SOA + BPM = Agile Integrated Tax Systems

Hemant Sharma
CTO, State and Local Government
Nothing Endures But Change
Defining Agility

- It is the ability of an organization to recognize change and respond *efficiently* and *effectively* to the change.
- Agility is achieved by creating dynamic architectures and applications.
Session Goal

Discuss the use of Service Oriented Architecture (SOA) and Business Process Management (BPM) within a tax agency in order to respond more effectively and efficiently to change (and therefore be more agile)
Tax Agency’s Business Transformation Imperative

Whether the tax agency requires *dramatic changes* or *incremental improvements*, managing government modernization in the face of growing constraints requires a new way of thinking.

**Demands**
- Rising taxpayer expectations
- Political pressure/visibility
- New and expanding scope and mandates

**Constraints**
- Reduced budgets
- Government personnel shortage
- Aging infrastructure

**New Technology Enablers**
- Emerging standards
- Cloud computing
- Web 2.0, SaaS, Enterprise Architecture

**Government Imperative**
- Spend less, but spend smarter
- Improve service to taxpayers and internal users
- Reduce total cost of ownership
- Get the most out of investments already made

Whether the tax agency requires dramatic changes or incremental improvements, managing government modernization in the face of growing constraints requires a new way of thinking.
Barriers to Achieving Agility

Enterprise (Vision, Management, Organization, Partners)
- Gaps in enterprise-wide business processes
- Government interaction organized around programs
- Government is not agile and cannot change rapidly

Enterprise Functions (Business Processes)
- Functional redundancy
- Monolithic applications (silos) – limited reuse
- Vendor lock-in

Applications
- Data redundancy
- Gaps in application integration or inflexible integration

System Infrastructure (Information, Systems, Network, Integration, Security)
- Technology inefficiency
- Lack of enterprise-wide information
- Technology stagnation

Gaps in Business and IT
- Gaps in application integration or inflexible integration
- Vendor lock-in
- Lack of enterprise-wide information
- Technology inefficiency
- Government interaction organized around programs
- Government is not agile and cannot change rapidly

Gaps in customer service – many front counters

Business Architecture

Technical Architecture
Service-Oriented Architecture (SOA)
A Service…

- Is a unit of work done by a service provider to achieve results for the service consumer
- Is a software component that is capable of providing access to functions and data
- Is exposed to other components via a service description
- Appears as a “black box” to the service consumer
- Is interacted via message exchanges
- Encompasses a business perspective
- Decouples its interface from its implementation
- Is built to last
- Needs to ensure stability and robustness
Service-Orientation

- Service Orientation
  - Use of “open” interoperability protocols to facilitate service interaction

- Architecture
  - A process of putting together components to achieve some overall goal
  - A *blueprint* that comprises the components organized by layers, their visible properties, their relationships and interactions, and constraints
Service-Oriented Architecture (SOA) Bringing Business and IT Together

A solution and architectural design approach…

...whereby business activity components are packaged as **well-defined services**, accessible electronically by partners, suppliers and others

Technology Focus

...which is implemented within an **architectural technology framework** optimized for this purpose

Business Focus
Why Do you Need SOA?

Because with SOA, you can –

- **Make business effective and agile** – Achieve flexibility in solving ever-changing business requirements
- **Reduce cost of development or integration** – Help business focus on overall (strategic and tactical) business goals
- **Reuse existing and newly built IT resources** – Help your organization deliver improved business value efficiently
- **Manage IT resources (assets)** – Perform in alignment with your organization’s business goals and policies
SOA – Different Things to Different People

- **Business**
  - a *set of services* that a business wants to expose to its customers and partners, or other parts of the organization

- **Architect**
  - an *architectural style* which requires a service provider, requestor, and a service description
  - a *set of architectural principles, patterns, and criteria* which address characteristics such as *modularity, encapsulation, loose coupling, separation of concerns, reuse, and composability*

- **Programmer**
  - a *programming model* complete with standards, tools and technologies such as Web Services
Identification of Business Services

- **Top down approach**
  - Aligning business services around business processes and steps
  - Aligning business services with enterprise information
  - Aligning groups of business processes around organizational groupings in which a culture of trust exists

- **Bottom up approach**
  - Aligning business services to existing application functions

**Key Concepts**
- Islands of Trust
- Legacy Wrapping
- Process Driven
- Information Driven

*experience the commitment*
Business Process Management (BPM)
Process Terminology

- **Process**
  - A collection of activities to transform a system from one state to another
  - Follows a lifecycle and changes over time
- **Business Process**
  - Formal and informal processes of a business
- **End-to-End Business Process**
  - Spans multiple functions and sub-processes
- **Business Process Improvement (BPI)**
  - Represented as a continuum from incremental change to business transformation
BPM refers to a set of management disciplines which accelerate effective business process improvement by blending incremental and transformative methods (Gartner).

