Contents

1.   OVERVIEW

The greatest challenge today of IT organizations is Integration. Enterprises have underestimated the complexity of application integration and maintenance. Up to now vendors typically delivered proprietary, internal-facing, application-specific integration solutions that perpetuate and even exacerbate the problem.

Business today is moving at an ever-increasing velocity. Today's integration priority has to support continuously changing key business processes that span the enterprise and extend beyond the enterprise to partners, suppliers, and customers. Therefore organizations need to connect an increasing number of packaged and legacy applications.

To meet the target : "To get efficiency ", organizations must be able to respond quickly to changing conditions.

Cross-application integration is imperative where integration of one application has no impact on the integration of the other applications. Here cross-application integration achieves real-time visibility and responsiveness.

Most often system integration is coupled with the inherent costs and complexity. Finally it burdens IT staffs with the integration maintenance and implementation and results in a rigid and inflexible IT infrastructure. A lot of companies are not able to develop on the fly business processes for cross-application to cover customer dynamics. Therefore the application infrastructure is no longer a competitive advantage , the organization is limited to the static rules of the application environment.

Nowadays many CIO's are recognizing these problems, and discovering that the integration problem was never addressed from a business perspective.

The situation today : There is no given customizable, cost-effective, technology-independent Infrastructure for the implementation and execution of application-independent, enterprise-wide business processes.

2.   WHY EAI

Normally customers begin with a single interface to cover a single integration problem. In reality, organizations must integrate a wide range of disparate applications in the near future

to support complex business processes that cut across multiple applications and organizational

boundaries.

This is further complicated by the fragmentation of data across multiple silos, problems of data redundancy, and lack of real-time access to critical information.

Traditional approaches rely on custom development, so they are difficult to maintain or extend. Mostly these Integrations are specially designed for the systems and therefore depend on software and infrastructure.

The result of no reusability : re-implementation of integration is necessary as soon as the application environment, supporting cross-application business processes, changes.

Significant limits on a organizations' ability are set on high cost and technical complexity of integration to achieve the strategic benefits that are possible from cross-application business processes.

Up to now no integration tool breaks the barriers of high cost and technical complexity to deliver the full benefits of multi-application integration.

Nonetheless, a lot of companies have made the bad experience of choosing the "best-in-class applications".

They finally spent a lot of money, and just get the best individual integration, which they already had before, only based on a modern platform. From a business point of view, no organization can run its entire business on a single application suite, even if SAP denies that fact.

3. **THE CATEGORIES OF INTEGRATION**

Point-to-Point

This approach focuses on data-level integration. Each application is separately interfaced with other applications it needs to connect with. Therefore it is cost-intensive and on the logical site it becomes unmanageable as the number of applications requiring integration increases: The "effort number" increases dramatically : $[n \times (n-1)]/2$, where n is the number of applications.

If any of the imbedded applications is upgraded or replaced, all of the one-to-one connections must be re-implemented.

Today's IT organizations feel comfortable with this architecture, because they want to keep their headcount at the same level and huge integration service organizations get their service at customer site.
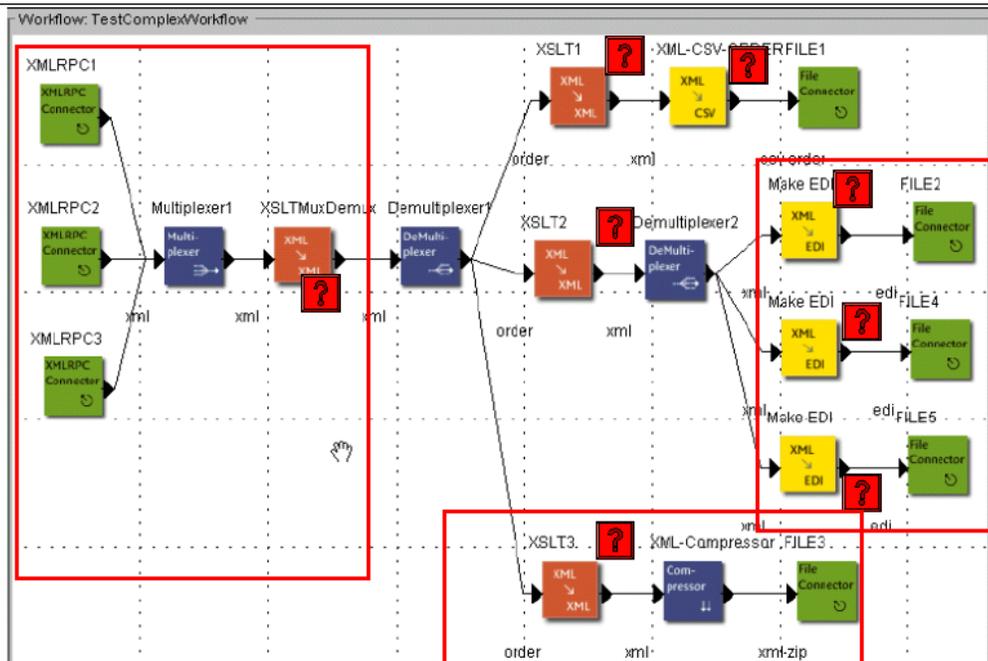
Reusability ? , Efforts ? Transparency ? Complex or Complicated ?

