**Mindtree Modernization Capabilities**

<table>
<thead>
<tr>
<th>Partnerships and Alliances</th>
<th>Sustain / Develop / Retire</th>
<th>Transform</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM Business Partner</td>
<td>Application maintenance</td>
<td>Re-engineering</td>
</tr>
<tr>
<td>Global Alliance with Clerity Solutions</td>
<td>Production support</td>
<td>SOA enable, Web enable</td>
</tr>
<tr>
<td>Partnered with Micro Focus for expertise in productivity Tools</td>
<td>Application Decommissioning</td>
<td>Hybrid Solutions</td>
</tr>
<tr>
<td>Partnered with Leading resource provider for VisionPLUS</td>
<td>LEAN AMS</td>
<td>Re-platforming</td>
</tr>
<tr>
<td></td>
<td>System consolidation</td>
<td>Proprietary Tools and accelerators</td>
</tr>
</tbody>
</table>

Consulting & Architecture | Mainframe and Mid-range CoEs | Cross skilled technology experts | Domain depth

- **40+** Proprietary tools
- **12+** Years of providing services
- **17+** Active customers
- **400+** Strong Mainframe & Midrange minds
- **80+** Modernization experts
Technology Expertise

**Mainframe Technologies**
- IBM Mainframe – IBM DB2, CICS, IMS, COBOL, PL/I
- Mainframe – Non IBM IDMS, ADS/O, ADABAS, DATACOM...
- CASE Tools and 4G - PACBASE, Cool Gen, NATURAL, SAS...
- Modernization Products - Re-Hosting tools, MQ, CTG, DB2 Connect

**System I**
- Languages - RPG (All Versions) & COBOL using SEU/Rdi
- Case Tools and 4GLs - LANSA, SYNON, AS/SET
- Modernization Products - Rational HATS, New Look, RAMP from LANS
- Change Management Tools - Aldon, MKS, Thenon

**Tools Expertise**
- Analysis and Reporting – In-house Portfolio Assessment tool, Micro Focus EA, ITP-Panorama, X-Analysis
- Modernization - Micro Focus MW, Revolve, Clerity, LANS Suite, X2E, IBM TX-Series, HATS
- SOA tools - Microfocus SOA Express, Ivory Service Architect, RDi
- Migration tools - IMS to RDBMS, IDMS to RDBMS, DB2 to Oracle, ADABAS to RDBMS
MMS Service Offerings

**Managed Maintenance**

- Consolidate, Optimize
  - Consolidated OLTP
  - Consolidated Programming Language
  - Consolidated Database
  - Consolidated Tools, Utilities
  - Application Retirement
  - Optimized Application

**Integrate, Modernize**

- Portfolio Assessment
- Web Enablement
- Data / App Integration
- Re-hosting
- SOA Enablement
- Re-platforming

