CMMI ACQUISITION MODEL (CMMI-ACQ):

DRIVING PROCESS IMPROVEMENT

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Agenda

- **Overview**

- **GM IS&S and the CMMI for Acquisition**

- **CMMI-ACQ Integration at General Motors**

Overview

- **General Motors now acquires 100% of its IT solutions**

- **There was no maturity model for organizations that acquire technology**

- **General Motors partnered with the Software Engineering Institute (SEI) to develop the CMMI-ACQ**

- **General Motors was the first commercial enterprise to be appraised utilizing the CMMI-ACQ**

- **The best practices encompassed in the CMMI-ACQ drive quality throughout the IT acquisition process**

GM

General Motors Products
1 in every 6 cars in the world is from the GM

GMC

Chevrolet

Cadillac

Saturn

Vauxhall

Saab

Holden

Opel

Hummer

Pontiac

Daewoo

Buick

GM

GM's Profile

- 280,000 employees worldwide
- $207 billion revenue in 2006
- Products sold in more than 200 countries
- Sold more than 9 million cars and trucks in 2006
- 181 Manufacturing facilities in 35 countries
- 14,000+ dealers in North America alone
- $89 billion of direct materials purchased annually
- 14 million pounds of material received daily
- Approximately 5,000 parts in each vehicle
- 375 million square feet of Manufacturing space including Joint Ventures
- 3,200 sources provide delivery "just in time"

GM's Global
Design & Engineering Centers

15 Design Centers in
12 Countries

GM's Manufacturing Plants

181 Manufacturing Plants in 35 Countries

GM is a Tightly Integrated Global Company

The Global Environment

- Truly 24x7 – we are always working somewhere
- Region, country and brand stand-alone structures no longer exist
- Suppliers and joint ventures are integral to the model

Drives

- Global collaboration
- Real-time access to critical business information
- Supply chain visibility
- Global regulatory requirements
- Always-on infrastructure (no downtime)
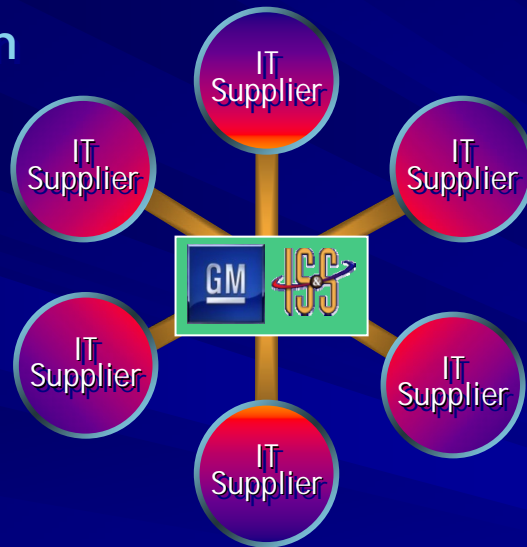
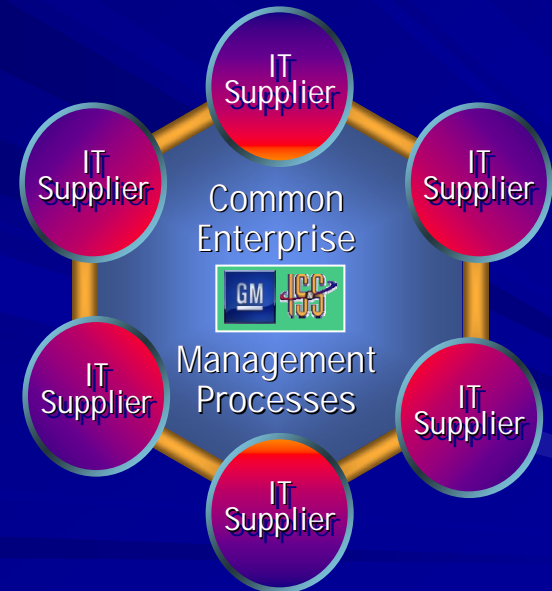# GM has been acquiring – not developing – IT Systems for decades

