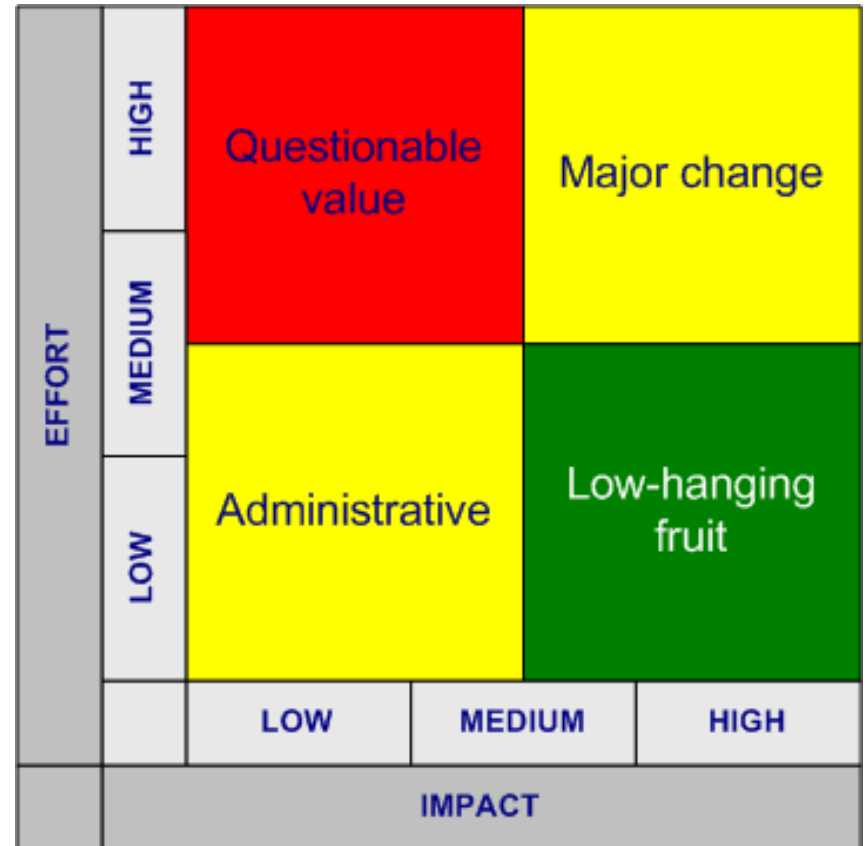# Project Portfolio Management

The Enterprise Project View

- Ensures the right mix of projects to meet organizations goals and objectives
- Provides a detailed view of all projects within the enterprise, including:
  - Cost (size)
  - Risk status (color)
  - Priority (Y-axis)
  - Release date (X-axis)
  - Effort
  - Resources
  - Applications impacted

Priority: High, Medium, Low (Y-axis)
Year: 2009, 2010, 2011 (X-axis)

