

Enterprise Application Integration (EAI)

Chapter 6 The EAI Process—Methodology or Madness?



I do not fear computers. I fear lack of them.

Isaac Asimov

Introduction

- Our goal is to provide a workable checklist of the issues that need to be considered within the context of any given EAI project.

Applying a Procedure/Methodology

1. Understanding the enterprise and problem domain
2. Making sense of the data
3. Making sense of the processes
4. Identifying any application interfaces
5. Identifying the business events
6. Identifying the data transformation scenarios
7. Mapping information movement
8. Applying technology
9. Testing, testing, testing
10. Considering performance
11. Defining the value
12. Creating maintenance procedures

Step 1: Understanding the Enterprise and Problem Domain

- Sounds simple, huh?
 - Too bad this is the most complex and time-consuming part of the entire process. However, it is unavoidable.
 - Structure and content of the various information systems
 - How they do business, what's important, and, perhaps more importantly, what's not
 - The quality of the information gathering at this step leads directly to, and impacts the success of steps 2 and 3

Step 2: Making Sense of the Data

- We begin with the data for a couple of reasons:
 - Most EAI projects exist only at the data level
 - Even if the EAI project works at the method, application interface, and user interface levels, it is still necessary to understand the databases
- Understanding where the data exists, gathering information about the data (e.g., schema information), and applying business principles to determine which data flows where, and why

Step 2: Making Sense of the Data (cont.)

- Identifying the Data
 - Unfortunately, there are no shortcuts to identifying data within an enterprise.
- The Data Dictionary
 - Illuminate such important information
- Integrity Issues
 - The lack of integrity controls at the data level could result in profound problems

Step 2: Making Sense of the Data (cont.)

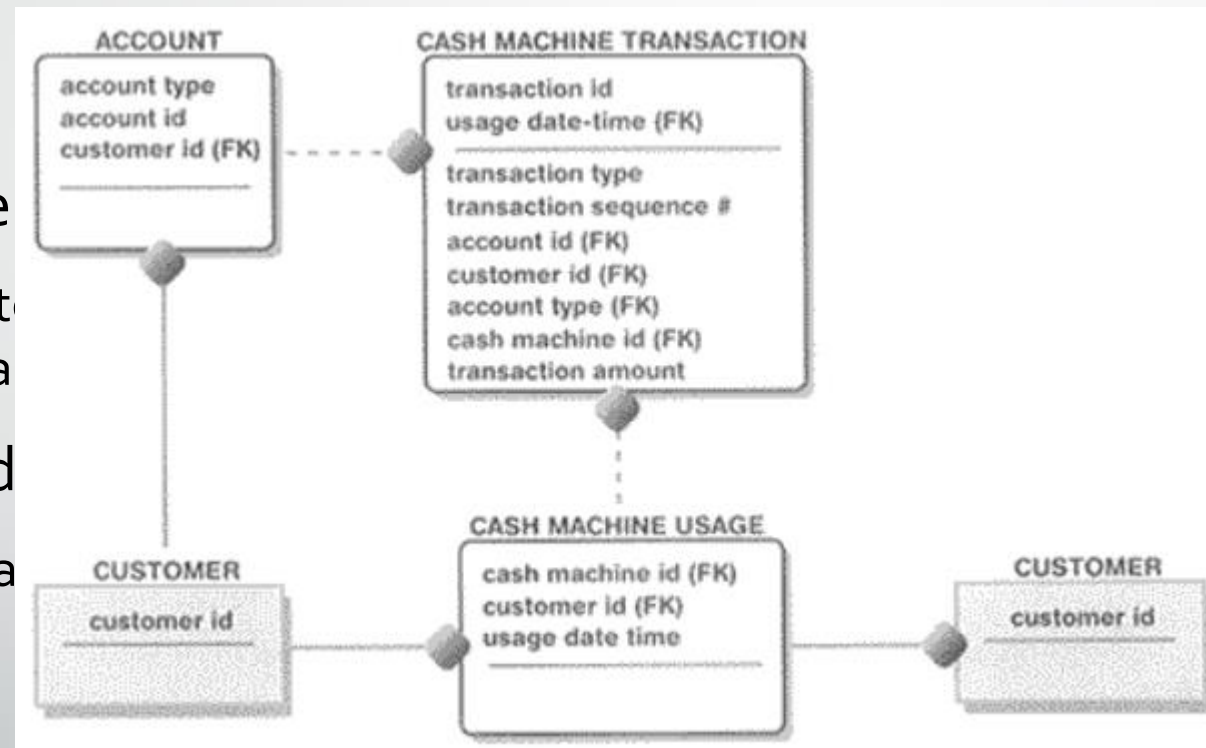
- Data Latency
 - **Real-time:** Data is updated as it enters the database, and that information is available immediately to anyone, or any application, requiring it for processing.
 - **Near-time:** Data refers to information that is updated at set intervals rather than instantaneously. Data only as timely as needed.
 - **One-time:** Data is typically updated only once.

