

Assessment on EAI Capabilities of Selected Enterprises around Hannover

MBA Project Report - Department of Business

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Her motivation to participate in the MBA program is to enhance her knowledge in business computing management and further extend her working experience.

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He joined the Department of Business in 2004 and teaches classes in Interorganizational Systems (EAI), Management of IT Departments, Project Management, Electronic Business, New Technologies and Data Management.

Before joining the Department of Business he worked for a major consulting company (Accenture) as an IT Project Manager and Management Consultant for financial services providers. His projects in Germany, France, the Netherlands and the US included aspects of Post Merger IT Integration, Offshore Outsourcing, Enterprise Application Integration, Data Center Management, IT Infrastructure & Capacity



Assessment of EAI capabilities of selected enterprises around Hannover

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Summary

The “Assessment of EAI capabilities of selected enterprises around Hannover” was executed during a MBA project between April and July 2005.

During this survey, we reviewed the visions, strategies and implementation programs of seven enterprises. Our key objective was to understand their current and future priorities for EAI initiatives and to identify how enterprises set the goals for further development of their EAI capabilities.

We found a great willingness from enterprises to develop EAI in their organizations: Enterprises are taking decided steps to improve their EAI capabilities mainly through investing significantly in initiatives to enhance EAI efficiency and effectiveness.

The key findings of this survey are:

Finding 1: Importance of EAI

Enterprises are becoming more aware of the business value of EAI and are placing a strong emphasis on enhancing their EAI capabilities as a major priority for their organizations.

Finding 2: Status of EAI

Enterprises have embraced the fundamental principles of IOAI but are still struggling to get more advanced levels - BPOAI, POAI, and SOAI - in place.

Finding 3: Drivers for EAI

Seamless business processes, flexibility to react to changing market conditions and increasing productivity are key drivers in applying EAI.

Finding 4: Future of EAI

Many enterprises are moving to more advanced levels of application integration when planning for the success of future integration.



Introduction - What is EAI ?

According to Linthicum, 'EAI is a strategic approach to binding many information systems together, at both the service and information levels, supporting their ability to exchange information and leverage processes in real time' [Reference 1, p.1].

In simple words, EAI is the activity through which enterprise applications of different departments within or across organizations are adapted to facilitate information exchange. The integration activity requires the involvement of various stakeholders such as users, IT staff, upper management and vendors.

Major drivers for enterprises to implement EAI are:

- Solving drawbacks of a disintegrated IT infrastructure by reconsidering how separate applications communicate and interact with each other.
- Enhancing business agility by enabling IT departments to react more quickly to business changes.

- Getting operational efficiency not only intra-enterprises but also with trading partners (inter-enterprise).
- Most enterprises are facing challenges such as maintenance issues, training people to get familiar with various platforms, protocols and languages and testing new systems.
- Besides, they also realize that the complexity of implementing a new system into an existing application landscape is ever increasing.

These issues drive enterprises to realize an effective EAI solution. However, it's not easy to get potential benefits when applying EAI. The first step is to evaluate EAI requirements and to define a suitable EAI strategy. It is predicted, that 'in the near future, 75% of every IT dollar will be spent on integration projects' [Reference 2]. Therefore, it is worth the effort for enterprises to realize and assess their EAI capabilities which greatly support their business processes: Improve customer service and speed to market, achieve greater efficiency or reduce costs.