**BAU**

- Incremental Evolution

**Accelerated and Risk Mitigated Delivery using Automation Tools**
## Legacy Modernization Experience

<table>
<thead>
<tr>
<th>Company Type</th>
<th>Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>One of the largest insurance companies in the world</strong></td>
<td>Design, development of new treaty system to replace 6 reinsurance system on an enterprise treaty platform for across 130 operating countries. Reduced the contract creation and setup approval time reduced from 15 days to 1 day, TCO improvement of 2Mn in 4 years.</td>
</tr>
<tr>
<td><strong>Global reinsurance company</strong></td>
<td>Design and development of new unified loss control platform. The new system replaced the old legacy systems with new web platform and improved the risk inspection and underwriting cycle time by 60%.</td>
</tr>
<tr>
<td><strong>Leading P&amp;C Insurer from North America</strong></td>
<td>Modernization of underwriting workbench consolidating 20+ underwriting applications across 30 countries for process standardization. Leveraged SAP Camilion platform to improve cycle time and business process efficiency.</td>
</tr>
<tr>
<td><strong>Leading P&amp;C Insurer from Middle East</strong></td>
<td>Design and development of new policy admin system (green field development) for a leading customer of Middle East in record 10 months. The new PAS is designed for commercial LOB for SME segment with objective to improve topline by 25%. The system support 20+ commercial LOBS including packaged policies.</td>
</tr>
<tr>
<td><strong>Leading Composite Insurer of UK</strong></td>
<td>End to end case management system for streamlining electronic processing of Claims management and workflow for 3 regions and 15+ departments. Automation of all manual processes leveraging Tibco AMX BPM, Java. Improved claim team productivity up to 60%.</td>
</tr>
<tr>
<td><strong>Leading Travel &amp; Transportation company</strong></td>
<td>Portfolio Analysis with an objective to cut dependency on the IBM Z9 mainframe platform. Migration of the As-Is system to the To-Be system. Reduction in TCO over 7 MN in 4 years and improvement in staff productivity.</td>
</tr>
</tbody>
</table>
Modernization Steps

**Plan**
- Portfolio Assessment
- PoCs and Pilots
- Modernization Strategy
- Implementation Road map
- Risk Analysis, Business Case

**Prepare**
- Source: Inventory Analysis and Cleanup, Re-factor, Optimize, Re-document
- Target: Platform, Architecture, Tools, Products and Framework Selection

**Execute**
- Develop, Automation, Data migration, Integration, Deploy, System Testing, Parallel run, UAT, Transition, Decommission, Reskilling, etc.
Modernization Techniques

- **Re-host**: Quick & Low Risk, No change in user experience, Improved developer productivity. ROI in 2-5 Years. Example: Re-platform using mainframe environment emulation products. Suitable for: Stable Relatively standalone application mostly using vanilla technology stack.

- **Re-write (Re-develop)**: Good alignment to technology, architecture and business objectives. Gather functional requirements in a top-down manner and develop the application from ground-up. Major changes in design and functionality for better flexibility or business transformation. Suitable for: Business Critical applications that need to be harvested and re-architected.

- **Re-facade (UI-Modernization)**: Improved User Experience, Productivity, Workflow optimization, Avoid duplicate Data entry. Quick and low cost. Example: Web / Mobile enable. Suitable for: Stable application, Source code not available or highly monolithic application.

- **Re-use (Application Integration)**: Enable Legacy for reuse in composite applications, Avoid functional duplication. Moderate Cost. Example: Business Logic / Transaction Integration, Data Integration. Suitable for: All types of reuse. Monolithic applications might need re-factoring to prepare for reuse.

- **Re-place / Re-tire**: Avoid the burden of maintaining non-core functions like HR and Finance, Leverage Industry best practices built into COTS products. Example: Replace HR and Finance functionality with an ERP solution. Suitable when the functionality is pretty much standard and the organization is willing to re-align its processes to COTS.

- **Re-engineer**: Good technology and architecture alignment. Reuse legacy application logic. Reverse engineer the legacy application to extract the business logic and Forward engineer. Suitable for: Business Critical applications that need to be harvested and re-architected.
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  - Gather functional requirements in a top-down manner and develop the application from ground-up
  - Suitable for: Stable Relatively standalone application mostly using vanilla technology stack

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  - Quick and low cost
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  - Suitable for: Stable application, Source code not available or highly monolithic application

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  - Good technology and architecture alignment.
  - Reuse legacy application logic
  - Reverse engineer the legacy application to extract the business logic and Forward engineer
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  - ROI in 2-5 Years
  - Example: Re-platform using mainframe environment emulation products
  - Suitable for: Business Critical applications that need to be harvested and re-architected

Major changes in design and functionality for better flexibility or business transformation.
Detailed Modernization Approach

