

# ADA SOFTWARE

The automated software modernization company

Global proponents of Model Driven Architecture (MDA)

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When one needs a heart bypass, one goes to a cardiac surgeon.  
When one needs the best storage solutions, one goes to EMC, the storage specialists.  
Why would you go to Accenture, Cap Gemini, Tata or Infosys for software modernization?  
**WE ARE THE SOFTWARE MODERNIZATION SPECIALISTS. IT IS ALL WE DO.**

MDA  
Transformation

Modernization &  
Migration

Partial  
Modernization

Code Analysis &  
Documentation

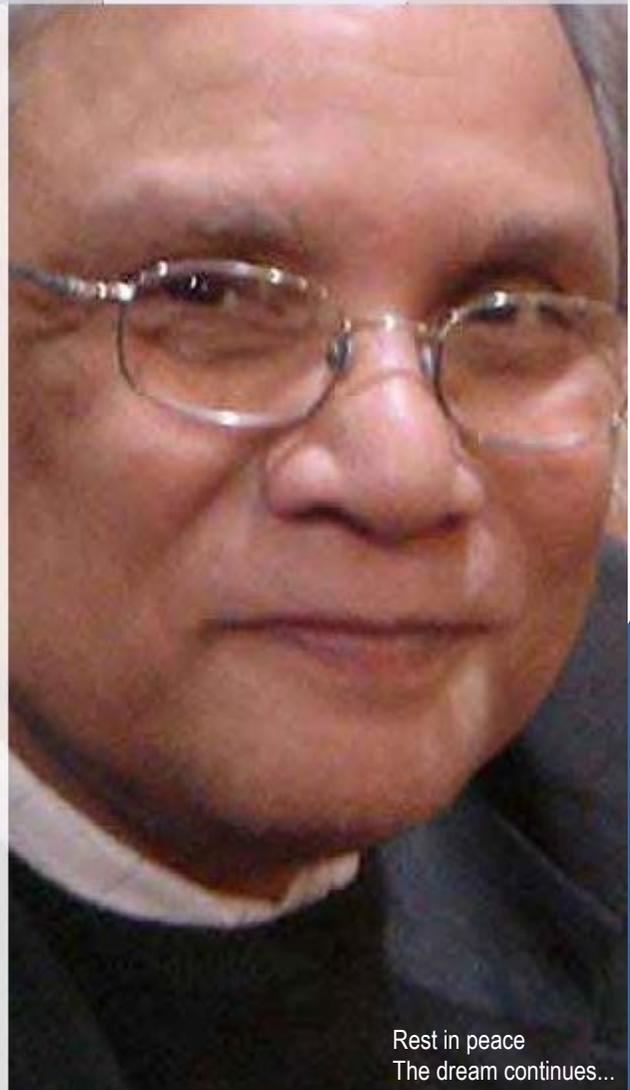
Business  
Process  
Management

## OUR ROOTS AND OUR LINEAGE

An icon of the Software Industry, DK Bose embodied a relentless passion for technology and innovation. A firm believer in tool based development as opposed to brute-force coding, DK Bose named our company with an acronym for Application development Aid: ADA.

In 1981 when thousands of Auto coder programs needed to be migrated from IBM-1401 to ICL 2904-50, he developed COBGEN, a COBOL generator that pre-dates the earliest patented COBOL generator on record. Since then, he has been a thought Leader in automated application migration and legacy code modernization. In 1989, when Chris Stone founded the object Management Group (OMG) along with Dr. Richard Soley, its current Chairman & CEO, it was no surprise that DK Bose was right there to lend support to this potent vendor-neutral research & standard body for innovation in software engineering. As a result, ADA has been a staunch OMG member since its inception, and became a global proponent of Model Driven Architecture (MDA) ever since the standard was published by the OMG. In fact, we were one of the first organizations to be certified as an MDA Fast start Quality Service Provider.

Our code analysis and migration tools enjoy over 25 years history and are today both open systems and MDA-compliant. They can be as tightly or loosely coupled to MDA as the situation and your budget demands.



Rest in peace  
The dream continues...

