PLANNING AGILE MODERNIZATION FOR SUCCESS

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AGENDA

- Patterns of Legacy and Modern Systems
- Understanding the Iterative and Incremental Transformation
- Recognizing the Challenges and Opportunities
- xPlore® - A FRAMEWORK FOR MODERNIZATION PLANNING
- Business Analysis Phase
- As-is Analysis Phase
- Alternative Analysis Phase
- Laying Out the Foundation for Iterative and Incremental Modernization
  - Establish Foundation Architecture
  - Define Technology, Standards & Frameworks
  - Define Infrastructure & Platform Strategy
- Managing Transition State
- Modernization Roadmap
- Realizing the Target State
LEGACY SYSTEMS

CHARACTERISTICS

- Fragmented and duplicate data and services in silo
- Complex point-to-point integration
- Complicated dependencies
- Accidental architecture
- Brittle, inflexible architecture
- Legacy technology

CHALLENGES

- Interoperability challenges - challenging data sharing and access
- Inflexible IT system
- Increasing operations and maintenance cost
- Lack of business process adaptability
- Increasing compliance and security risks

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MODERN ENTERPRISE SYSTEMS

- Business driven, agile technology architecture
- Service Oriented Architecture (SOA)
- Modular, Services are the architectural building blocks
- Reuse of existing assets
- Shared Services
- On-demand infrastructure and Platform services – IaaS, PaaS
- Efficient business process adaptability
- Reduced cost and risks
LEGACY SYSTEMS MODERNIZATION

TRANSFORMATION FROM CURRENT TO THE TARGET STATE

ITERATIVE AND INCREMENTAL
INCREMENTAL MODERNIZATION CONCEPT

CURRENT STATE

BREAK INTO SMALLER MODULES

SMALLER, “BITE-SIZED” MODULES

CREATE ROADMAP TO SOLVE THE SMALLER PROBLEMS INCREMENTALLY AND ITERATIVELY

THE WHOLE PIZZA

ROADMAP

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The terms “business service” and “modules” are used interchangeably.

Business processes are decomposed to identify the modules using a top-down approach.

Finer-grained modules/services are composed to build more coarsely-grained services.

Module dependency and priorities are key contributors for the incremental modernization roadmap.

Modules are implemented incrementally and iteratively - the Modernization Roadmap.

Services (Modules) are the building blocks for the Service Oriented Enterprise.
RECOGNIZING THE MODERNIZATION CHALLENGES

- Unclear drivers
  - Business and technical drivers for the modernization are not unified amongst the stakeholders

- Stakeholder expectations
  - Strategic and tactical goals, objectives aren’t often identified and unified

- Lack of knowledge
  - Not enough knowledge of the people, process and technology aspect of the current legacy systems

- Complex dependencies
  - Complex dependencies amongst the legacy applications and external partners and suppliers

- Business continuity
  - The external partners and suppliers need to continue with their business process while transitioning from current to the target architecture state

- Different business priorities
  - External partners and suppliers may have different business priority to adopt to the modernized services

- Many cooks, many recipes
  - Multiple vendors may bring different approaches, architectures, tools and technologies

- New infrastructure and technology platform
  - Impacts on skillset requirements, technology management strategy, organization and process

- Organizational change impacts
  - Business process and new business ownership model and technology management process drives organization changes
<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Details</th>
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<tbody>
<tr>
<td>Reduced modernization risks</td>
<td>Reduced modernization risks through incremental and iterative modernization</td>
</tr>
<tr>
<td>Reuse</td>
<td>Potential to reuse some of the existing legacy components</td>
</tr>
<tr>
<td>Shared services</td>
<td>Opportunity to leverage or be leveraged</td>
</tr>
<tr>
<td>Improve business process efficiency</td>
<td>Opportunity to deliver business services more efficiently through reengineered business processes</td>
</tr>
<tr>
<td>Improve business process adaptability</td>
<td>Opportunity to improve business process adaptability to changes</td>
</tr>
<tr>
<td>Risk and compliance</td>
<td>Opportunity to reduce the risk and improve the compliance</td>
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</table>
A HYBRID MODEL COMBINING STAGE/GATE MODEL AND SERVICE ORIENTED ARCHITECTURE (SOA)
STAGE 1 – BUSINESS ANALYSIS

KEY QUESTIONS ADDRESSED

- WHY MODERNIZATION?
- DOES THE MODERNIZATION INITIATIVE ALIGN TO THE BUSINESS AND STRATEGIC ROADMAPS, GOALS AND OBJECTIVES?
- WHATS THE FUNDING MODEL FOR THE MODERNIZATION?
- WHO OWNS THE BUSINESS SERVICES AND MANAGE THE SERVICE PORTFOLIO?