Evolution of GM IT

First Generation
1984-1996

Second Generation
1996-2003

Common Enterprise

Management Processes

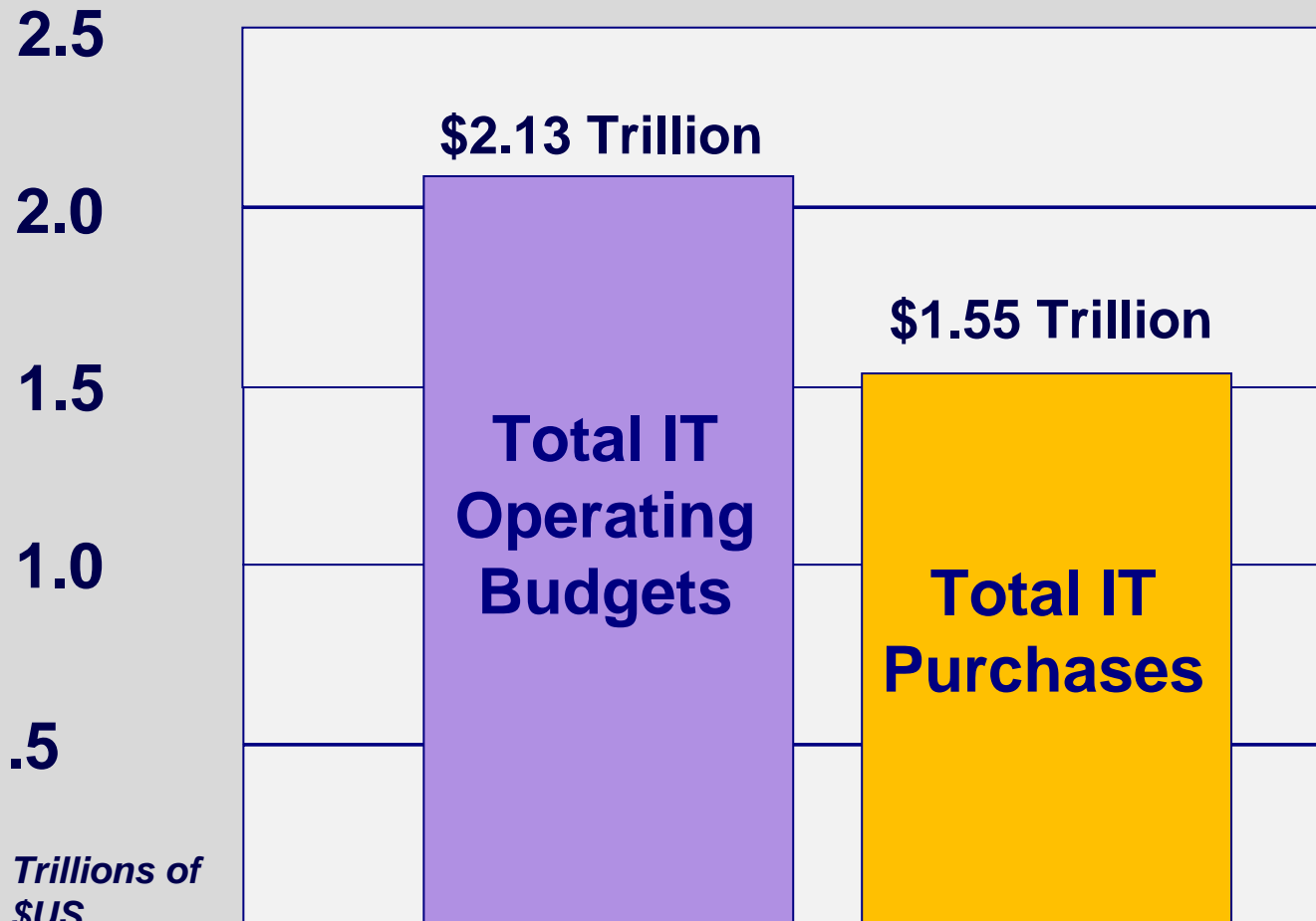**Third Generation**
2003→

The Challenge

How does GM structure the vendor relationship in the 3rd generation out-sourced environment?

- ✓ **Leverage best-in-class suppliers**

- ✓ **Become more nimble**

- ✓ **Focus on our core competencies**

- ✓ **Be better positioned to take advantage of new technologies**

- ✓ **Assure quality of all systems**

2007 Global IT Industry

$2.13 Trillion

Total IT Operating Budgets

$1.55 Trillion

Total IT Purchases

2.5

2.0

1.5

1.0

.5

Trillions of $US

75% of every dollar in IT spent is on Acquisition

* Source: Forrester

GM

Research of IT Models

- ✓ CMM, CMMI
- ✓ SPICE
- ✓ IEEE
- ✓ COBIT
- ✓ ITIL

Findings:

- Enterprises were acquiring many systems
- Models focused on development and operation
- No models adequately support the acquirer
- Industry was looking for an acquisition model