MEMBER



OBJECT MANAGEMENT GROUP

[www.adasoftusa.com](http://www.adasoftusa.com)

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# EXECUTIVE SUMMARY

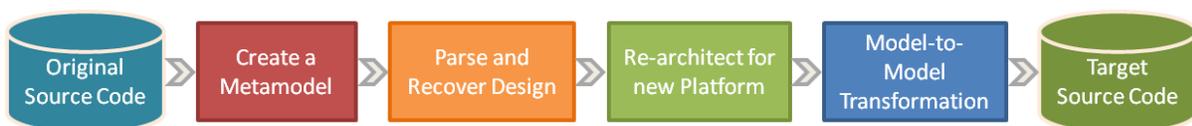
Software modernization is usually the remedy wherever software maintenance costs are high, business agility is low, integration is poor or interoperability is deficient - which are also the commonest problems affecting most companies. Hence the appetite for software modernization is high and budgets are beginning to recognize the need. Forrester Research recently published that application modernization and migration budgets are currently very strong, covering between 25% to 61% of most companies' IT budgets in 2009/2010.

Traditional software modernization alternatives involving brute force rewrite, new development or replacement by packaged ERP are all costly, time consuming and inaccurate solutions that discard years of goodness inculcated into legacy software assets. Automated software modernization is the best solution that is fast, low cost, preserves legacy value and is least risky.

OMG's Model Driven Architecture (MDA) methodology provides an automated model-driven reverse engineering and forward engineering process called Architecture Driven Modernization (ADM) which has already been successfully adopted by a variety of high profile organizations such as Boeing, U.S. Air Force, Raytheon, EDS, Thales (European Aerospace) and governments.

ADA Software is one of a handful of OMG Member Companies that has focused on being an Automated Software Modernization Expert. That is all we do. All our tools are OMG compliant.

Our process involves building a Metamodel of your source languages and using our parsing technology (based on OMG's Knowledge Discovery Metamodel) to extract all system information, business semantics and software artifacts into an XML Repository called the Abstract Syntax Tree Metamodel. From here we use MDA's automated model-to-model (M2M) transformation procedures to generate a new source code of your choice. In between, we manually architect the target application before setting up the M2M procedures. So you get the best of both worlds: the speed, low cost and accuracy of an automated process, and the flexibility of human intelligence.



The process is language independent and domain agnostic. We are applying MDA not only for software modernization and migrations, but also in many innovative ways to help you harness your Excel sheets that are running out of control everywhere; make Cloud Computing easier for you by helping to port your apps to the Cloud or from one Cloud to another; document your old software automatically; making your email archives come alive with on-demand knowledge mining; and so on.

# TYPICAL CLIENT PROBLEMS THAT WE SOLVE

1. An old COBOL application running on IBM Mainframes has many problems: (a) It does not have the modern user interface that makes people more productive. (b) We cannot justify the cost of operating an IBM Mainframe environment when the same work can be accomplished on a powerful Windows Server. (c) It is very difficult and costly to find experienced COBOL programmers to maintain the software. (d) Marketing is demanding Extranet and Web Service facilities for clients, because our competition offers those facilities.
2. An old application written in 'C', which runs some core production floor processes, used to be such a wonderful asset for the company. But now it is taking forever to make simple changes. Last week marketing was livid because they lost an order due to our inability to switch from one product line to another quickly enough. This week a supposedly simple change introduced a bug that halted production for over 2 hours. IT chief claims that over time the source code has become very difficult to maintain because there is a lot of spaghetti code, dead code and duplicate code. To top it all, the documentation is almost useless because it was not kept updated as the software was changed.
3. We want to move our Sales Order System to the Cloud but the dynamic nature of IP address assignment within a cloud environment poses new challenges for how we handle database clustering and failover rules. There are other known issues as well and those, coupled with the perceived risk of the unknown, is preventing us from moving to the cloud quickly.
4. A Visual Basic 6 application that was developed barely five years away has become a major headache because after Microsoft dropped support for VB6, the third-party components vendors started releasing only .NET versions of their components and stopped supporting the VB6 versions. When bugs are discovered in those components we have to design workarounds. We can't find any good developer who wants to work in VB6. Now our customers are demanding a User Interface that a critical third-party control does not support. So we might have to replace the entire component with custom VB6 code that will cost us a ton of money and bunch of time that we can ill afford.
5. We have an incentive computation system for our 15,000 strong salesforce that started on the IBM Mainframe using the IMS database. Then some additional functionality needed the IDMS database. Now we have combined this app with our payroll app that uses DB2. Now the management does not want to pay all these different license fees and want us to consolidate all data into the DB2 database platform.
6. Many of our core business processes run on the IBM Mainframe, but most of our new applications over the past seven years have been developed on Java. Now the management has decided to eliminate the Mainframe and move all COBOL apps to the J2EE platform.
7. Our company recently acquired a logistics firm to strengthen our delivery operations. The problem is, we have standardized our information systems on the J2EE platform, while the newly acquired firm has a mixture of .NET, COBOL and even Visual Foxpro apps. All of those now need to be moved to J2EE.