Step 2: Making Sense of the Data (cont.)

- Data Formats
 - How information is structured, including the properties of the data elements existing within that structure
- Data Cataloging
 - A data catalog is not the enterprise metadata. It is the foundation of the metadata.

Step 2: Making Sense of the Data (cont.)

- Building the Logical Model
 - It is best to start with a problem and then build a solution.
- Logical Model
 - At the head of the parade is the Entity-Relationship Diagram (ERD)



ons to your EAI
solution.

m (ERD)

Step 2: Making Sense of the Data (cont.)

- Physical Model

- The myriad of database types in any given enterprise minimizes the importance of the physical enterprise model.
- There is simply no clear way to create a physical model that maps down to object-oriented, multidimensional, hierarchical, flat files, and relational databases all at the same time.

Step 2: Making Sense of the Data (cont.)

- Normalizing the Enterprise
 - Reducing the amount of redundant data that will exist in the database
 - Whenever possible, it is best to leave the applications and databases alone. Changes to databases inevitably translate into expense and risk

Step 3: Making Sense of the Processes

- Process Integration
 - Identifying processes
 - Determine ownership of the processes
 - Documentation for the application will need to be found
- Process Cataloging
 - In the same way that data-level EAI requires a data-level catalog, method-level EAI requires a "process catalog"
 - Flowchart, object model

Step 4: Identifying Application Interfaces

- Application Interface Directory
 - List of business processes that are available from an application
 - Application Semantics: To understand which terms mean what in which applications
 - Business Processes: listings of functions or methods provided by the application.

Step 5: Identifying the Business Events

- Identification of all relevant business events that occur within an enterprise.
- When something happens—an event —then there is a resulting reaction

Step 6: Identifying the Schema and Content Transformation Scenarios

- How schema and content of the data moving between systems will be transformed.
- Necessary for a couple of reasons:
 - First, data existing in one system won't make sense to another until the data schema and content is reformatted to make sense to the target system.
 - Second, it will assure the maintenance of consistent application semantics from system to system

Step 7: Mapping Information Movement

- Map the information movement from system to system
 - What data element or interface the information is moving from, and to where that information will ultimately move

Step 8: Applying Technology

- Selecting the proper enabling technology to solve the EAI problem
 - Application servers, distributed objects, and message brokers

Step 9: Testing, Testing, Testing

- Expensive and time consuming
- If an EAI solution is not tested properly, then disaster looms large
 - Important data can be overwritten (and thus lost)
 - Erroneous information could appear within applications
- To insure proper testing, a test plan will have to be put in place

Step 10: Considering Performance

- Performance is too often ignored until it's too late
- EAI systems that don't perform well are destined to fail
- So, how do you build performance into a system?
 - By designing for performance and by testing performance before going live
 - The architecture of the EAI solution needs to provide the infrastructure for performance

Step 11: Defining the Value

- Two things should be considered here:
 - The **soft** and **hard** dollar savings.
 - Hard dollars, simply put, represent the value of the EAI solution easily defined by the ability for the solution to eliminate costly processes, such as automating manual processes, reducing error rates, or processing customer orders more quickly
 - In contrast, soft dollar savings are more difficult to define. These savings include increased productivity over time, retention rate increase due to the ability to make systems work together for the users, and customer satisfaction (based on ease of use) with an organization with integrated systems

Step 12: Creating Maintenance Procedures

- Last but not least, it is necessary to consider how an EAI solution will be maintained over time
 - Who will manage security? Who will monitor system performance and solve problems?

Method or Madness?

- Our goal here has been to outline the activities that may be necessary for your EAI project
- EAI solutions are as unique as snowflakes
- Common patterns emerge that allow us to share best practices in creating an EAI solution