Introduction - How the AI Concept has changed

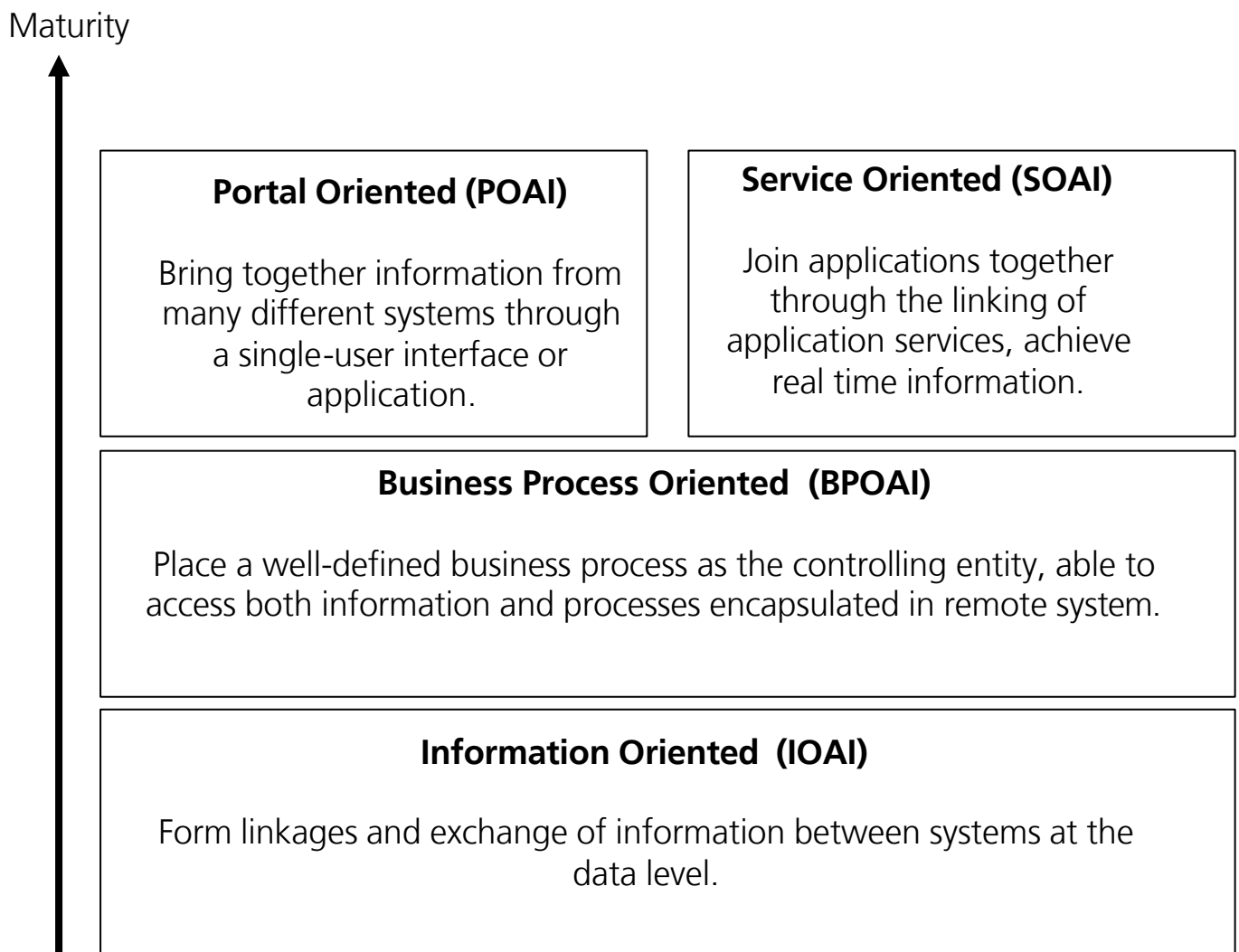


Figure 1: The four types of Application Integration [Reference 1, p.6]

Introduction - How the AI Concept has changed

It's not easy for enterprises to define a suitable EAI strategy as the technology is changing fast.

There's a tendency to start with Information-Oriented Application Integration (IOAI) and later move on to Service-Oriented Application Integration (SOAI) (see Figure 1) as experience and knowledge increase.

This reflects a development from a basic mechanism to achieve integration at a data level towards a more advanced architecture which allows binding applications together at service level, including distributed objects - all of which are widely being used today.

With these architectures enterprises hope to realize benefits like component reusability, interoperability and increased business agility.

