Impact of SOA on Service Quality, Delivery and Efficiency
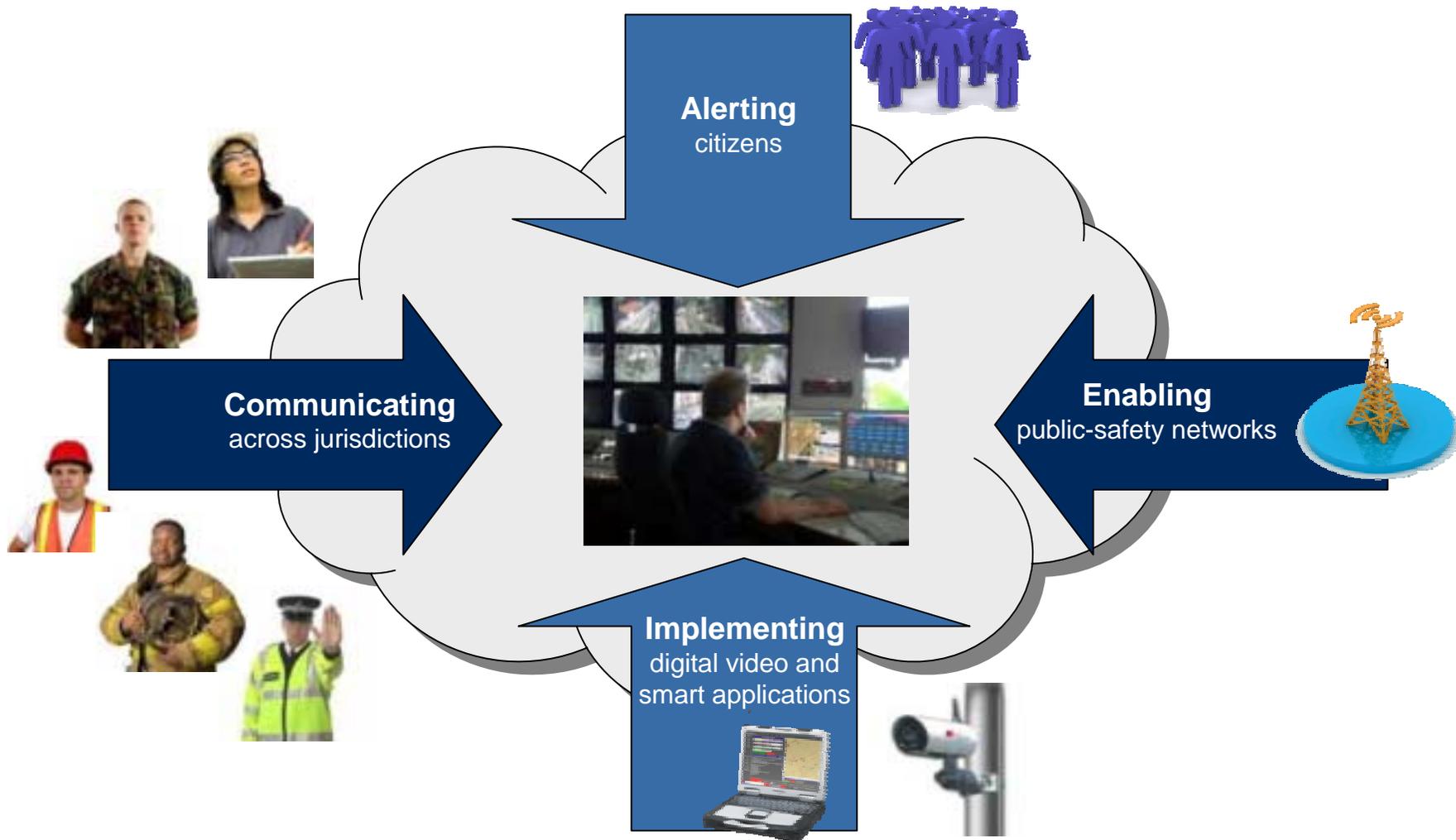