Software Engineering Institute and GM

- **Strategic decision to acquire - not build**
- **Previously utilized CMMI development**
- **Recognition that Acquisition is different**
- **Requires standard model for global deployment**
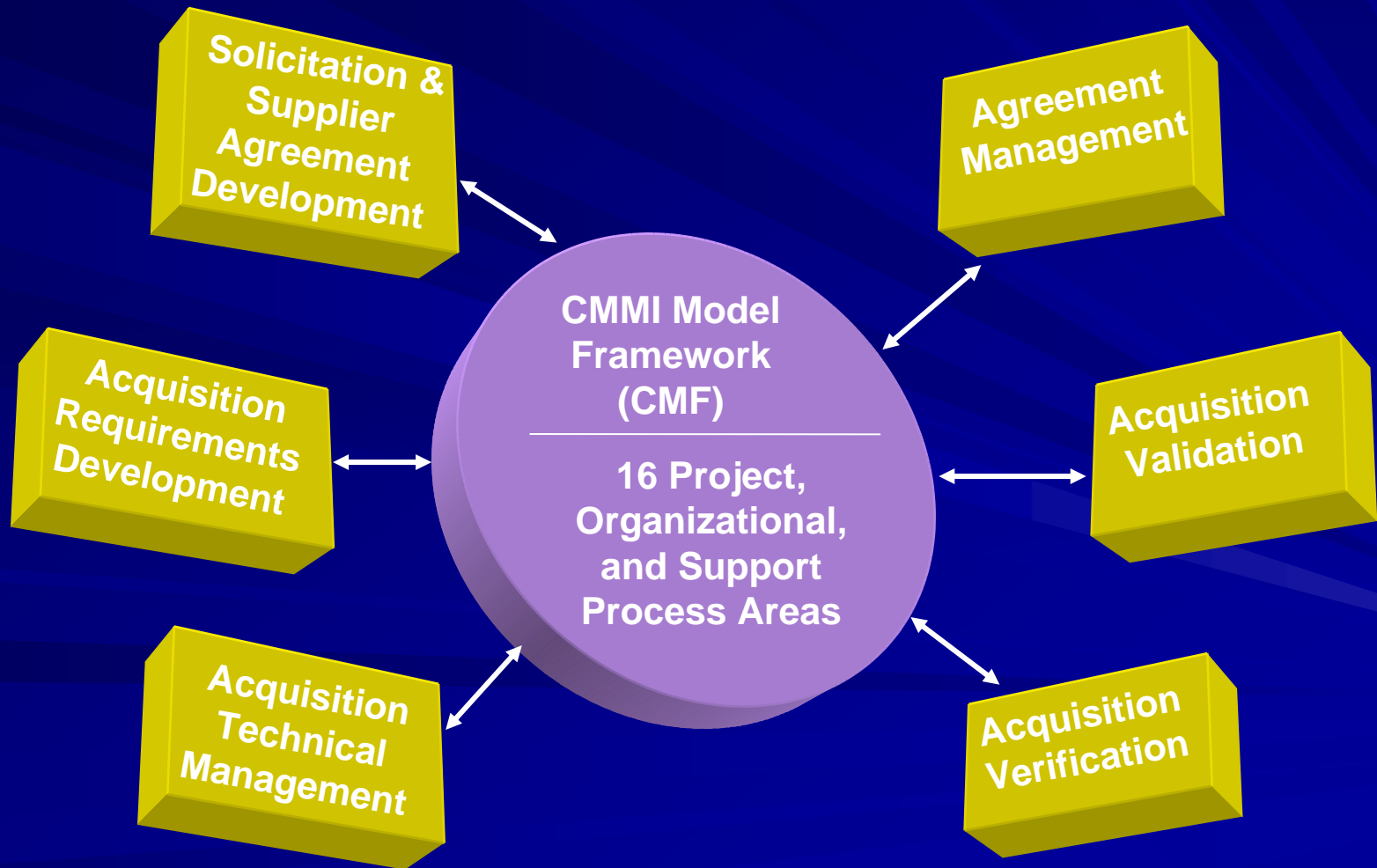
- **Thought Leadership in developing maturity models (CMM, CMMI)**
- **Integrator of best practices in software engineering**
- **Recognition of value in offering model for acquirers**

CMMI-ACQ Model

- Model for being a 'good customer'
- Effective implementation requires understanding and correctly applying the model

Solicitation & Supplier Agreement Development

Agreement Management

Acquisition Requirements Development

CMMI Model Framework (CMF)

16 Project, Organizational, and Support Process Areas

Acquisition Validation

Acquisition Technical Management
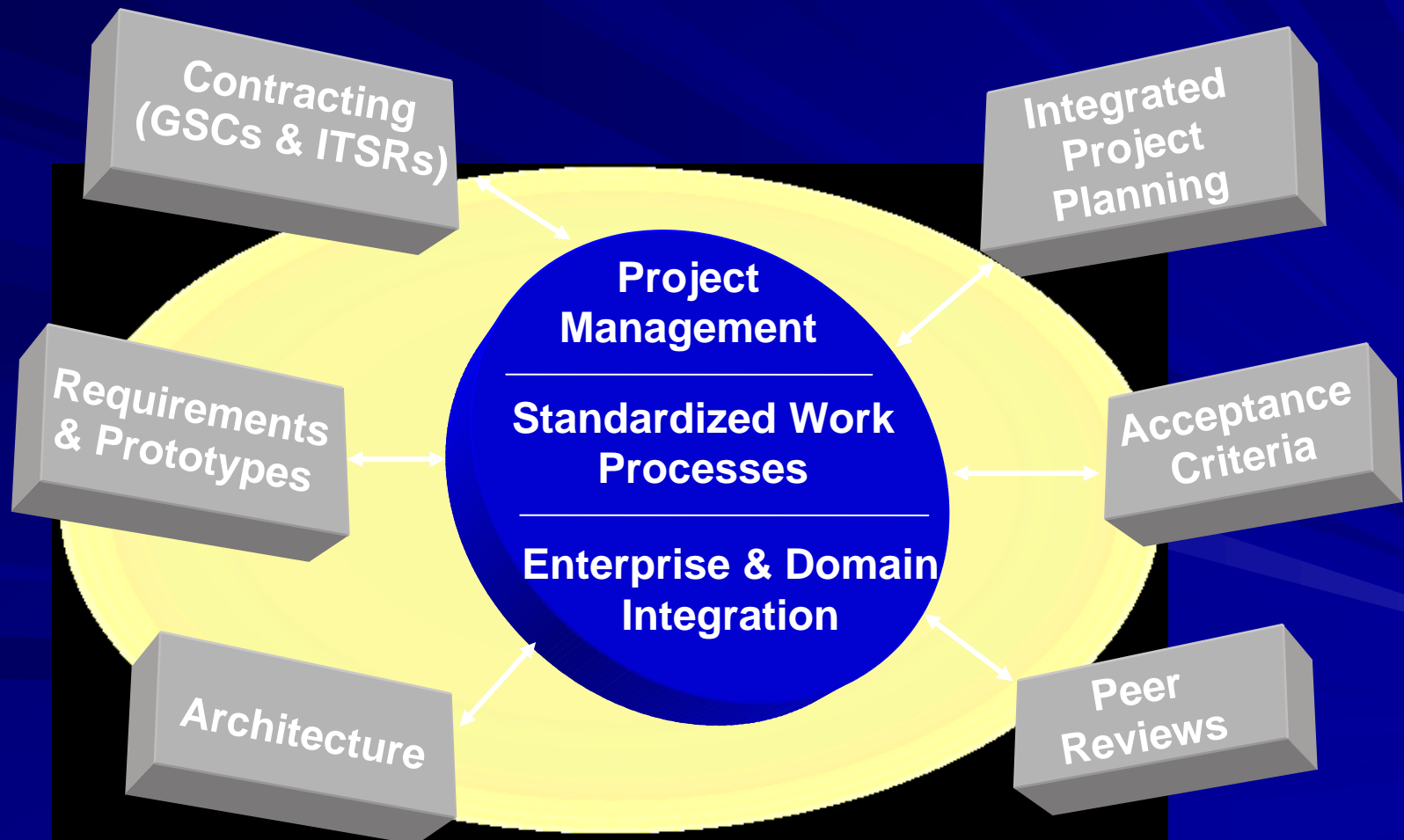
Acquisition Verification