The business value of SOAI is obvious. However, this approach is still young and causing enterprises some difficulties. Changing source and target applications, and creating a new composite application leads to additional costs for AI projects. Therefore, enterprises are still hesitating to implement SOAI.

Nevertheless, the important thing for enterprises is to choose a suitable and realistic AI solution that meets their business's requirements and objectives. As long as enterprises take an effective EAI strategy, EAI will bring values and benefits to them.

Approach Methodology

Figure 2: Breakdown of responding enterprises by industry

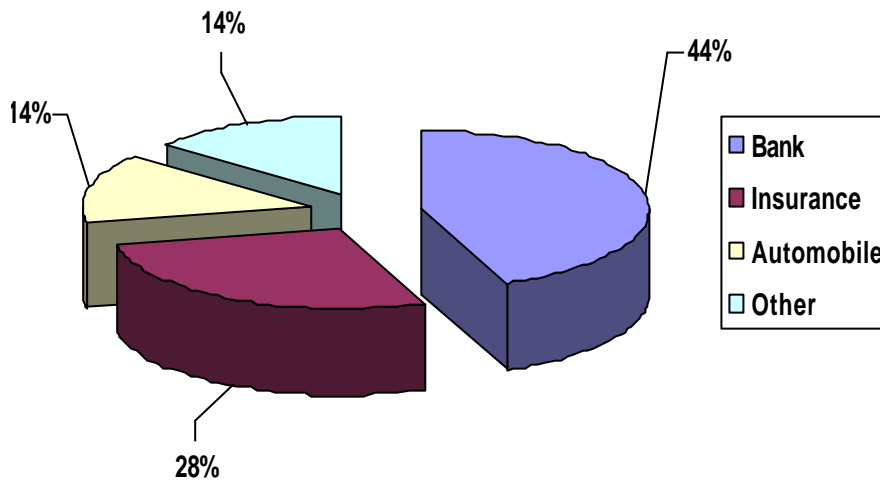
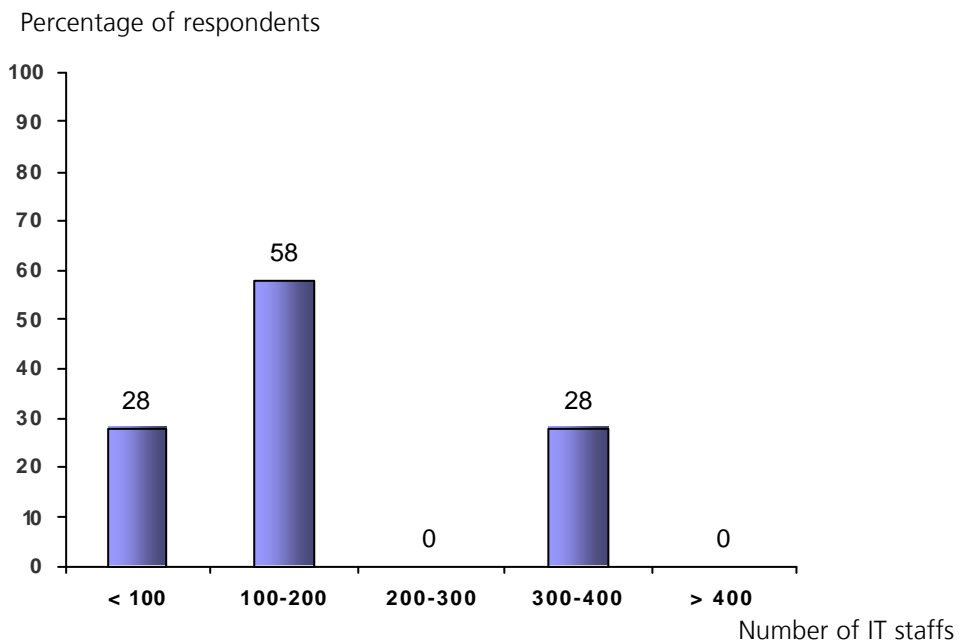


Figure 3: Size of the respondent's IT departments



Approach Methodology

The goal was to perform an 'Assessment on EAI capabilities of selected enterprises around Hannover' as there was no such data available so far. Hannover is home to many renowned enterprises in various industries like Insurance, Banking & Finance, Automobile, IT services.