Federal Signal Corporation

April 15th, 2008

About Federal Signal

- Trusted products — proven performance

- Reliable and robust

- Deployed globally

Public Safety challenges

Alerting
citizens

Communicating
across jurisdictions

Enabling
public-safety networks

Implementing
digital video and
smart applications

Leveraging existing technology investments
to take control is a top priority for first responders

How Federal Signal Uses SOA Today

- Traditional SOA results:
  - Improve business flexibility through creating fewer, faster business processes
  - Faster time-to-market for new business solutions
  - Leverage reusable services with backend systems
  - Reduced development expenses and decreased development time
  - Reduced business process improvement costs and time

- Federal Signal SOA results:
  - Meet emerging mission-critical needs of our customers
  - Standards based interoperable communications platform
  - Reuse of existing customer infrastructures
  - Modular design allows for shorter development times
  - Allow customers to enable services and solutions as needed

Federal Signal Today

- Systems Integrator
  - Need to get into the market place
  - Discipline not in place to leverage resources across the enterprise
  - Business Units build there own 3rd party relationships to meet customers needs
  - Separate Development & QA environments with different processes

Federal Signal Tomorrow

- Common Architecture
  - Establish shared development & QA environments
  - Establish enterprise development & QA teams
  - Business units will contribute modules to the platform. Leverage the local business logic expertise.
  - Alignment of new product ideas and platform solutions

Business-Driven SOA

Interoperable communications platform that works any time, any place, and with any device
Federal Signal

Business Need: Fail-safe communication for everyone

- Overcome barriers of disparate hardware, communication mediums and native languages
- Fully redundant for first responder communications during emergency situations
- Bridge communications with other agencies on demand

Use Case: Full communications interoperability and alert notification

- Leverages/utilizes existing Infrastructure
- Real-Time communication across all devices
- Targeted mass alert notification
- IP-based & highly scalable
- Secure & encrypted

FS Codespear SmartMsg

Results: SOA Value Delivered

- Software architecture provides flexibility for quick device updates which allows for faster time-to-market for new solutions
- Reduced development expense and time by leveraging modular architecture for enabling all Federal Signal products and services
- Messaging interface leverages Federal Signal's industry platform to communicate with products & services and can be managed via Integrated Management Console

Business-Driven SOA
Building an Interoperable Industry Platform for Public Safety, Security, and Well-being
Federal Signal

Business Need: Improve Interoperability within & across organizations

- Meet the emerging mission-critical needs of our customers
- Improve collaboration with customers & business units
- Provide interoperable industry platform
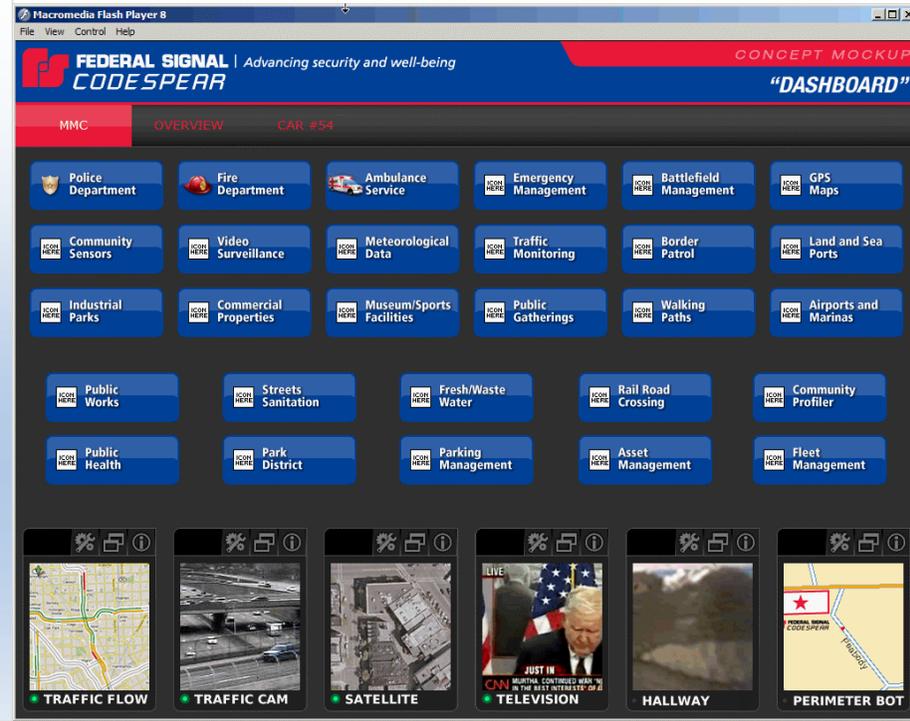
Use Case: Elements of the Platform