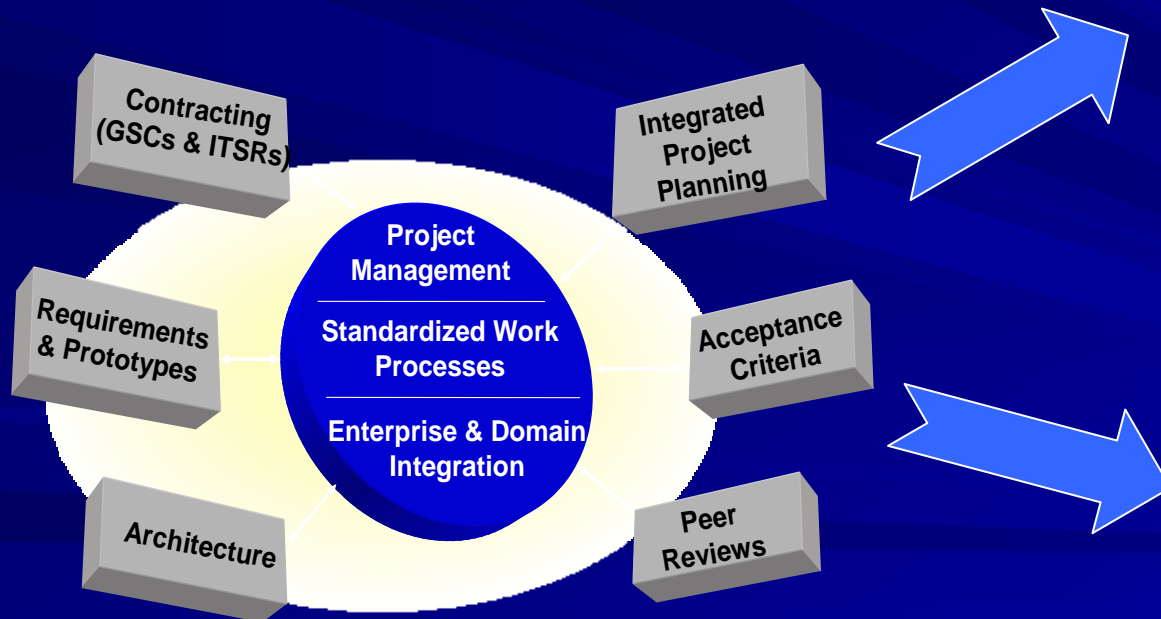# General Motors Implementation of CMMI for Acquisition

CMMI-ACQ for GM

- ➢ **GM analyzed and internalized the CMMI-ACQ model**
- ➢ **We determined the core competencies essential to implementing IS&S goals**

Contracting (GSCs & ITSRs)