A questionnaire covering key aspects of the IT landscape with respect to EAI capabilities was developed and distributed to IT executives of selected enterprises by email. This email method enables allows to extend the length of the survey compared to a telephone interview and encourages participation by more senior personnel.

15 enterprises were selected. Seven enterprises participated and 30% of these contacted for in-depth interviews for additional clarification.

The responding enterprises were spread across Hannover with different sizes and various industries. Figure 3 and 4 show the general characteristics of these enterprises with respect to industry and size of the IT department.

The results were analysed and transferred into this summary report.

Finding 1: Importance of EAI

Figure 4: Percentage of IT staff working in EAI

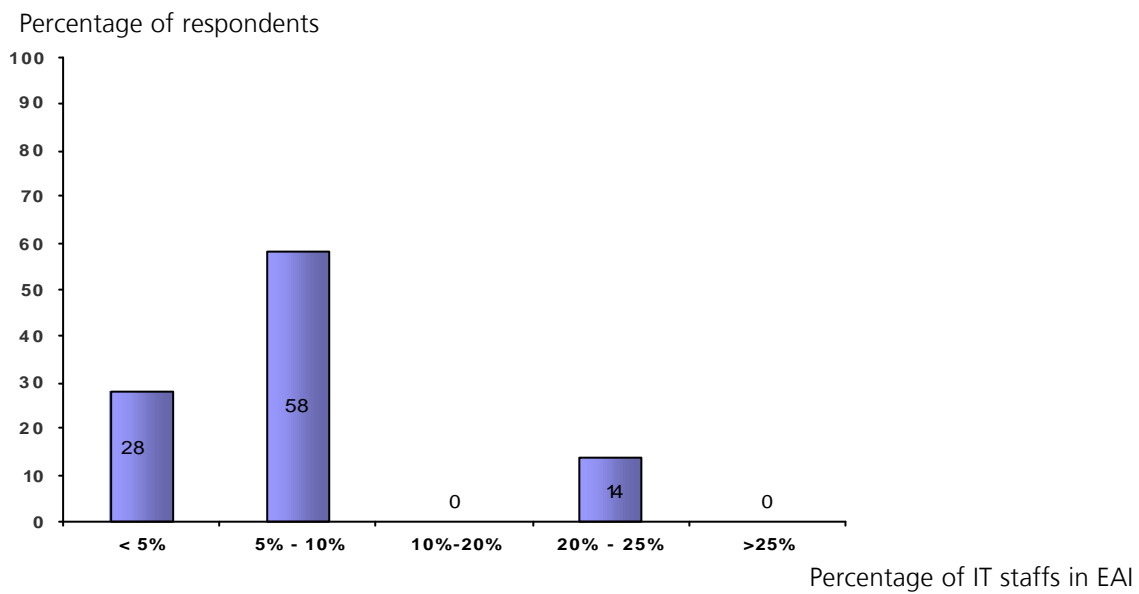
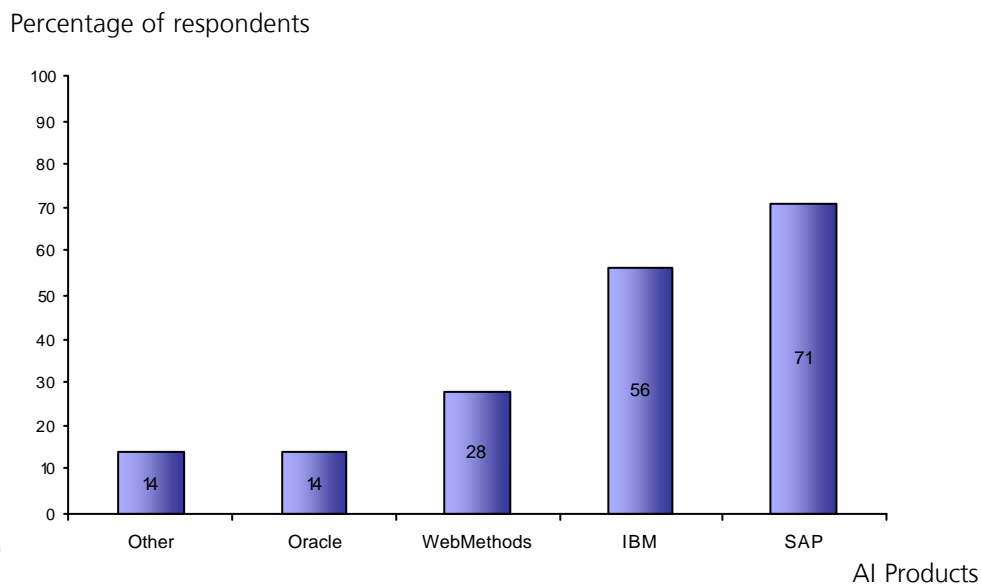