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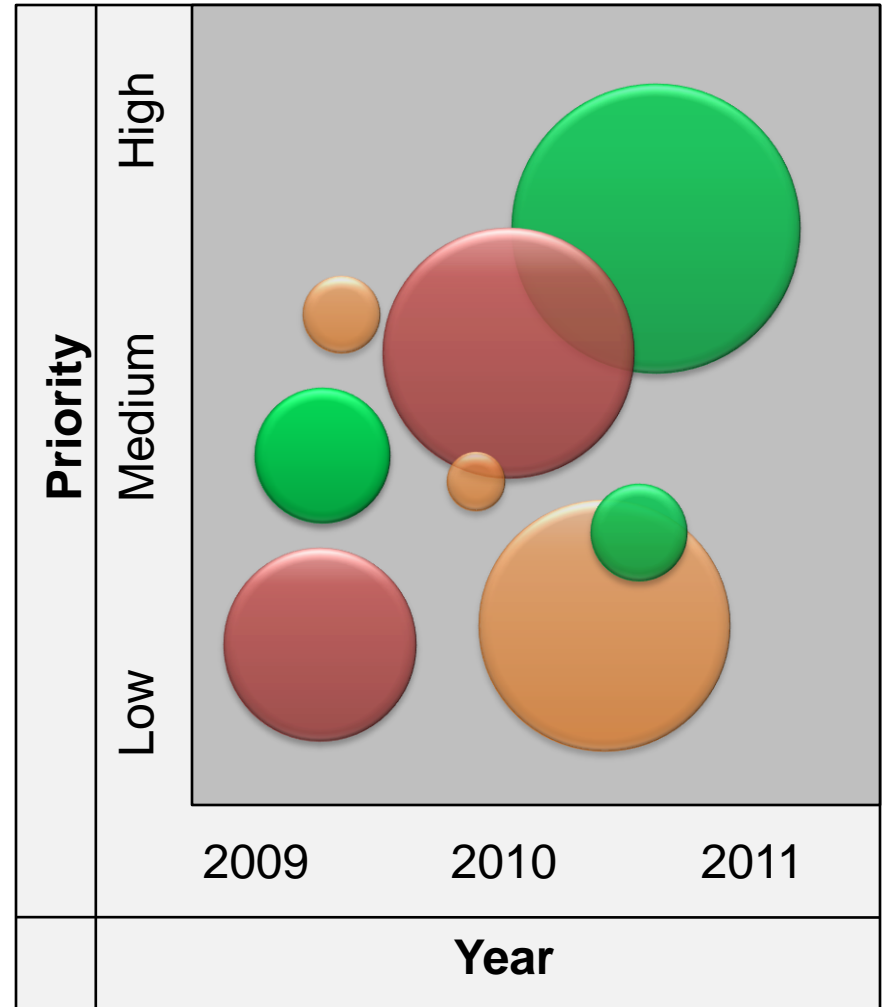
Project Portfolio Management Objectives

- Determine project mix to ensure alignment with business objectives

- Align project investment with business and IT objectives

- Provide framework for selecting and monitoring projects

Project Portfolio Management

PPM Enables Project Selection

- Aligns projects with organization priorities and capabilities
- Top-down **governance** approach to determine which projects to fund
- Uses a set of project selection criteria to rank project proposals
- Creates a diversified project portfolio by selecting a proper mix of project work across different technologies and lines of business
- Maps project work to individual applications within the portfolio
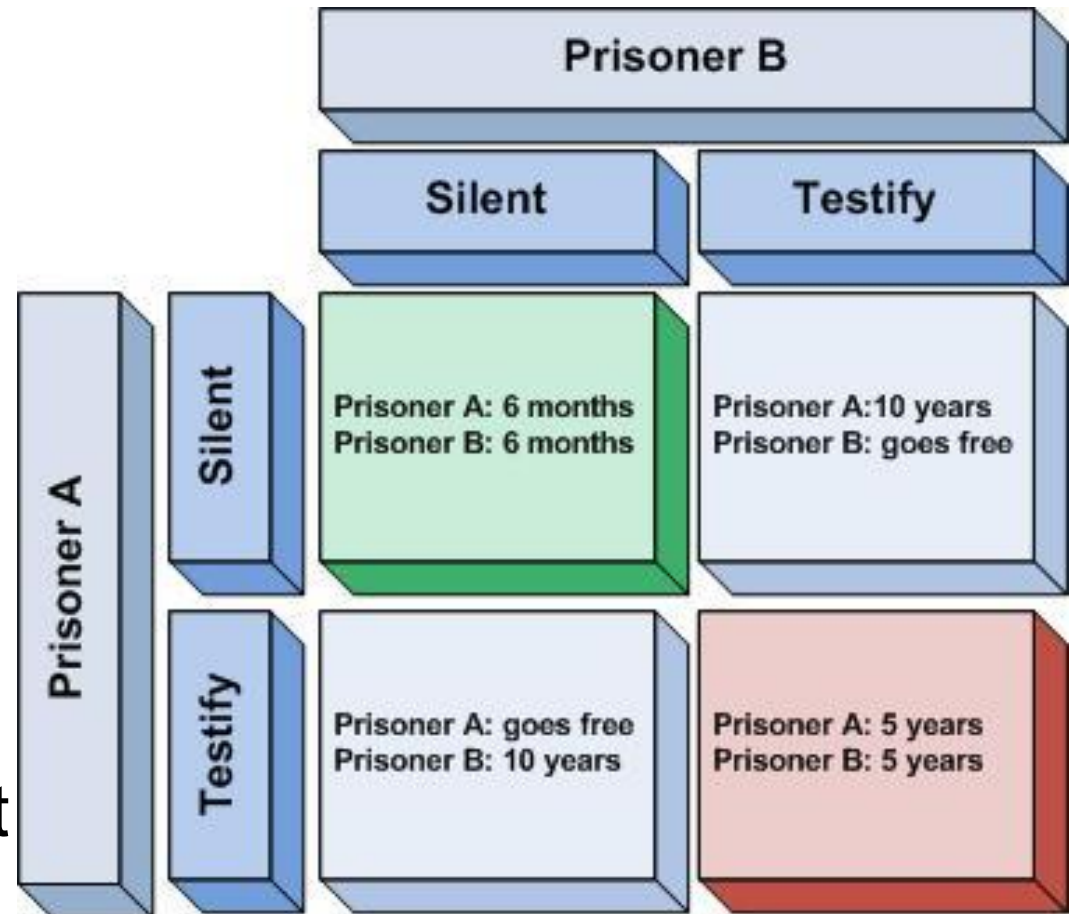