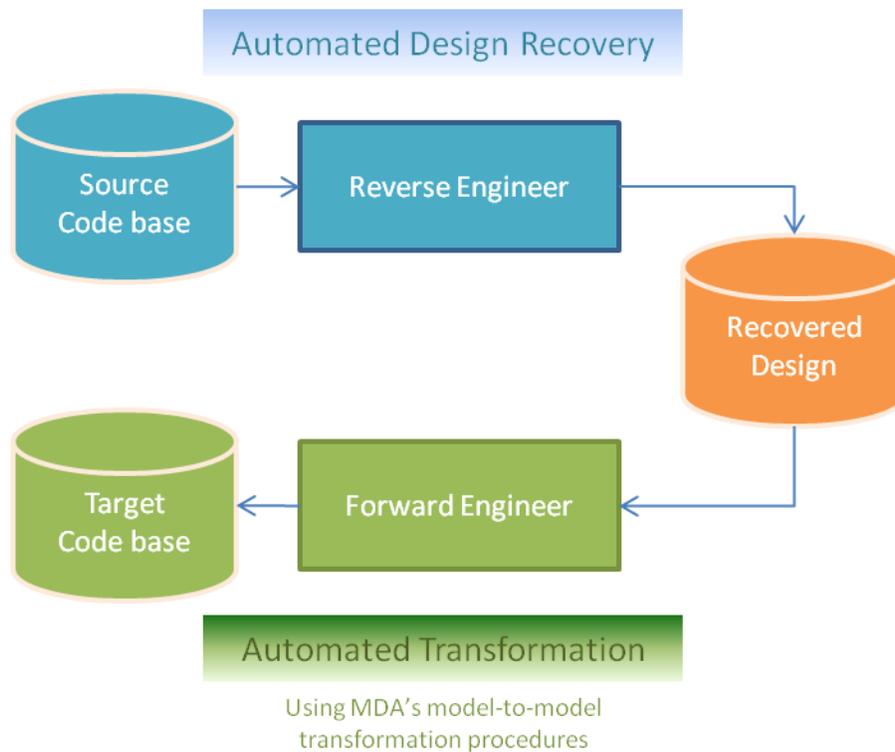
# AUTOMATED SOFTWARE MODERNIZATION

Automated software modernization is a tool-based approach where there is no manual code conversion and all new source code is automatically generated by tools.

However, this is not a push-button black box that is ready to go out of the box. The more successful automated methodologies involve a detailed manual process during which the tools are setup and configured for the exact job at hand before an indefinite volume of code can be processed successfully.

We use a formal, well-defined methodology based on the Model Driven Architecture (MDA) and the Architecture Driven Modernization (ADM) standards formulated by the Object Management Group (OMG).

This modeling approach utilizes meta-models and parsers for design recovery in a reverse engineering step, and then model-to-model transformation procedures to forward engineer the recovered design on to a new platform, as illustrated in the schematic below.