Figure 5: Enterprise investment in commercial AI products



Finding 1: Importance of EAI

1. Enterprises are becoming more aware of business value of EAI and are placing strong emphasis on enhancing their EAI capabilities as a major priority for their organization.

When undertaking this survey, we noticed respondents' comfort with many aspects surrounding EAI. This attitude is a firm foundation for taking an effective EAI strategy.

One significant indicator for this is the percentage of IT staff assigned to EAI tasks. Nearly 60% of all respondents said that 5% - 10% of their IT staff is working on EAI. A very high percentage of 20% - 25% of IT staff working on EAI was still reported by 14% of all respondents (see Figure 4).

Another indication for enterprises' readiness for investment in AI projects is their spending on commercial EAI solutions instead of building a custom solution. SAP, WebMethods, IBM, and Oracle are mostly used. 71% of respondents chose SAP, 56% IBM Products (MQSeries, WebSphere), and 30% use WebMethods (see Figure 5).

This point indicates enterprises' willingness to invest significantly in order to win the benefits associated with EAI and support business's objectives - despite within the usual budgetary constraints.

Finding 2: Status of EAI

Figure 6: All enterprises have already implemented IOAI

Percentage of respondents

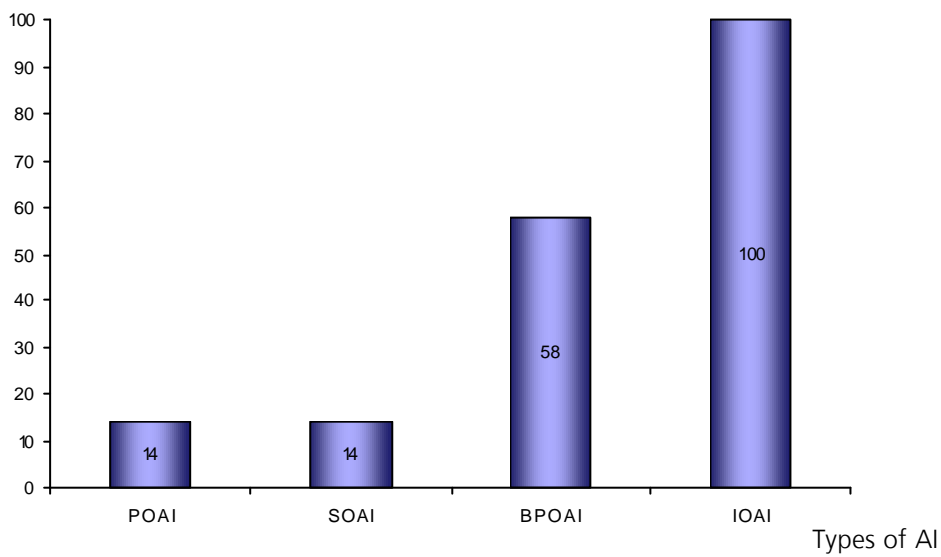
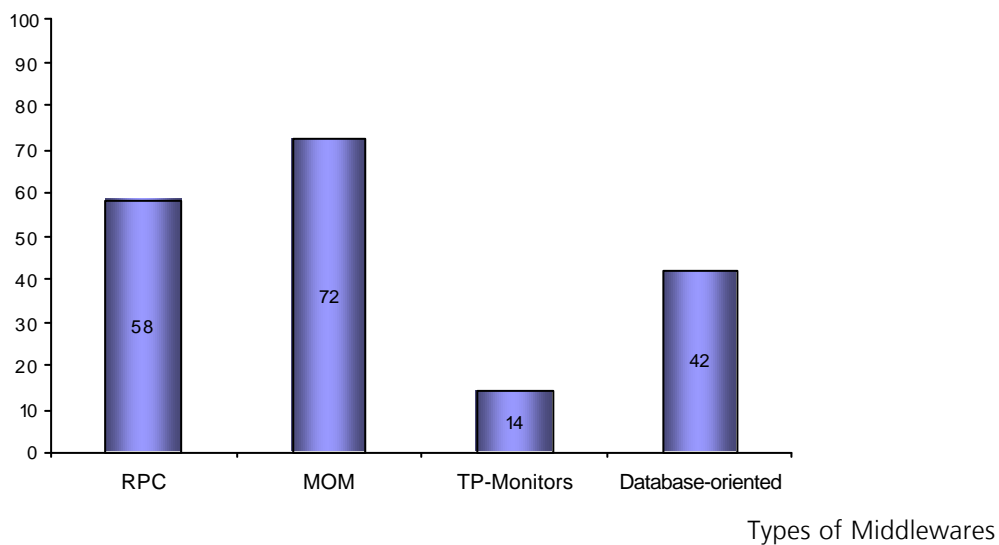


Figure 7: MOM and RPC are widely used in most enterprises

Percentage of respondents



Finding 2: Status of EAI

2. Enterprises have embraced the fundamental principles of IOAI but are still struggling to get more advanced levels - BPOAI, POAI, and SOAI - in place.

Figure 6 shows that all enterprises have implemented the basic type of application integration - Information Oriented Application Integration (IOAI).

However, they are making significant investments and efforts in enhancing their EAI capabilities to more advanced types of AI. We found that although their service-centric orientation and investment priorities are consistent with improving EAI, their implementation efforts currently fall short to achieve these goals.