Source

Solution Requirements

Solution Architecture

Application Design

Program Code

Database

Target

Solution Requirements

Solution Architecture

Application Design

Program Code

Database

Analysis & Conversion Tools

Code generators

Data Migration & Automation

- Regression Tools
- Performance Tools
- Unit Test and Coverage
- Data comparison
- Integration
- Parallel Testing
- Config. and Ver. Management
Modernization Methodology

Modernization Life Cycle

Stage 1: Planning
- Assess Source System
- Risk Analysis
- Assess Modernization Objectives and Feasibility

Stage 2: Execution
- Strategy
  - Plan
    - Options
    - Approach
    - Requirements
    - Deliverables
  - Cost, Timeline
- Proof of Concept
- Design and Develop
  - DB and Data
  - Application
  - Validate Strategy
- Modularize
- Migration or Integration
  - Regression Test
  - System Test
  - UAT
  - Non-functional

Stage 3: Validation
Stage 4: Implementation
- Test
- Deploy
- Retrofits

Set Goals and Critical Success Measures

Tools Management, Issue Management
Review and Control Modernization Activities

Knowledge Management - Build Knowledge Repository

Quality and Risk Management

Project Governance and Communications Management
# Typical Transformation Solutions Compared

<table>
<thead>
<tr>
<th>Transformation Option</th>
<th>Evaluation Parameters</th>
<th>Automated Migration (Conversion or Code Translation)</th>
<th>Re-engineer to new technology (e.g. Java/.NET)</th>
<th>Re-Host to Distributed Platform</th>
<th>Replace with a COTS Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation time</td>
<td></td>
<td>Medium</td>
<td>High</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Cost:</td>
<td></td>
<td>Medium High</td>
<td>High</td>
<td>Low Medium</td>
<td>High Medium</td>
</tr>
<tr>
<td>-- Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-- Ongoing maintenance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vendor Lock-in</td>
<td></td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Risk</td>
<td></td>
<td>Medium</td>
<td>High</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Application Changes</td>
<td></td>
<td>Medium</td>
<td>High</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Skills Availability</td>
<td></td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Alignment With Business Objective</td>
<td></td>
<td>Medium</td>
<td>High</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Code Standard and Maintainability</td>
<td></td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Modern Architecture Compliance</td>
<td></td>
<td>Medium</td>
<td>High</td>
<td>Low</td>
<td>Medium</td>
</tr>
</tbody>
</table>

Mindtree
Modernization Best Practices

• Understand and manage the complete ecosystem, not just code and data – Interfaces, Output Management, Report writing, Printing, Security, Scheduler etc.
• Establish a target “Architecture”
• “Optimum” Automation
• Phased Implementation
• No functional changes “during” migration. Refactoring, Standardization, Enhancement etc. can be carried out post-stabilization
• Code Freeze and Retrofit management
• Managing SME bandwidth across BAU and Modernization initiative
• Proven testing methodology and appropriate automation
• Managing NFRs
• Infrastructure Architecture and Capacity planning
• Mapping and implementation of SDLC and Operation Support Tools
• Organization Change Management – Developers, Admins, End users, Vendor Management etc.
## Solution Accelerators

### Analysis and reporting tools
- Relativity Modernization workbench (RMW), Micro Focus EA,
- Internal Developed Portfolio Analysis Tools on REXX, Java

### Mainframe Modernization Tools
- **Micro Focus products**: Migration Toolkit, Modernization Workbench (MW), Revolve
- **Clerity products**: Migration Suite, Open PL1
- **IBM Products**: TX series, Host access Transformation services (HATS), WebSphere Suite

### Database Conversion Tools
- IMS to RDBMS, IDMS to RDBMS, ADABAS to RDBMS, DB2 to Oracle

### SOA tools
- Micro Focus SOA Express, Ivory Service Architect

### Platform Consolidation Tools
- Hitachi, Natural Online maps to BMS screen, Non-IBM to IBM JCL
“Let’s unleash possibilities”

Karan Maini
Director – Banking & Financial Services
Karan_Maini@mindtree.com
+1 201 675 7033