Topology usually leads to:
- Classical implementation approach
  - "per Interface",
  - considering all 1:n possible relations

... Creating the classical spaghetti...

[?] Individual, non standardized mappings

[ ] Vendor solution or ?

Proprietary

This approach is the monolithic proprietary one, mostly promoted by vendors of large Enterprise application suites, proposing an all-in-one solution in which the vendor provides an integrated suite of applications for enterprise-wide transactions, focusing specifically on CRM, ERP, and supply chain management.

The objective of this proprietary approach is to ensure that all of the applications in the suite are tightly coupled with one another.

No vendor has the domain expertise and resources to develop best-in-class applications across every category.

It demands that organizations replace any existing applications with those provided by the enterprise application vendor, and it locks an organization into a closed and inflexible architecture dependent solely on one applications software provider.

Target of these vendors is to bind the customer. If the customer decides to replace one of these imbedded applications, the integration itself will have mostly the same price as the new application.

Therefore the customer is at great risk to change his environment because of unknown integration and maintenance efforts.

Companies trying to divide this proprietary environment have spent a lot of money for integration.

Information Bus

A third approach to integration is to connect applications to an information bus—several of which are commercially available—which serves as a backbone to tie together disparate applications into a common network.

The information bus is an advancement in comparison to the point-to-point integration because it minimizes the number of integration connections required.

However, to support processes that cut across multiple applications in the network, organizations must build custom programs.

These sit on top of the applications and control the various applications to work together in order to support specific business objectives. Organizations spend significant time and money on building custom business process flows, which require expert resources with the knowledge and experience to design and deploy them.

Not only it is expensive and time-consuming to develop custom business process flows— leading to higher cost and more time to deploy them — but the integrations are also one-off creations that are not based on industry standards.

As a result, they are difficult to maintain, modify, and upgrade. And, because custom business processes are built to work with specific applications, they are not reusable across a diverse

set of applications.

In short, this approach is costly, slow, and non-scalable.

4.   THE TWO-LAYER ARCHITECTURE OF EAI ONE

In 1995 **EAI One**'s design / architecture meets the challenge of inter-application integration. It was designed to have real business flexibility, visibility, reusability, and real-time response to the increasing speed of change in market dynamics—those are the objectives for which Integration is simply the means.

Organizations want (cross)-application approaches that are both flexible, low cost and reusable. They also want to leverage best-in-class technology.