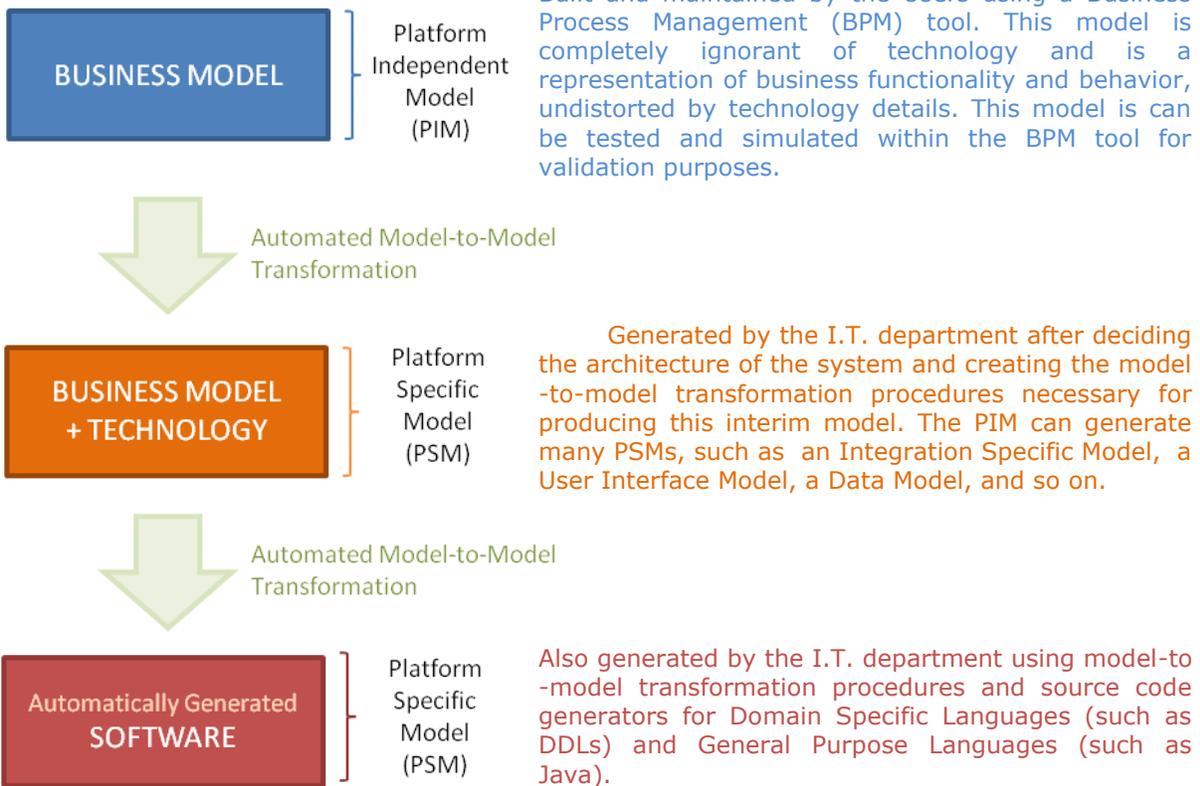
## MODEL DRIVEN ARCHITECTURE (MDA)

Model Driven Architecture is a software engineering methodology that:

- Uses models to understand, design, construct, deploy and maintain software; and
- Insulates “business” from “technology” so that each side can focus on their area of expertise instead of trying to communicate ineffectively with one another.