- Rich User Experience
- Data-Driven Architecture
- User-Driven Emergency Applications
- Low-Cost Deployment and Management

Integrated Management Console

Results: SOA Value Delivered

- Deliver enhanced functionality, intelligence and interoperability that today's complex events demand
- Provide modular industry platform to build "as-needed" safety and security solutions
- API family enables connectivity to Federal Signal products and solutions as well as industry solutions from other providers
- Easier integration and support of new products and services with single platform

Our customer successes

Washington State completes deployment of Federal Signal all hazard alert broadcast warning siren system

Ford Motor Company deploys Federal Signal SmartMSG critical communications system

Abbeville County, S.C. deploys Federal Signal SmartMSG mass citizen alerting system

Innovative mobile Federal Signal solution ensures public safety logistics and communications continuity for **Super Bowl XLII**

Clarendon Hills, Ill., deploys Federal Signal municipal networked security system to enhance public safety and security

Los Angeles County Sheriff's Department deploys Federal Signal's PIPS license plate recognition system

City of Pocatello, Idaho, selects Federal Signal public safety broadband wireless network

North American colleges and universities select Federal Signal's system

Phoenix Sky Harbor Airport deploys interoperable communications, urgent alert notification and scenario management solution

Parking enforcement goes high-tech with Federal Signal PIPS at the **University of Kentucky**

Omaha UASI Region deploys Federal Signal SmartMSG urgent alert notification and scenario management solution

Marion County selects Federal Signal interoperable communications platform and emergency siren system

Monroe County, Michigan chooses Federal Signal SmartMSG solution for enhanced emergency management