Governance

Funded Projects
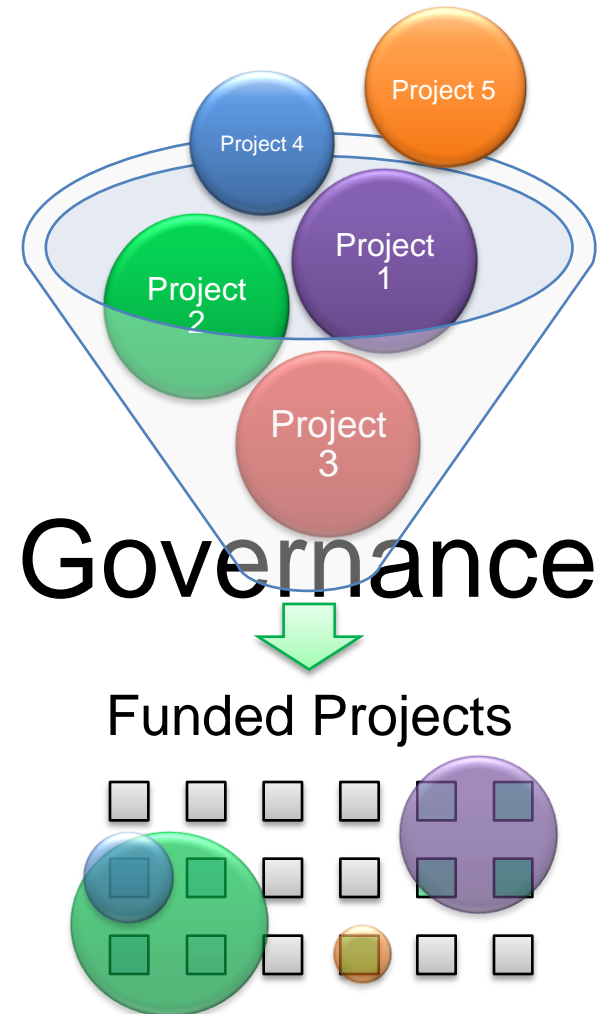
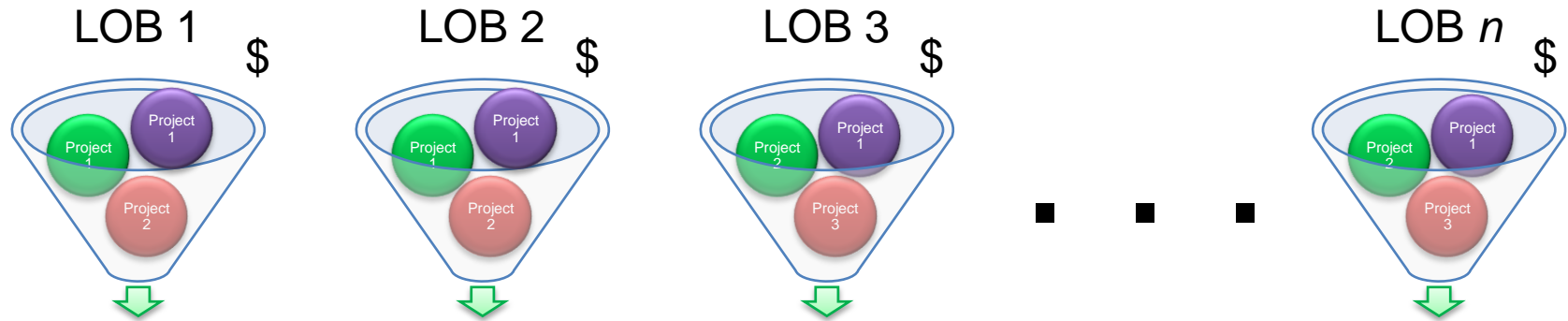# The Line-of-Business Dilemma