BPM is a management discipline to identify, measure and improve key processes to achieve operational excellence:
- Able to identify and document process
- Able to measure process performance
- Able to continuously improve process outcomes

It is often, but not always, supported by technology.
Implicit Process Management

- Implicit BPM
  - Traditional enterprise applications embed core business functions/rules and processes within the organization
  - Flexibility is limited to within system boundaries
  - Objective is execution consistency
Business and IT are Not Aligned

THE “GAP”

Explicit Process Management

- Explicit BPM
  - Process is explicitly represented, usually by a graphical model, and is independent of its implementation
  - Bringing the power of technology to business staff and reducing their work
  - BPM is the bridge between Business and IT
  - Objective is increased flexibility

- A cyclical BPM life-cycle consists of:
  - Design
  - Modeling
  - Execution
  - Monitoring
  - Optimization
Business Process Requirements

- Make process flow control explicit; decouple it from the underlying technology; span process scope and life cycle
  - Process flexibility
  - Business agility
- Enable business professionals to make process changes
  - More immediacy in linking to business needs
- Get immediate feedback in context of process definition
  - Improved visibility of current operating conditions
  - Opportunity for rapid process modification
- Process models + KPIs provide foundation for software-service definitions
  - Foundation for SOA to service business needs
Technology Components of BPM

- **User Interaction**
  - Task Inboxes
  - User Interfaces
  - Monitoring Dashboards

- **Execution Environment**
  - Business Rule Engine
  - Process Engine
  - Analytics Engine

- **Simulation Engine**
  - Business Process Execution Language (BPEL)

- **Process Design**
  - Process Modeling
  - Rule Definition
  - KPI Definition
  - Process Development & Implementation
  - UI Design

- **Business Activity Monitoring (BAM)**
- **Business Process Modeling Notation (BPMN)**
- **Business Rules Mgmt System (BRMS)**

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experience the commitment
A Process Driven Organization

Functionally Driven

- Roles and responsibilities are aligned by functional area
- Business leaders have little process visibility beyond their functional area
- Business rule and process changes rely on IT to schedule changes to application code
- Handoffs are implicit

Process-Driven

- Roles and responsibilities are aligned by business process
- Business leaders have broad visibility of the end-to-end business process
- Business rules and process steps are changed by business process owners
- Handoffs are explicit
SOA and BPM
Trends in Application Development

Development Paradigm
- Structured Programming
- Object Oriented Programming
- Component Based Development
- Service-Oriented Development
- Model Driven Development

Structured Elements
- Procedures
- Classes
- Components
- Services
- Models

Languages
- 1970: COBOL, C, Ada, Fortran
- 1980/90: C++, Smalltalk
- 2000: C#, Java
- 2004: Any
- 2008+: Domain Specific Languages
Paradigm shift towards assembly of application components that enable business process integration and composite applications

Use COTS for transformational software but do not treat implementations like custom development projects

Use approaches (SOA and BPM) to extend the life of (legacy) applications and transform the system user experience without wholesale replacement of applications
Building Agility – Logical Architecture

- Service Development Life Cycle
  - Tools and Methodologies
  - Enterprise Security
- Service Consumers
- Service Delivery Infrastructure
  - Business Processes
  - Business Rules
- Service Interfaces
- Core Business Applications
- Portals and Web UI

Service Development Life Cycle Tools and Methodologies

Data

User Interface

Program Logic

Data
Business – Technology Model

**Business Model**
- Enterprise supporting business goals realized by business processes
- Business Analysts model business processes
  Architects assemble and orchestrate
- System/Process Analysts map processes to services
- Developers code services

**Technology Model**
- Enterprise Function Supporting Business Goals
- Business Processes
- Business Sub-Processes / Activities
- Business Tasks / Procedures
- Business Service Oriented Architecture
- Business Process Services
- Services
- Service Implementation
SOA + BPM Leads To …

Business Agility

- Business Transformation and Transition
- Collaborative Business Processes
- Business Services

Requires

Supports

IT Flexibility

Operation Environment

Service Infrastructure

- Service Development
- Service Deployment
- Service Operation

Composable Business Processes & Services (BPM)

Service-Oriented Modeling

Composable IT Services (SOA)
IT Servicing The Business

Organizational Requirements
High-level of agility
Real-time evolution

IT Contribution
Main strategic lever
Support business needs
Technology enabler

New Requirements
Dynamic business processes
Flexible architectures
Assembly, promotion and operation of business solutions

SOA + BPM provide the capability for building solutions that satisfy the new world requirements of an agile tax agency
Key Takeaways

- Business processes need to be formal, explicit and automated
- Application functionality must be hidden and packaged as Business Services
- “BPM+SOA” puts process and agility to the forefront, not technology
  - Recognize that technology and technical implementations are not the hard part
  - Do not select technology before understanding your requirements
  - Implementing the technology will not automatically generate the benefits
- Requires significant changes in the way the business is organized and managed – establish clear roles and responsibilities
Key Takeaways (contd.)

- SOA is one mechanism that makes BPM easier to do well consistently
- BPM is important to achieve business process improvement
- Requires executive sponsorship and commitment
- Encourage shift in thinking from application-centric to process-centric
- Start with an assessment of your maturity and objectives
- Accept mistakes made, backup, and try again
Contact Information

ISO 9001 Certified

Hemant Sharma
Senior Executive Consultant
State and Local Government

(703) 267-7169
hemant.sharma@cgi.com