Integrated Project Planning

Requirements & Prototypes

Project Management

Standardized Work Processes

Enterprise & Domain Integration

Acceptance Criteria
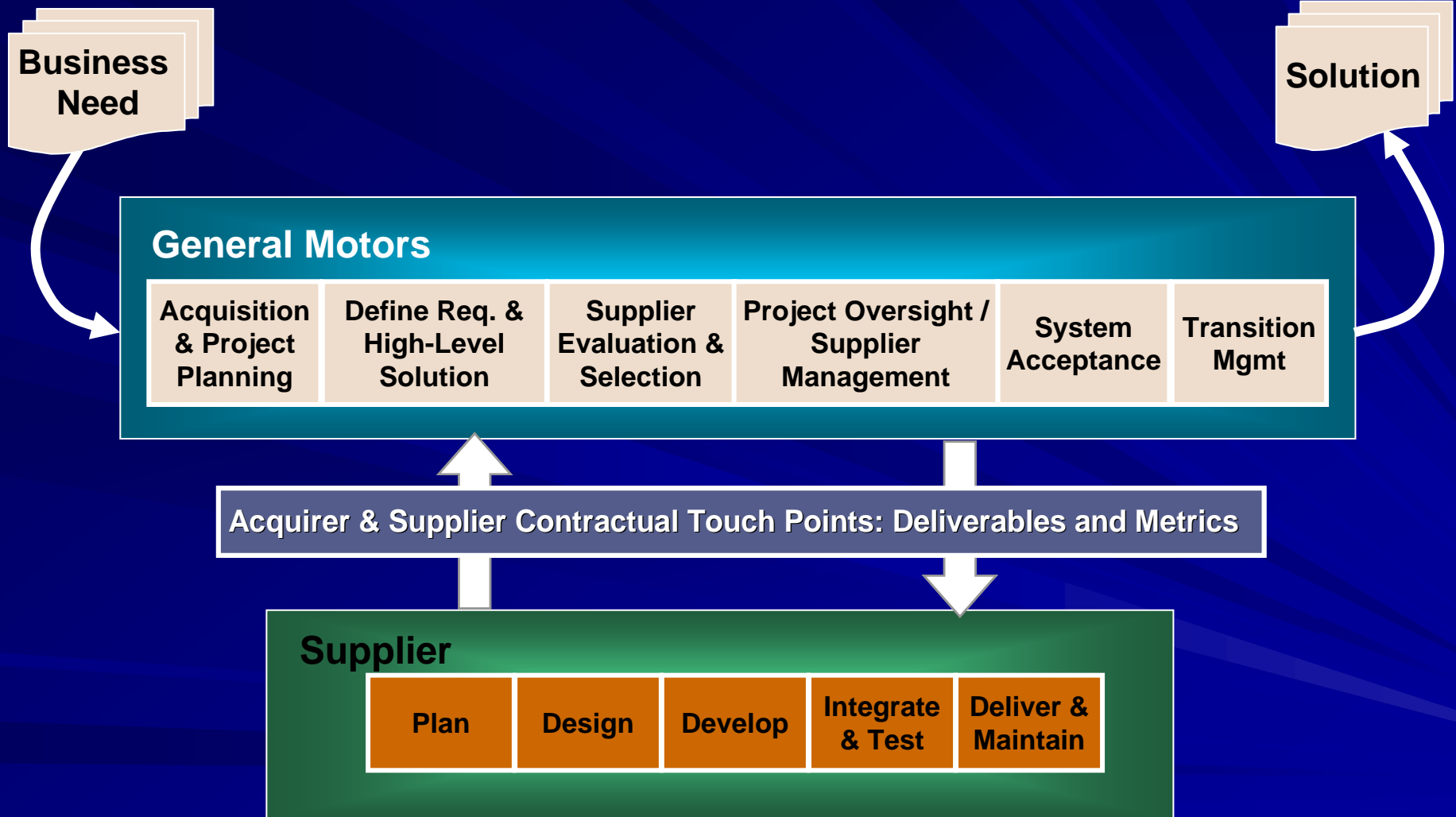
Architecture

Peer Reviews

CMMI-ACQ for GM

➢ **Implementing the model requires structural change and global standardization**

  ✓ **Organizational Structure**
  ✓ **Common Global Processes**
  ✓ **Common Service Agreements**
  ✓ **Continuous Improvement**

Structure

Contracting
(GSCs & ITSRs)

Integrated
Project
Planning

Requirements
& Prototypes

Project
Management

Standardized Work
Processes

Enterprise & Domain
Integration

Acceptance
Criteria

Architecture

Peer
Reviews

Processes

Contracts

GM and Supplier Roles

Business Need

Solution

General Motors

Acquisition & Project Planning	Define Req. & High-Level Solution	Supplier Evaluation & Selection	Project Oversight / Supplier Management	System Acceptance	Transition Mgmt