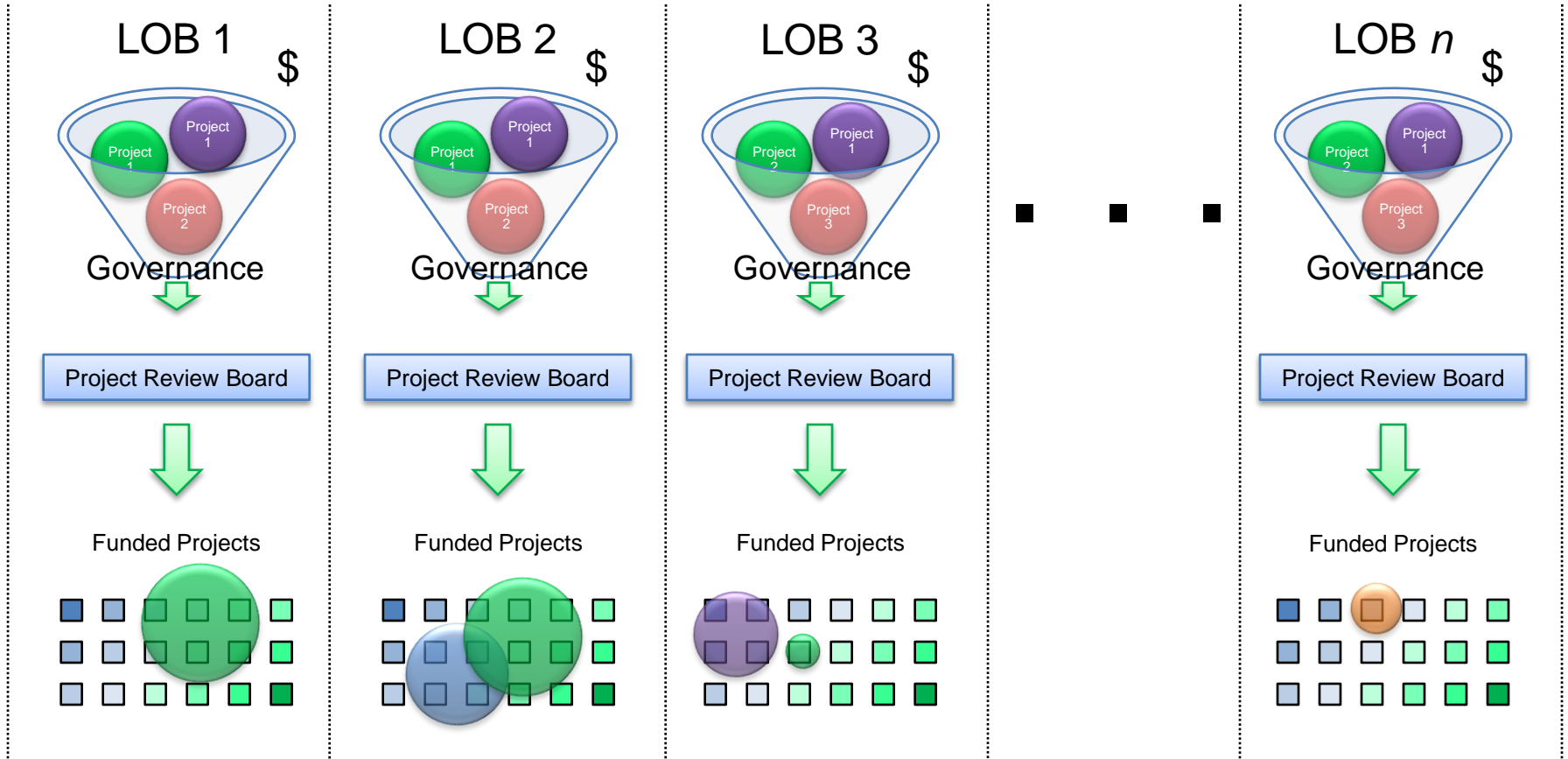
Funding silos discourage collaboration among lines of business and present a significant barrier to enterprise transformation.