## SOFTWARE MODERNIZATION

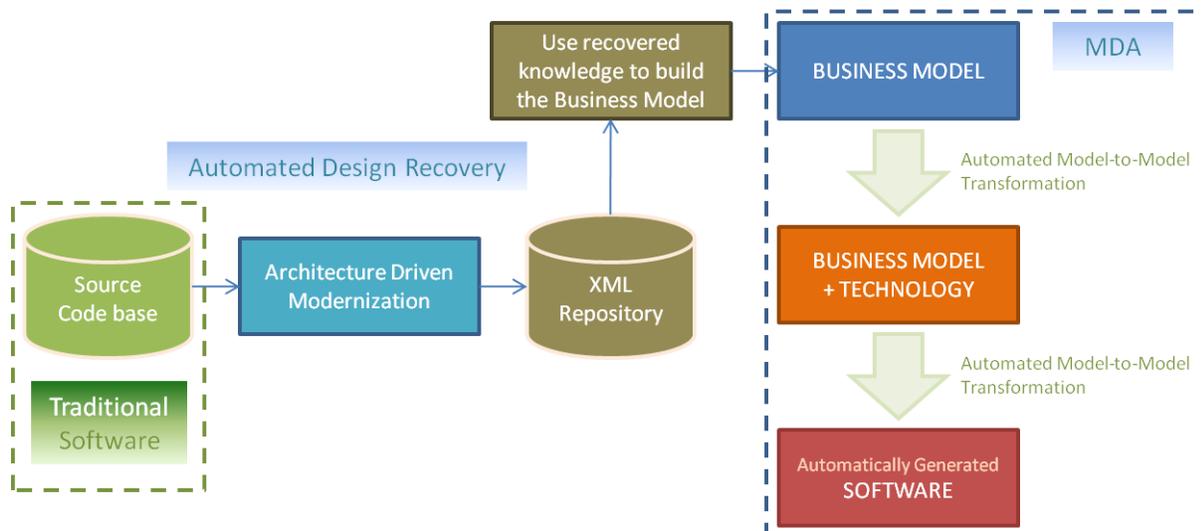
### THE MDA STACK



### ARCHITECTURE DRIVEN MODERNIZATION (ADM)

ADM is the process of understanding and evolving existing software assets for the purpose of software modernization, migration, porting and improvement. It borrows from various other OMG standards such as: Knowledge Discovery Metamodel (KDM), Abstract Syntax Tree Metamodel (ASTM) and Software Metrics Metamodel (SMM).

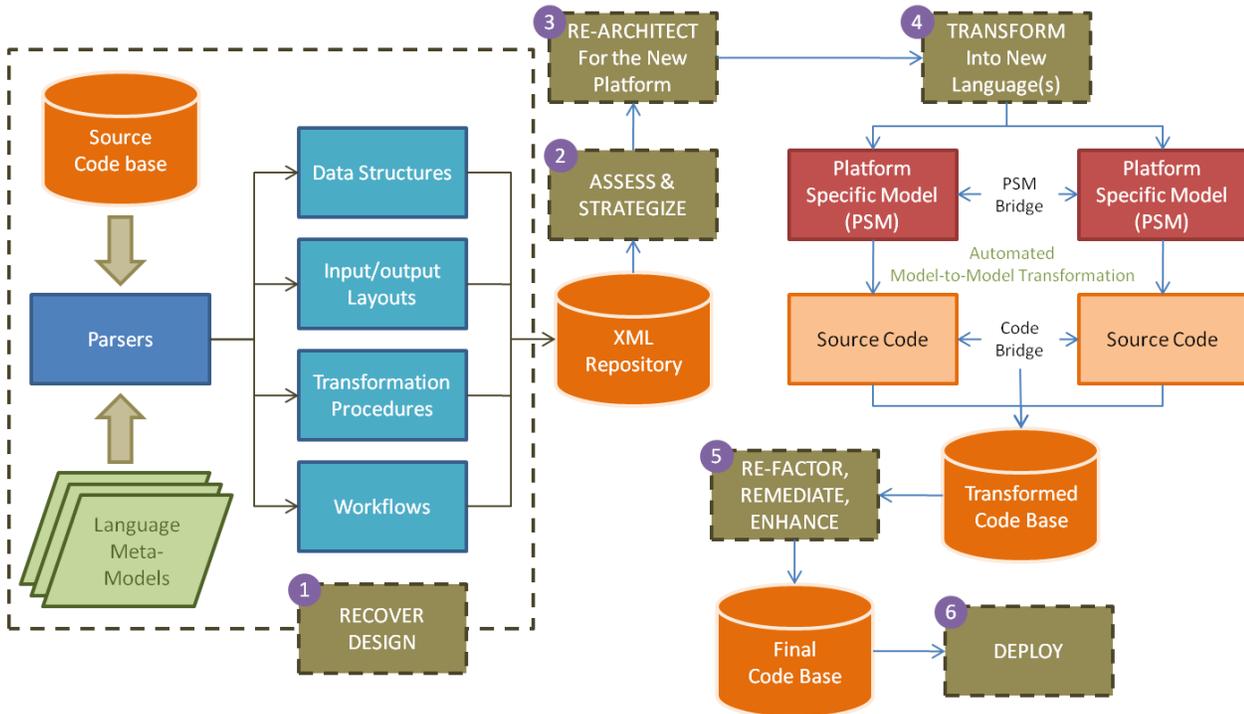
### Using ADM for migrating software to MDA