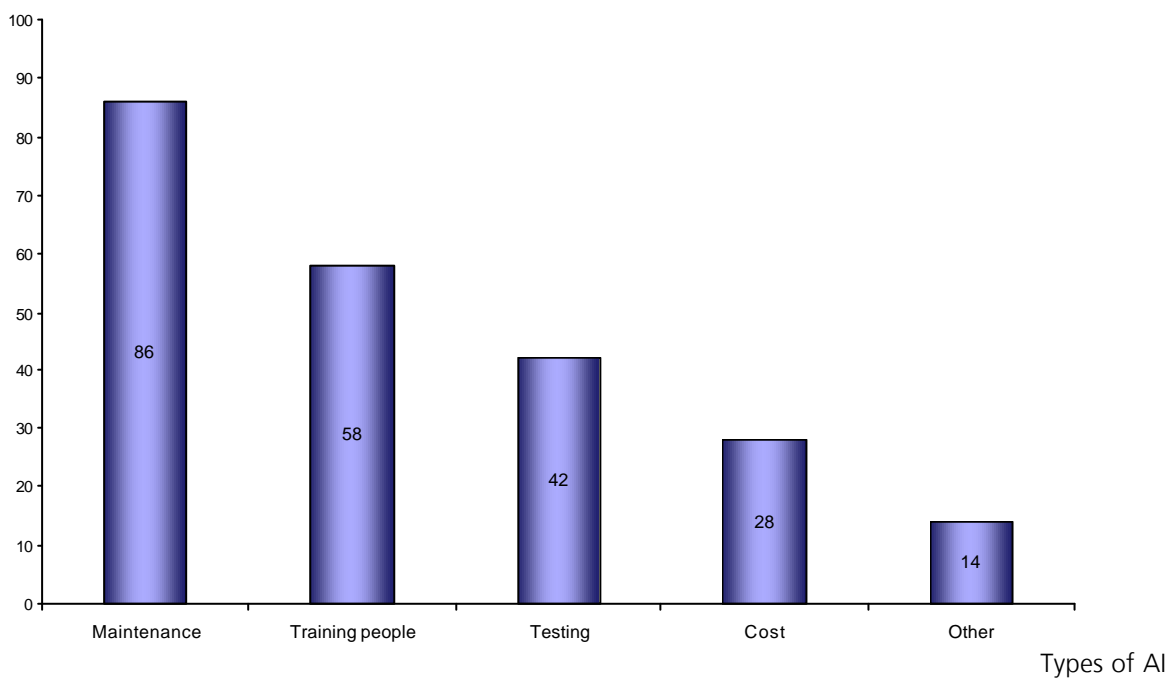
For example, one of the most important AI objectives identified by enterprises is to achieve real time business integration (see Finding 4); but the most basic type of application integration - IOAI - is still much more common than more advanced types (SOAI, BPOAI) that would more effectively support these objectives (see Figure 6).

MOM and RPC are popular middlewares and widely used in most enterprises. Around 70% of respondents reported to apply MOM and nearly 60% use RPC. Database-oriented middleware is also popular with enterprises - 42% chose it. While TP-Monitors seem to be rarely used, only 14% installed TP-Monitors in house (See Figure 7).

Finding 2: Status of EAI

Figure 8: Maintenance and Training people are challenging factors of enterprises when applying EAI

Percentage of respondents



Finding 2: Status of EAI

When asked about challenges they encounter when applying application integration, most respondents listed maintenance (86% of respondents) and training people (58% of respondents) among their top challenges (see Figure 8). Another important obstacle is testing. 42% of respondents found it really hard to systematically and adequately test new AI implementations.

In conclusion, enterprises demonstrated a good understanding of the fundamental concepts of EAI capabilities. They openly recognized the importance of developing a deeper understanding in EAI, seeing and facing challenges of EAI projects, and taking action accordingly. This represents a positive approach towards application integration, which should result in more sophisticated EAI solutions in the future.