The Line-of-Business Dilemma

- Similar to the Prisoner's Dilemma problem

- Co-operation is not always in the best interest of each of the participants

- This is a very difficult problem to tackle

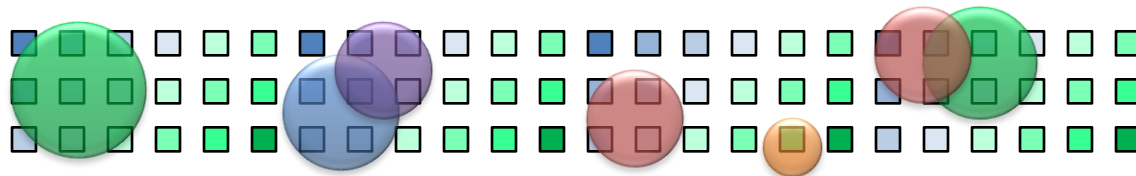| Prisoner A	Prisoner B	
	Silent	Testify
Silent	Prisoner A: 6 months Prisoner B: 6 months	Prisoner A: 10 years Prisoner B: goes free
Testify	Prisoner A: goes free Prisoner B: 10 years	Prisoner A: 5 years Prisoner B: 5 years

Enterprise Project Portfolio Management

LOB 1 $

LOB 2 $

LOB 3 $

LOB *n* $

Enterprise Project / Strategic Investment Review Board

Enterprise-wide governance

Funded Projects

Case Study and Best Practices

Application Portfolio Sustainability

Continuous Improvement Process

Enterprise Architecture

Project Portfolio Management

Case Study and Best Practices

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Case Study: Canada Revenue Agency

Application Sustainability Assessment Framework

- Project initiated to mitigate risk of decreasing agility and increasing costs in line of business applications
- Portfolio of 450+ applications, and counting
- Some LOBs spending 90% of their IT budget on maintenance
- ~40 million lines of COBOL code
- Older database technology, including IDMS and VSAM deemed to be the greatest risk to the portfolio
- Process to create a rolling multi-year application renewal strategy
- Received *in perpetuity* funding to address ongoing sustainability
- First priority is to migrate 8M lines of COBOL/IDMS code to DB2

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Five Best Practices

1 • Find an executive champion

2 • Piggyback on existing processes

3 • Communicate!

4 • Establish action plans *before* results

5 • Track metrics for several years

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Closing Thoughts

"*You've got to be very careful if you don't know where you're going, because you might not get there.*"

- Yogi Bera

Questions?

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Thank You!

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