ARTIFACTS

- MODERNIZATION BUSINESS CASE DEFINITION
- JUSTIFICATION FOR STRATEGIC ALIGNMENT
- SERVICE FUNDING MODEL
- ORGANIZATION READINESS
  SERVICE OWNERSHIP MODEL
AS-IS ANALYSIS PHASE

KEY OBJECTIVE

KNOWLEDGE IN-SOURCING

ANALYZING, DOCUMENTING AND GAINING KNOWLEDGE ABOUT PEOPLE, PROCESS AND TECHNOLOGY ASPECT OF THE LEGACY SYSTEM(S)
KNOWLEDGE IN-SOURCING – A MODEL DRIVEN APPROACH

1. **Actor (User/Partner/Supplier) Analysis**
   - Business Process Analysis & Modeling
   - Use Case Analysis & Modeling

2. **Use Case**
   - User Interface & Reports Analysis
   - System Interface Analysis
   - Program Code Analysis & Automated BPE
   - Data Quality Analysis
   - Technical, Data and Integration Architecture Analysis

3. **Data Analysis**
   - Business Vocabulary & Rules Analysis
   - Data Model
   - Use Case Model
   - Business Rules
   - Data Flow Diagram
   - User Interface Specification
   - System Interface Specification
   - Traceability - Functional to Implementation Components
   - Data Quality Analysis Report
The width and depth of as-is analysis and BRE need to be driven by specific project needs.
STAGE 2 – ALTERNATIVE ANALYSIS

AS-IS ANALYSIS

TO-BE ARCHITECTURE AND STRATEGY DEFINITION

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## Stage 2: Alternative Analysis – To-Be Architecture and Strategy

### A Checklist for Success

| Process Improvement Opportunities | Are there opportunities for improving the Business Process efficiency and adaptability? |
| User Experience | What are the opportunities for improving service delivery efficiency and end user satisfactions? |
| Alternatives and Lessons Learned | Is enough Market Analysis done to learn the opportunities and lessons learned from other states and the industry? |
| Reuse Opportunity | What legacy functions can be reused? |
| | What existing Business/Technical Services within and/or outside the organization can be used as a shared service? |
| Business Alignment | Is the Business Services (Modules) catalog defined and mapped to business goals and objectives? |
| Service Catalog | Are modules and their dependencies identified? |
| Module Priority | Are the priorities for the modernization of the modules defined that considers the business priority/criticality and dependencies? |
| Module Sourcing | Is the sourcing strategy (built/buy/web-enable/re-platform, etc.) for the modules defined? |
| Technology Management Strategy | Are the infrastructure, and platform sourcing, management, and governance plan established? |
| Technology Standards | Are the technology platform, tool, standards and best practices defined? |
| Foundation Technology Roadmap | Is there a roadmap milestone defined to establish the technology foundation? |
| Business Function Modernization Roadmap | Is there a roadmap established to modernize the business functions (modules) iteratively and incrementally? |
ARCHITECTURE AND STRATEGY: KEY TASKS AND DELIVERABLES

- Alternative analysis & to-be architecture definition
- Business services portfolio and module definition
- Market research
- Modernization strategy definition
- Service delivery strategy definition (Intake and API)
- Sourcing strategy, and costing
- Technology management strategy
- Technology foundation architecture roadmap definition
- Modernization roadmap definition
- Target business, information and technical architecture
- Transition state architectures
- Service delivery strategy
- Transition state architecture
- Business services portfolio
- Business service sourcing strategy
- Module definition & priorities
- Technology, standards & frameworks
- Infrastructure & platform strategy
- Foundation architecture roadmap
- Modernization roadmap
LAYING OUT THE FOUNDATION FOR ITERATIVE AND INCREMENTAL MODERNIZATION
### Mitigating the Incremental Modernization Challenges

<table>
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<tr>
<th>Challenges</th>
<th>Mitigation</th>
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<tr>
<td>Many cooks, many recipes</td>
<td>Define technology, standards &amp; frameworks</td>
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<tr>
<td>Business continuity</td>
<td>Define infrastructure &amp; platform strategy</td>
</tr>
<tr>
<td>Different business priorities for partners and suppliers</td>
<td>Establish foundation architecture</td>
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<td></td>
<td>Establish transition state architecture</td>
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ARCHITECTURE COMPONENTS AND RELATIONSHIPS

Managed Using Technology Management Strategy

Governance

Methods and Approach

Technology Strategy

Metrics

Policies

Process

Technical Services Needed to Implement and Deliver

Technology Reference Model (TRM) and Standards for Implementing, Integrating and Delivering Services