Acquirer & Supplier Contractual Touch Points: Deliverables and Metrics

Supplier

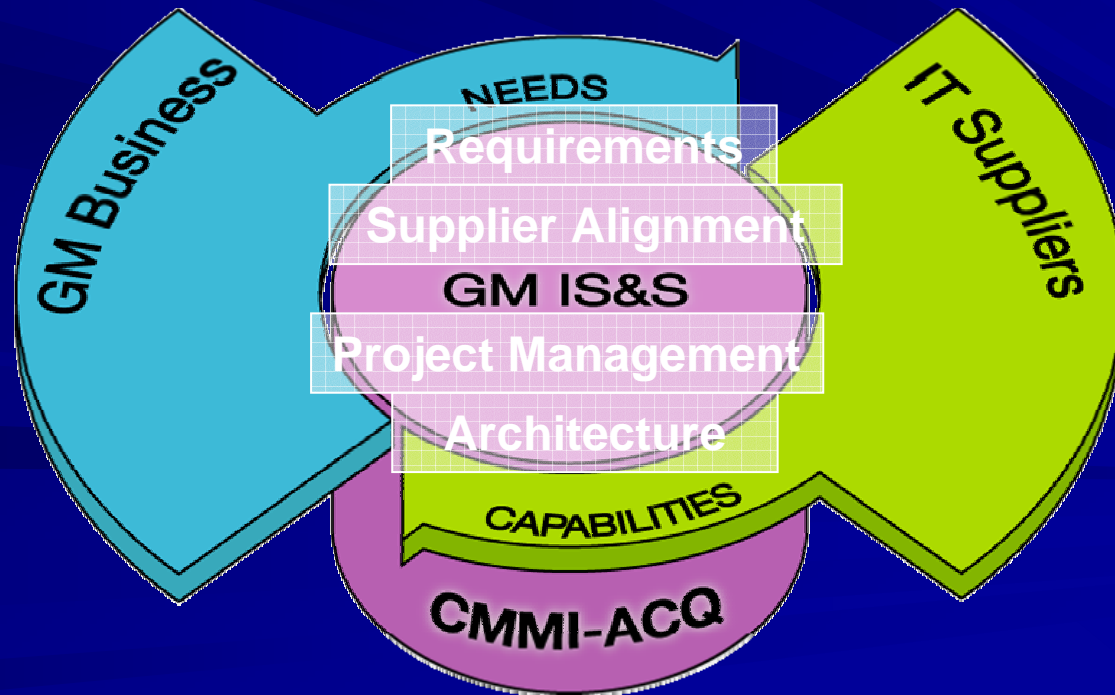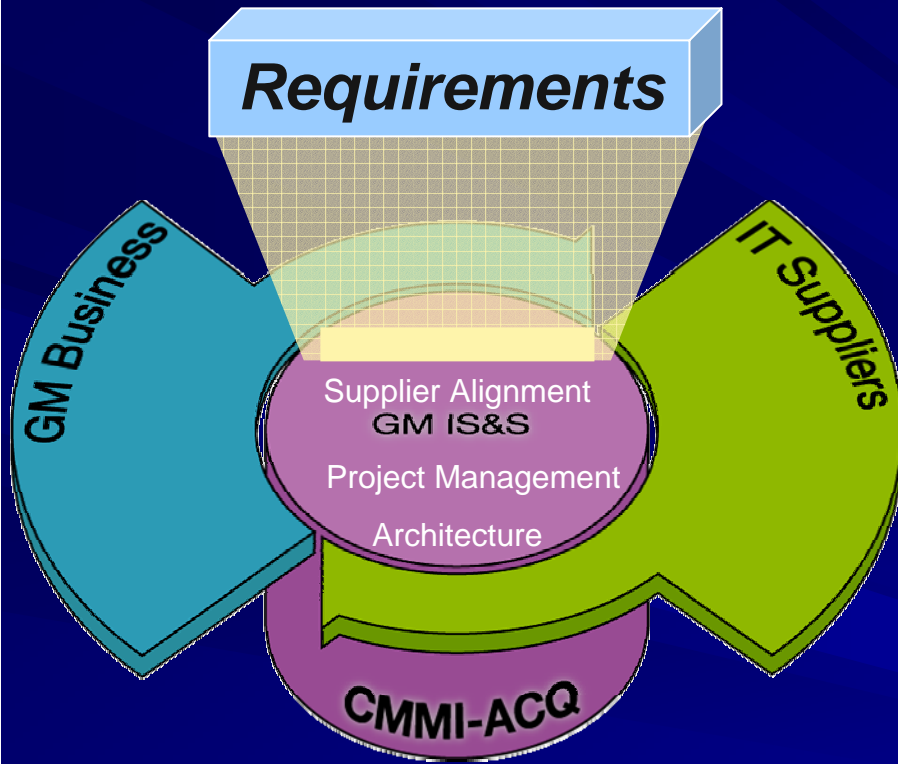| Plan	Design	Develop	Integrate & Test	Deliver & Maintain

GM

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CMMI-Acquisition Learnings

- **Key insights into successful implementation strategy**
  - **Build core competencies in retained processes**
  - **Keep process lean:**
    - Build enabling systems
    - Standardize on Acceptance
    - Standardize on Interfaces
    - Standardize on Tools

# Requirements

Key Lessons

- **Acquirer ownership of requirements is essential**
  - Relationship with customer/user
  - Continuity between projects
- **Requirements are tightly linked to contracts**
  - Tension within teams if requirements are poor quality
  - Suppliers can take advantage of loose requirements
- **Acquirer must be skilled in requirements engineering**

Actions

- Established requirements team
- Requirements prototyping
- Requirements lead oversees projects
- Standard requirements