District 1 Regional Medical Response coalition deploys communications solution to answer urgent need for emergency preparedness
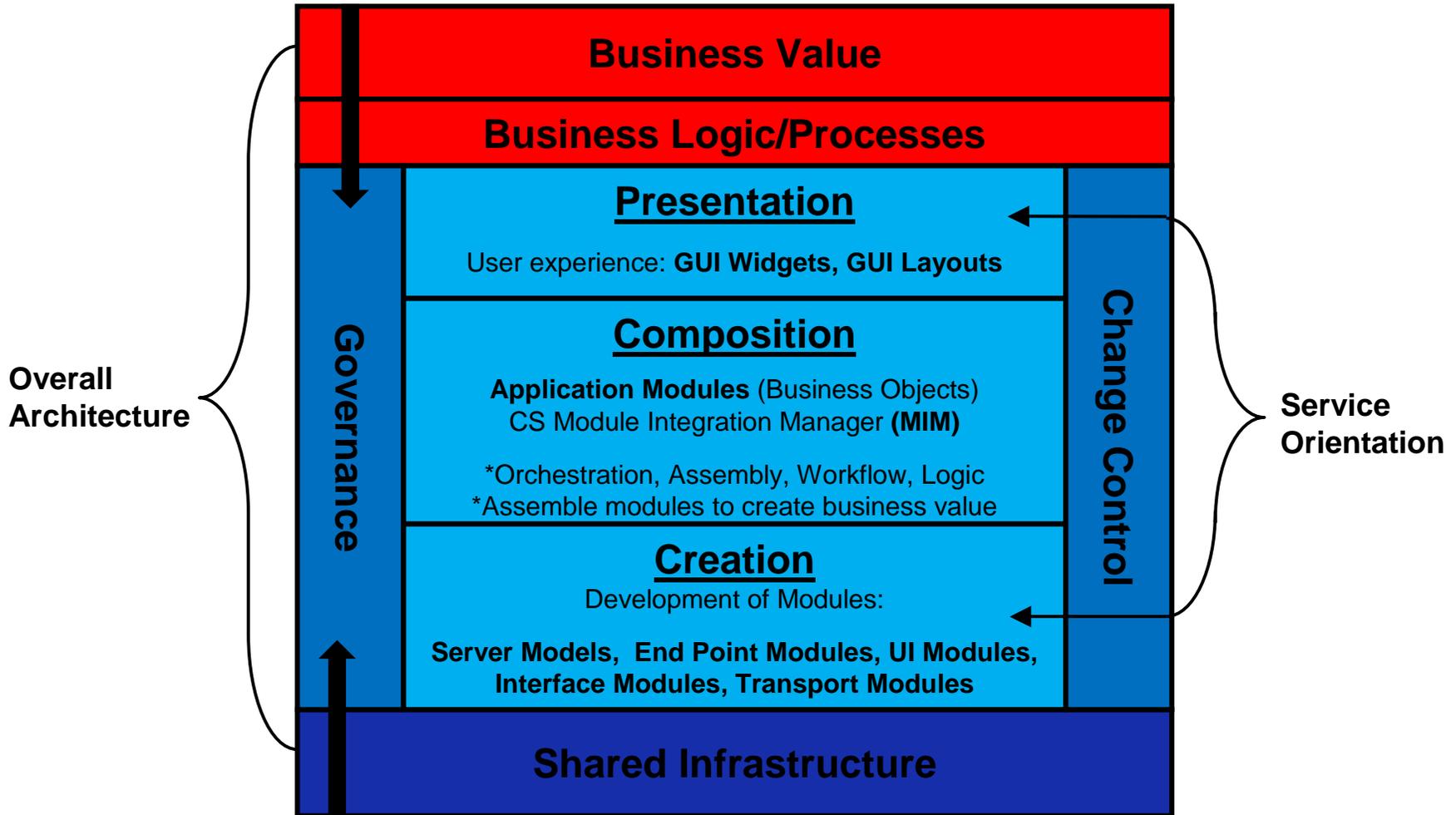
Composite Application Framework

Enabling SOA principles at Federal Signal

Composite Application Framework & SOA

Overall Architecture

Business Value

Business Logic/Processes

Governance

Presentation

User experience: **GUI Widgets, GUI Layouts**

Composition

Application Modules (Business Objects)
CS Module Integration Manager **(MIM)**

*Orchestration, Assembly, Workflow, Logic
*Assemble modules to create business value

Creation
Development of Modules:

**Server Models, End Point Modules, UI Modules,
Interface Modules, Transport Modules**

Shared Infrastructure

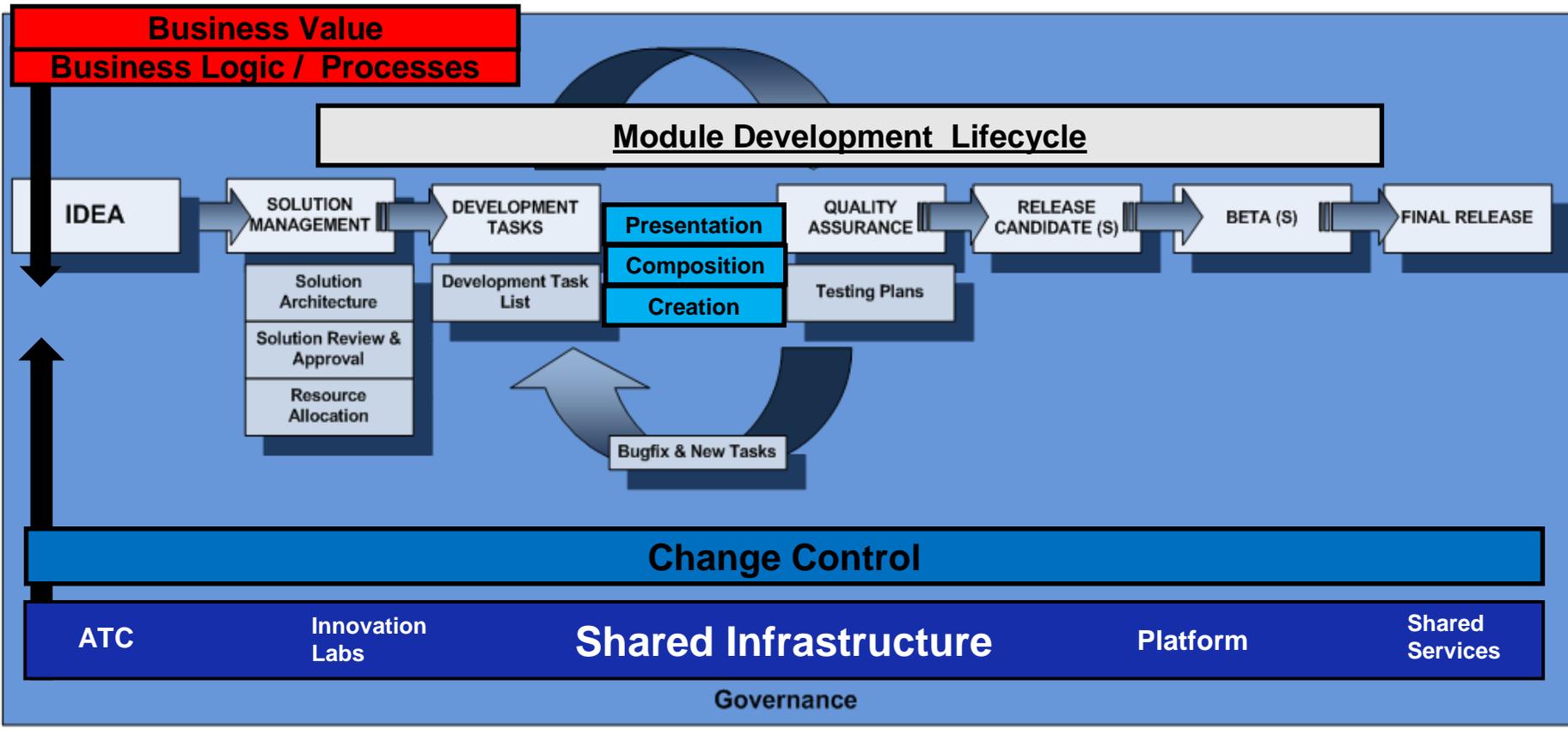**Change Control**

Service Orientation

Linkage between business value and shared infrastructure becomes process focused
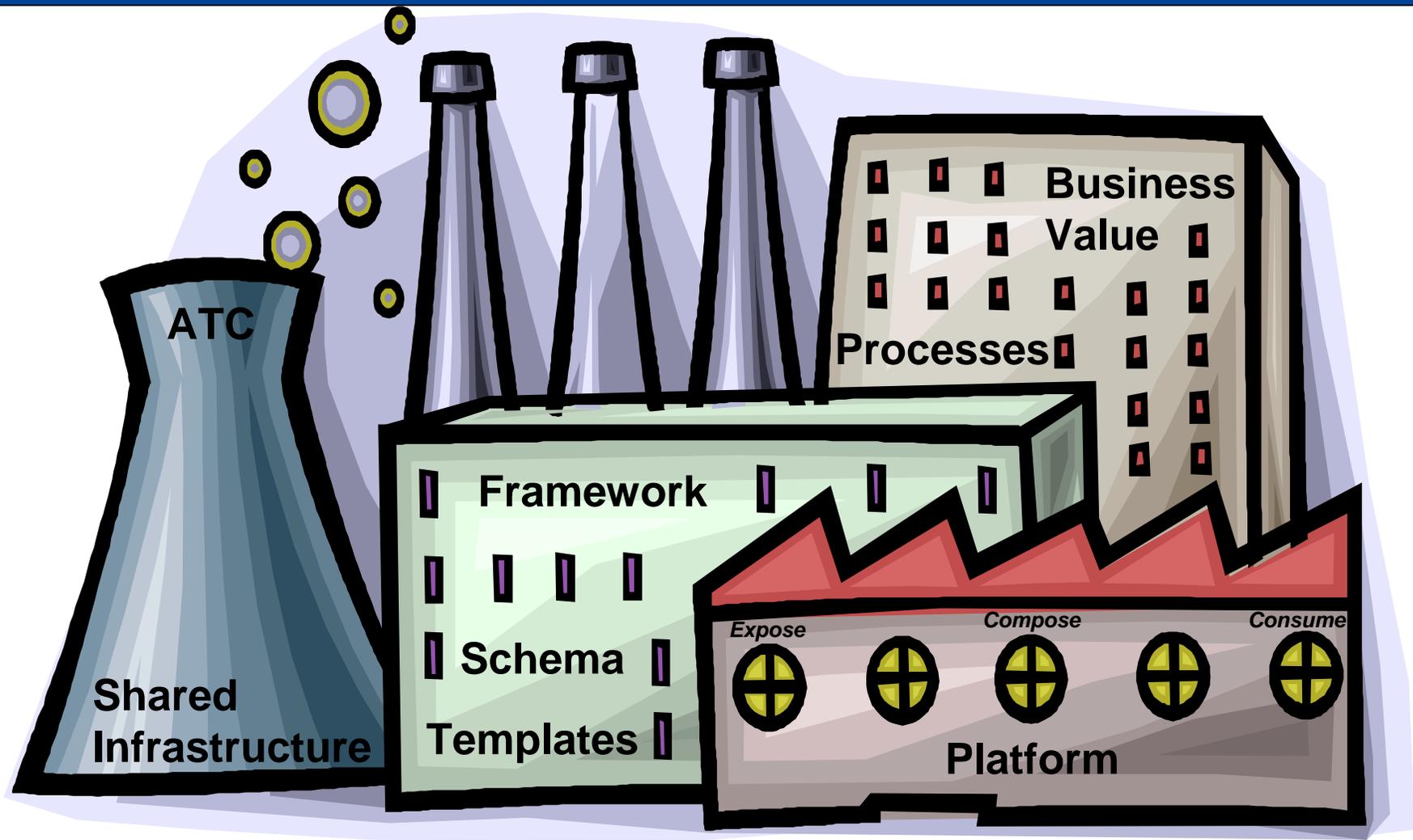
Delivering on the Strategy

- **Advanced Technology Center (ATC)**
  - Technical foundation to support Federal Signal enterprise development teams, partners, and customers

- **Software Factory**
  - Based on the convergence of key ideas in systematic reuse, model driven development, development by assembly and process frameworks

- **Agile Development Principles**
  - A conceptual framework for software engineering that utilizes multiple development iterations throughout the life-cycle of the project.

Enterprising the Process

Core Application Development Framework

- Business Value
- Business Logic / Processes

Module Development Lifecycle

IDEA → SOLUTION MANAGEMENT → DEVELOPMENT TASKS → QUALITY ASSURANCE → RELEASE CANDIDATE (S) → BETA (S) → FINAL RELEASE

SOLUTION MANAGEMENT
- Solution Architecture
- Solution Review & Approval
- Resource Allocation

DEVELOPMENT TASKS
- Development Task List

- Presentation
- Composition
- Creation

QUALITY ASSURANCE
- Testing Plans

Bugfix & New Tasks

Change Control

Shared Infrastructure

ATC | Innovation Labs | Platform | Shared Services

Governance

Framework + Process = Software Factory

Software Factories…the flexible industrialization of software development.

SOA Lessons Learned

- Migration to SOA is a journey – not a "big bang"
- The journey involves people and process – not just technology
- Not all journeys are the same
- Addresses existing pain points and prepares for long-term transformation
- Embraces heterogeneity – leverages investments, not "rip and replace"
- Requires a collaborative approach

Thank You!

Federal Signal …
the leader in advancing security and well-being for
communities and workplaces around the world.