Delivers

Implemented Using

Aligned to

Derived From
KEY OBJECTIVES

- Establishing agile and flexible technology architecture using open industry standards
- Promote reuse of solutions
- Facilitate use and integration to commercial-off-the-self (COTS) products and solutions
- Tailor technologies and standards as necessary into robust solution sets

TECHNICAL STANDARDS CATEGORIES

- Architecture, analysis and design standards – industry standards and specifications for the planning, analysis, and design of software architecture
- Business enabling technologies - industry standards and specifications for process management involving definition, improvement, and innovation of business processes
- Service interoperability – industry standards and specifications for web service standards across platforms, operating systems, and programming languages
- Security and privacy – industry standards and specifications for securing information
- UX/UI standards and framework – standards for developing technology platform independent responsive user interfaces
ESTABLISH FOUNDATION ARCHITECTURE

1. Secure on-demand infrastructure architecture
   - In-premise or Infrastructure as a Service (IaaS)

2. Platform architecture – enabling capabilities for business and technical services
   - In-premise or Platform as a Service (PaaS)

3. Service integration hub
   - Enterprise service bus (ESB), API gateway, adapters, VETRO

4. Common technical services
   - Used to implement business services
   - Security, audit, logging, exception mgmt. etc.
## APPROACH

- Enterprise technical architecture adoption
- Performance management validation
- Service hub architecture
- SOA alignment
- Cloud computing – IaaS, PaaS
- Adoption of open industry standards and technology maturity
- COTS usage
- Technical model artifacts

## KEY COMPONENTS

- Methods and approaches
- Service live cycle management – process, methods, tools and technology for managing the end to end lifecycle of the business and technical services
- Governance process
- Metrics
- Policies
- Processes
- Technology strategy
Message brokering between heterogeneous environments
- Heterogeneous transports between service end points
- Configurable, Policy-driven, Centralized Security Enforcement – manage, monitor and enforce security
- Configurable, Policy-driven, Centralized SLA Management – manage, monitor and enforce SLAs
- Centralized service monitoring
- VETO/VETO
  - Message Validation (V)
  - Message Enrichment (E)
  - In-bound and out-bound Message Transformation (T)
  - Configuration-driven Routing (R)
  - Virtualized, Central Service Access – Operate (O)
MANAGING TRANSITION STATE
RECAP – MITIGATING THE CHALLENGES

- MANY COOKS MANY RECIPES
- BUSINESS CONTINUITY

- DEFINE TECHNOLOGY, STANDARDS & FRAMEWORKS
- DEFINE INFRASTRUCTURE & PLATFORM STRATEGY
- ESTABLISH FOUNDATION ARCHITECTURE

- DIFFERENT BUSINESS PRIORITIES FOR PARTNERS AND SUPPLIERS

- ESTABLISH TRANSITION STATE ARCHITECTURE
TRANSITION STATE ARCHITECTURE PATTERN

1. Modernize Business Service
2. Migrate Data
3. Integrate Service to ESB
4. Integrate Legacy Interface to ESB
5. Implement Data Transformation and Routing Rules
MODERNIZATION ROADMAP

IMPLEMENTATION ROADMAP

BREAK INTO SMALLER MODULES

CREATE ROADMAP FOR INCREMENTAL AND ITERATIVE IMPLEMENTATION OF MODULES

FOUNDATION INFRASTRUCTURE

FOUNDATION PLATFORM AND COMMON TECHNICAL SERVICES

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REALIZING THE TARGET STATE

1. ESTABLISH FOUNDATION INFRASTRUCTURE
2. ESTABLISH FOUNDATION TECHNOLOGY PLATFORM
3. ESTABLISH INTEGRATION INFRASTRUCTURE AND SERVICES
4A. IMPLEMENT MODULES
4B. INTEGRATE PARTNERS AND SUPPLIERS

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MODERNIZATION IMPLEMENTATION PHASE ROADMAP

PHASE II: IMPLEMENTATION (DD & I - ITERATIVE & INCREMENTAL)

- ESTABLISH FOUNDATION INFRASTRUCTURE AND TECHNOLOGY PLATFORM
- IMPLEMENT COMMON TECHNICAL SERVICES
- FOUNDATION PLATFORM READINESS
- MODULE 1
- MODULE 2, 3
- MODULE N

ITERATIVE AND INCREMENTAL

[RELEASE 1] MODULE 1

[RELEASE 2] MODULE 2, 3

[RELEASE N] MODULE N

SPRINT


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QUESTIONS?