EAI ONE is a customer-centric solution that solves the complex multi-application integration problem within and across the enterprise in a highly cost-effective way, while defining applications once and using it by interfaces.
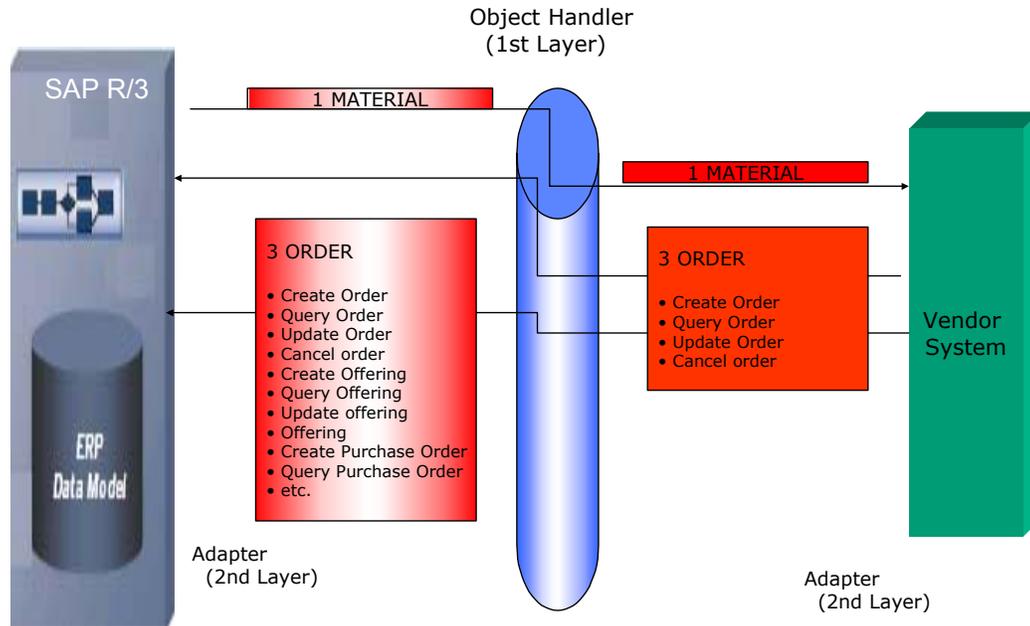
In essence, **EAI ONE** takes a vendor-neutral, standards-based approach to the design of Objects and methods to have unique-application business processes covered by standard objects. The unique characteristics and methods for the transfer of business objects are encapsulated by protocols (methods) to access the vendor applications. Dividing the **Char**acteristics and **M**ethods and **E**vents of a vendor application, each application can be defined as a set of unique objects, representing the business process data, the fundamentals of Object-Oriented Design (**CHAR.M.E !)**

These business processes are application-independent and are therefore separately deployable across a diverse set of applications. The result is a vendor-independent solution that dramatically reduces the need for customization, minimizes complexity, speeds deployment, and delivers a low total cost of ownership.

Using **EAI ONE**, applications are defined by common/unique objects to cover either proprietary architectures, or best-in-class application functionality for a proprietary, single-vendor solution.

Having two layers, any actual or future technology discussion is eliminated, because of the technology layer which protects the business processes (controlled by the 2nd **EAI ONE** layer) and finally the interfaces.

EAI ONE gives organizations choice, flexibility, scalability, and visibility, while at the same time reducing cost, complexity, and time to deploy.

e4i EAI One Integration
We do it once ! **EAIONE's Handling of Simple Vendor Processes**

Object Handler
(1st Layer)

SAP R/3

1 MATERIAL

1 MATERIAL

3 ORDER
- Create Order
- Query Order
- Update Order
- Cancel order
- Create Offering
- Query Offering
- Update offering
- Offering
- Create Purchase Order
- Query Purchase Order
- etc.

3 ORDER
- Create Order
- Query Order
- Update Order
- Cancel order

Vendor
System

ERP
Data Model

Adapter
(2nd Layer)

Adapter
(2nd Layer)

Each vendor solution presents it's own capability of processes (methods)
based on common business objects.
Therefore EAI ONE is independent of technology and processes (it is true O.O.)

What does Gartner say ?

"As enterprises are moving beyond point-to-point integration approaches to more enterprise-spanning integration strategies, packaged application vendors are recognizing that merely providing a laundry list of APIs and adapters is no longer sufficient. The next generation of packaged application integration will be based on integration broker and Web Service technology and be governed by enterprise-spanning process models that extend well beyond the traditional definitional boundaries of any single package or suite."

—Jeff Comport
Vice President and Research Fellow

5.   BENEFITS

Delivers End-to-End, Prepackaged, Extensible Business Process Solutions

- **EAI ONE** is built on an innovative architecture that enables Pre-Built applications for end-to-end business process solutions to be deployed out of the box with minimal customization

- These solutions support both intra- and inter-enterprise business processes, spanning applications across and beyond the enterprise

- The business processes can be easily and quickly extended and modified, enabling organizations to rapidly adapt their business processes to changes in strategy, operating procedures, customer requirements, and market conditions, because of the 100% customizing capability of **EAI ONE**.

- Reducing two-layer service organization, instead of consultants and programmers only consultants are needed.

Delivers Industry-Specific Business Process Solutions

- **EAI ONE** delivers end-to-end business processes tailored for specific industry segments

- Organizations can speed their deployment and lower the total cost of ownership by selecting prepackaged applications (business processes) that address specific requirements of key-industries

Provides Reusable Applications, "Create Once, Deploy Everywhere"

- The prepackaged applications (business processes) are independent of other applications, so they can be reused across multiple divisions or lines of business—even where different applications are deployed

- This reduces implementation cost and complexity and leverages existing IT investments, while accelerating time to deployment

Proven Integration Server Technology

- Based on the **EAI ONE** technology layer represented by adapters, each of them covers the fundamentals of load balancing, fail over, online queuing, multi processing etc.