THE END-TO-END PROCESS OF MIGRATION

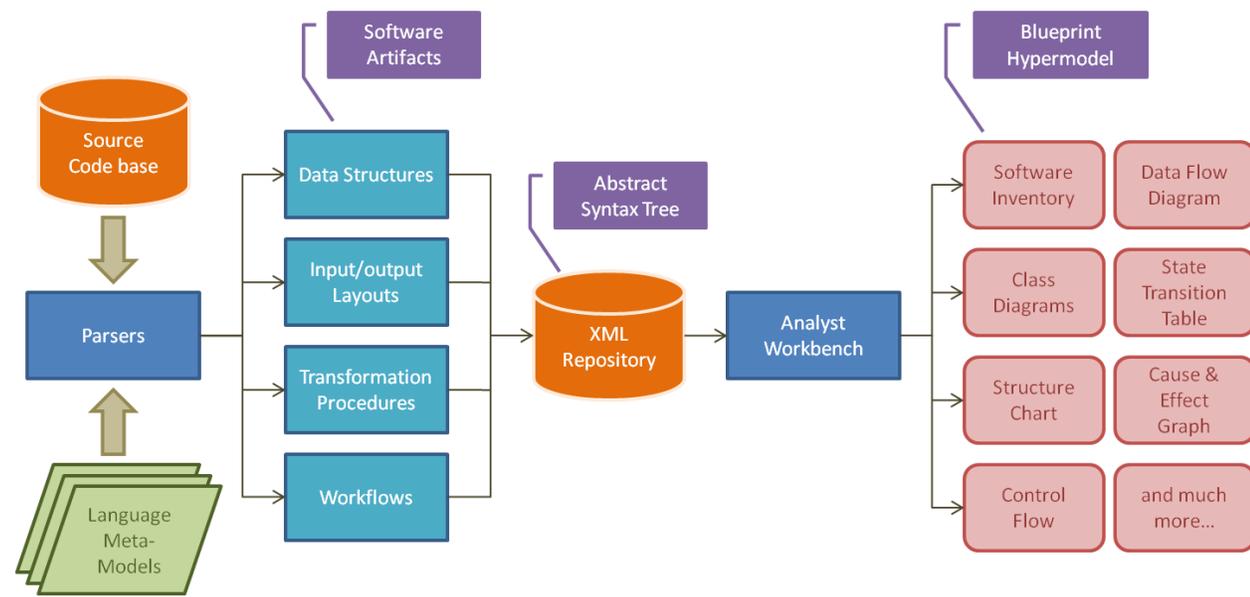
The following schematic provides an overview of the end-to-end process of migrating an application from one platform to another.

Transformation Process Overview



Here is a process schematic for producing a Blueprint Hypermodel for application analysis.

Blueprint Hypermodel Generation



# ADVANTAGES OF WORKING WITH ADA

This could benefit your clients in one or more of the following ways:

- Migrate legacy applications from mainframes to modern technology and smaller systems, thereby:
  - Reducing TCO through eliminating licensing, reduced operational manpower, and increased energy efficiencies.
  - Increasing business agility, and other attendant MDA benefits listed above.
- At a reasonable cost, migrate applications from one platform (technology base) to another to embrace new technology that the market needs.
- Generate automatic and dynamically maintained technical documentation of any source code; the documentation changes automatically as soon as a programmer modifies any program; documentation keeps pace with the source code and is never obsolete or wrong.
- Move end-user computing (defined as end-user developed Excel Sheets and MS Access database applications) to a controlled, secure and redundant environment that is also compliant with regulatory requirements. Until MDA came along, there was no automated technology to do this quickly, painlessly and in a cost effective manner.
- Develop impact analysis dashboards for programmers to make them far more productive.
- Implement a Knowledge Management initiative to institutionalize all knowledge within the organization.

Many companies can provide you with services.

Only some can give you cutting-edge technology.

*With us you also get a True Partner.*

BECAUSE

We will embed your sales team into our operations.

You will have complete knowledge of what is happening with your pre-sales and projects.

We provide project management transparency that you can pass on to you clients.

We are realistic and have reasonable expectations from you.

We focus on providing excellent value - consistently.