Architecture
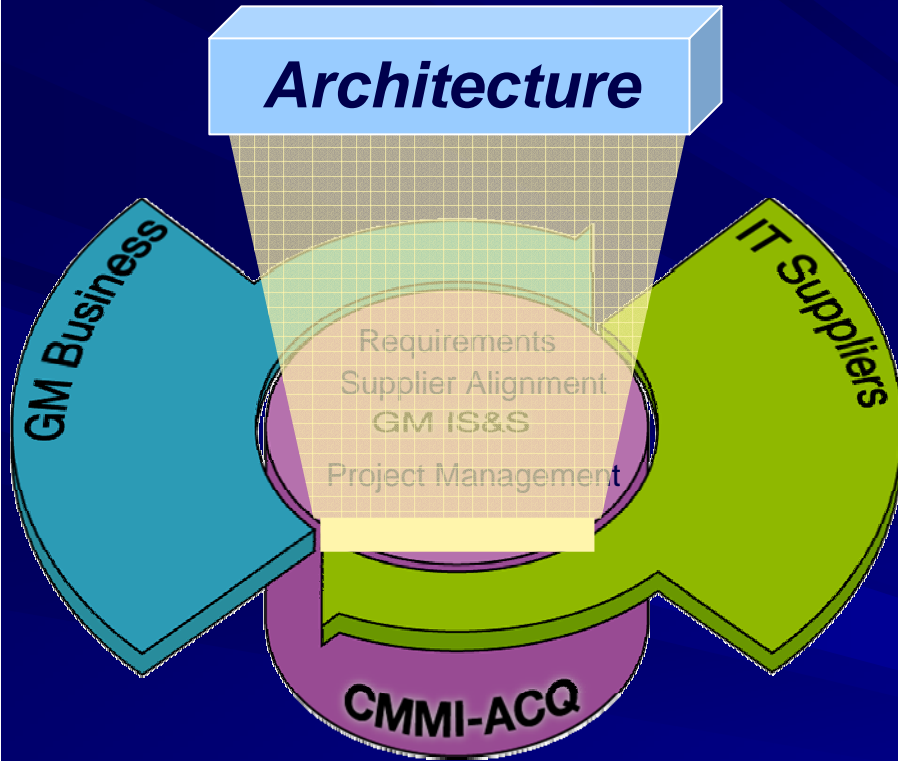
Key Lessons

- **Acquirer must retain ownership of architecture**
  - Determines technical strategy
  - Assure consistency
  - Assure 'Best Interest' of Acquirer
- **Architectural philosophy varies within supplier base**
  - Variation at company and personal level
- **Technical and architectural standards eliminate noise**
  - Hurdle should be very high for deviations

Actions

- Enterprise level system engineering team
- Cross area architecture planning meetings
- Lead architect oversees all projects
- Implementation of technical standards

Project Management

Project Management

GM Business

IT Suppliers

Requirements
Supplier Alignment
GM IS&S

Architecture

CMMI-ACQ
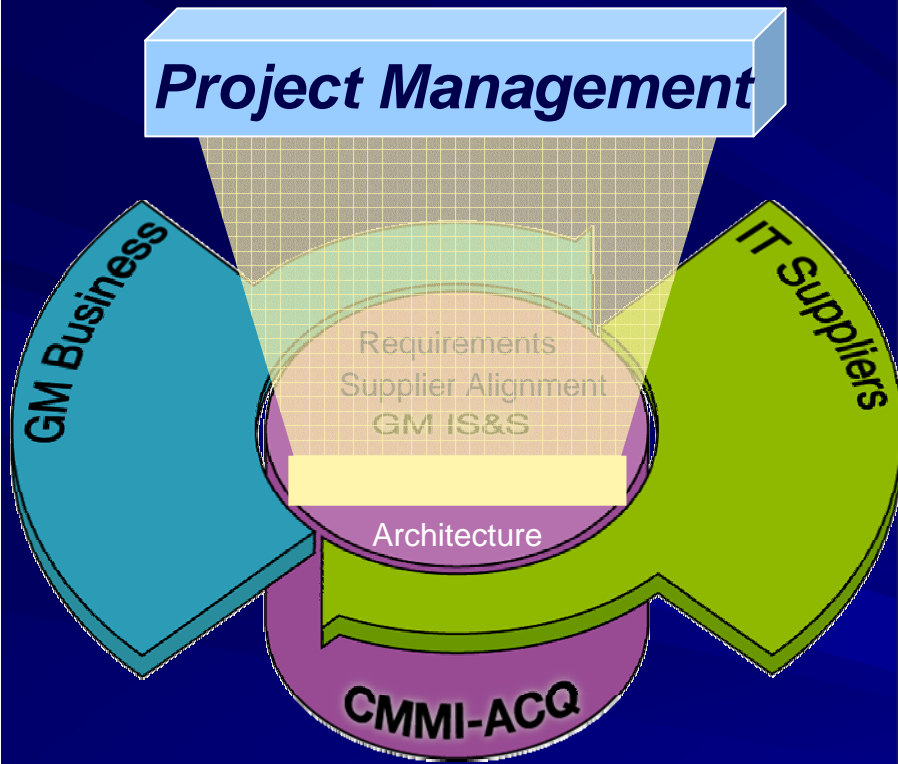
Key Lessons

- **Acquisition PM is a different mindset than development**
  - PM's shift from "doing" to "managing", retain accountability
  - Acquisition PM must integrate with supplier PM
  - Clear acceptance and quality measures are critical