Gives Organizations Maximum Flexibility to Choose Best-in-Class Applications

- **EAI ONE** is application-independent, so the prepackaged applications (business processes) can inter-operate with any underlying applications, thus enabling organizations to leverage their existing IT investments

- Organizations are not locked into a single vendor's proprietary product set, and they have the flexibility to select from any vendor's offerings

6.   THE BUSINESS AREA OF EAI TOOLS

In addition to the arguments above, integration vendors can be additionally grouped by :

- License fee incl. Maintenance fee
- Services for implementation and maintenance
- Objectives / strategies of implementation partners

Therefore the big EAI Vendor solutions distributed and implemented by one the of huge service organizations are forced to cover their service rates (% hours at customer / year). Combined with the license policy of the EAI Vendor the minimum price is given to a potential project.
These facts are the limitations for a set of EAI Tools to get an entry into specified markets ,
e.g. SMB Market.

The second level of decision is based on the ROI, Reusability Level of the EAI Tool (Protection of investment)

Summary : Based on architecture, direct corresponding to the implementation efforts, maintenance, license fees and service organizations of integration partners and IT organizations of customers the market is pre-set.

A leading ERP vendor solution (SAP R/3) should automate its business process for different

CRM vendor solutions (Update Marketing Manager , Teambrendel Wincard)   and another

ERP solution (Navision Axapta) .

The process includes the following steps:

• Capture general object information (DEBTOR , MATERIAL , ORDER)

• Capture general method information (Create / Query Debtor , Material , Order, Offer , Purchase

Order)

Since the process touches four different applications, same procedure steps are required to

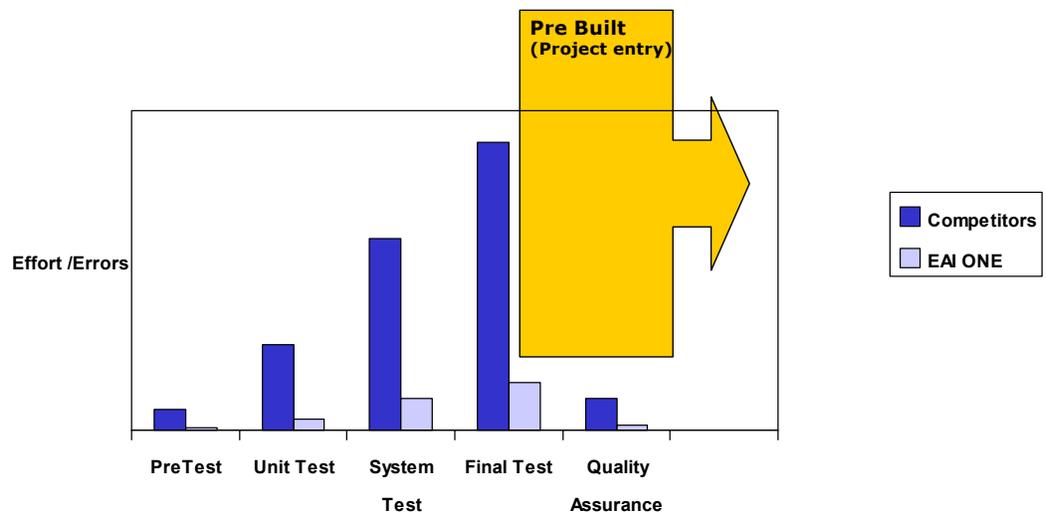 provide a fully working integration that meets all business needs.

• Check EAI ONE standard objects , if all characteristics of all applications are given , otherwise

   expand objects

• Check EAI ONE methods , if all processes for the single application (do it one approach) are

   already defined , otherwise must be defined

• If the application is already defined once before , adapters are already defined too, otherwise

   the adapters must be defined to the application.

• No mapping necessary , because of having common unique standard objects

• No transformation maps between the applications and the common objects necessary , because

   of defining application and no interfaces

• EAI ONE enables the customer to dramatically reduce integration costs and time to deployment.

Additionally, the Pre-Built business processes (applications) are designed to be independent of the

underlying applications and thus can be reused in another line of business—

such E-commerce to ERP , E-commerce to CRM —without being re-implemented, further reducing

the total cost of ownership.