- **Relationship with customer is critical**
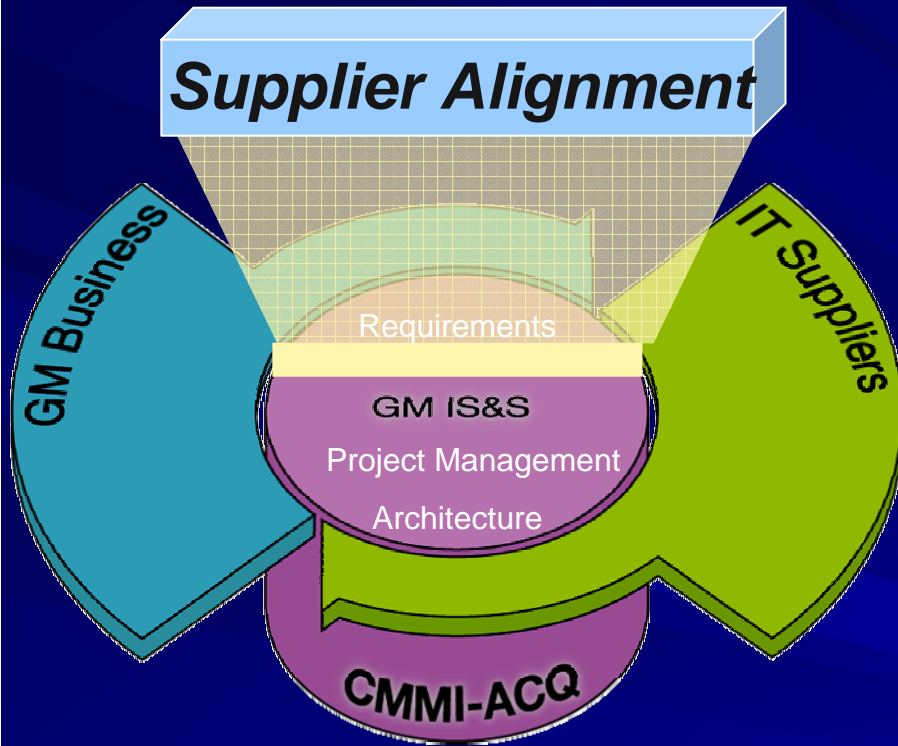 - PM is the key customer advocate in the project

- **Contract support of PM is critical**

Actions
- Standard contracts across areas
- Standard RASIC for all projects
- Integrated GM & supplier project plan
- Standard peer & acceptance reviews

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Supplier Alignment

Key Lessons

- Define the process for the organization and interface to suppliers
- Focus delivery process on acquirer core competencies
- Don't prescribe the supplier's methodology
- Supplier teams integrate at different speeds and require a variety of support mechanisms (e.g., training)

Actions

- Global System Process Days
- Global face to face training
- Global Coach's program
- Interactive distance learning

Global Implementation

➢ **Global Standardization is key to GM's success**
- ✓ **Global Training on Processes**
- ✓ **Global Process Coaches**
- ✓ **Global management and architecture meetings**

➢ **Regular Improvement driven by GM users and suppliers**
- ✓ **Process Releases**
- ✓ **Contract Updates**
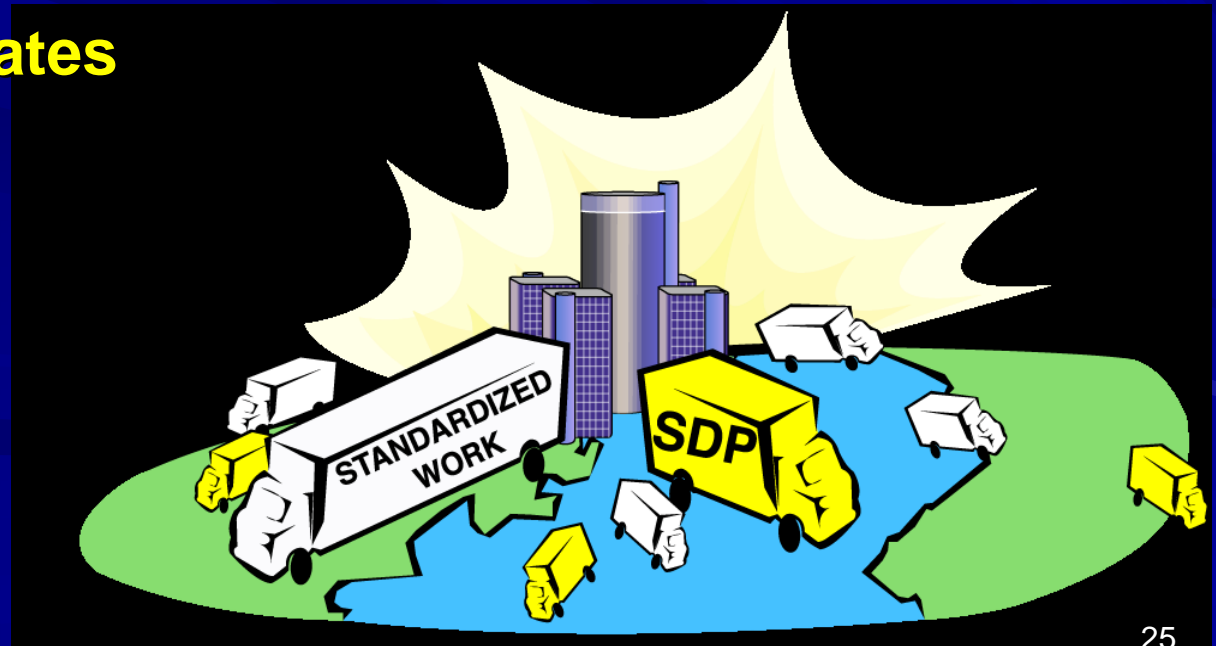
SUMMARY

➢ **Through partnership with the SEI, DoD, Suppliers and others, the CMMI-ACQ provides a model for being a great customer**

➢ **The best practices encompassed in the CMMI-ACQ drive quality throughout the IT acquisition process**

➢ **General Motors was the first commercial enterprise to be appraised utilizing the CMMI-ACQ**

➢ **GM recognizes it must excel in Requirements, Architecture, and Project Management to be a successful Acquirer and Customer**

Thank You!

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