In summary, EAI ONE enables faster time to market and reduces the total cost of ownership:

• Pre defined applications reduce the cost and complexity of the integration by significantly

lowering the number of interfaces required

• No cross application transformation maps are necessary labor-intensive task of mapping

applications to the common objects

• Pre-Built industry-specific business process (applications) flows enable fast deployment, lower

the deployment risk, and eliminate customization

8.   **THE BENEFIT OF PRE BUILT APPLICATIONS**

EAI One Integration
We do it once !

The Benefit structure of EAIONE

Pre Built
(Project entry)

Effort /Errors

■ Competitors
□ EAI ONE

PreTest   Unit Test   System   Final Test   Quality
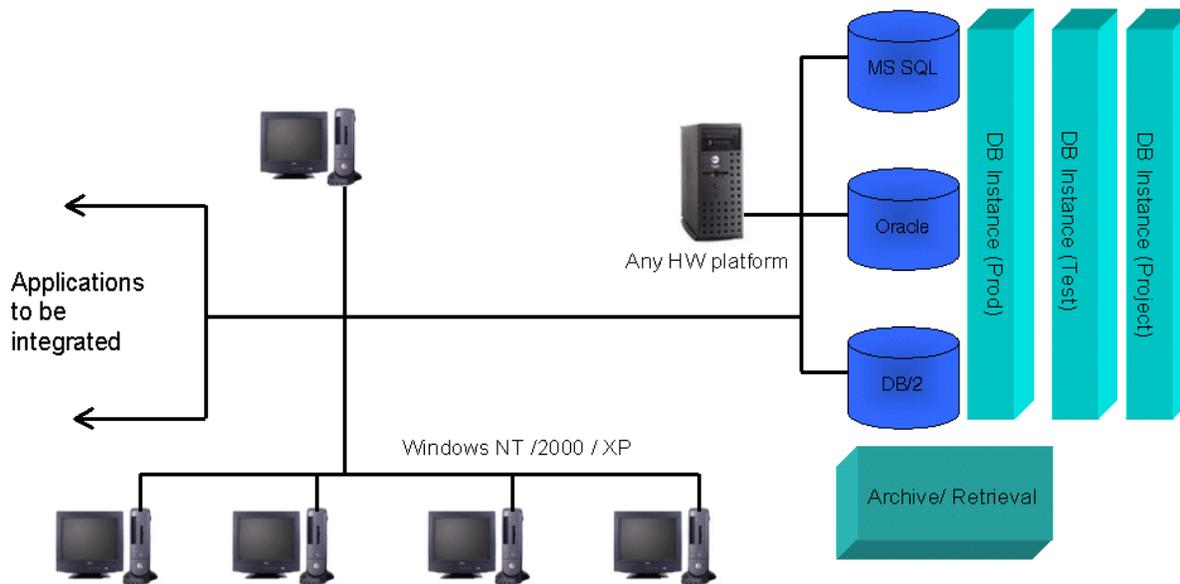
Test   Assurance

Standard development process versus Pre built scenarios starting at Final Test
=
TCO + ROI

9. THE EAI ONE ARCHITECTURE

The EAI ONE architecture is fully customizable Multiple Client Server Integration Server with one run time code for all business areas and all countries.

Administration,Customizing,Transport,Monitoring   100% of Customizing ,Process data

Applications to be integrated

Any HW platform

MS SQL

Oracle

DB/2

DB Instance (Prod)

DB Instance (Test)

DB Instance (Project)

Archive/ Retrieval

Windows NT /2000 / XP

Executing cccom adapter x-times in a distributed environment as virtual engines (load balanced, scalable)

10.   **THE EAI ONE REFERENCES SAMPLES**

- Hospitals : Patient Administration Online Synchronization (Kingston Canada)

- Hospitals : Patient Administration Online Synchronization with Ministry of Health (Princess Margareth Hospital New Zealand)

- Portal : Repair Business Process with Lufthansa and its trading partners (Comvers Germany)

- CRM : SAP R/3 with update Marketing Manager (Materials up to price finding) IQ Products / Germany)

- ERP to ERP : SAP R/3 with Axapta Navision (10 different business processes) DP Center Reutlingen / Germany

- Chemical ERP System with SAP R/3 (6 different business processes) CDS / Brazil

- Mobil business processes with ERP (SAP and Navision Axapta) MOON AG / Germany