Finding 3: Drivers for EAI

Figure 9: Key business drivers for AI

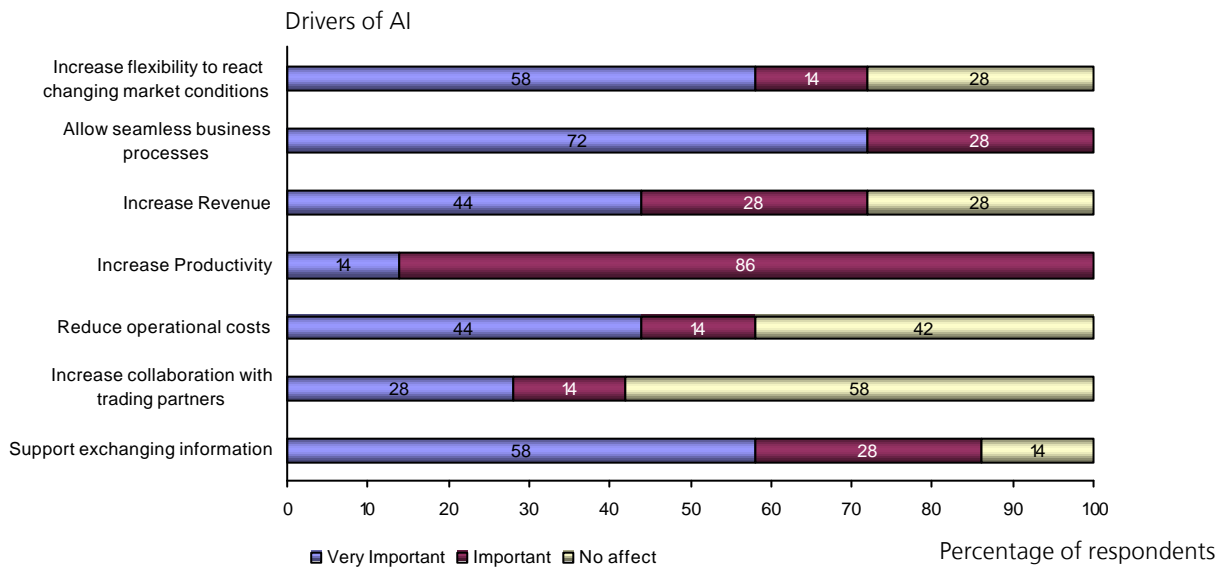
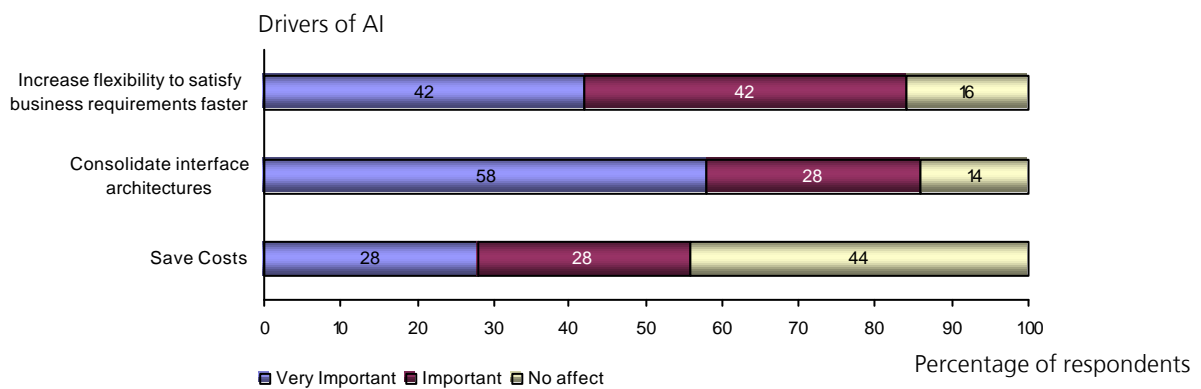


Figure 10: Key IT drivers for AI



Finding 3: Drivers for EAI

3. Seamless business processes, flexibility to react to changing market conditions and increasing productivity are key drivers in applying EAI.

Many enterprises said that EAI plays a very important role in helping them achieve seamless processes and increase productivity. As shown in Figure 9, 86% respondents considered the increase in productivity important, even 14% of them claimed this factor to be very important. Around 70% found it very important to get seamless processes in place, and approx. 60% agreed with the necessity to improve flexibility in reacting to changing market conditions. These key factors drive enterprises to take action and implement EAI in their houses.

The IT departments of these enterprises also agreed with the importance and positive affect of EAI to their performance (see Figure 10). Approx. 60% of respondents said that the capability to consolidate interface architectures is a major driver for EAI.

Another strong driver for IT departments to implement AI solutions is to increase their flexibility to satisfy business' requirements faster as this will allow them to meet expectations from business units (42% respondents).

The cost issue was not ranked as a top concern amongst IT departments, almost 50% of respondents said that AI has no affect in helping IT departments to save costs.

Surprisingly, nearly 60% of respondents claim that up to now, AI has not yet affected to their ability in collaborating with trading partners (See Figure 9). This number shows that so far AI is mainly an intra-enterprise effort and the ultimate goal to extend integration across enterprise boundaries is still a major step ahead.

Finding 4: Future of EAI

Figure 11: Planning for future success of AI

Percentage of respondents

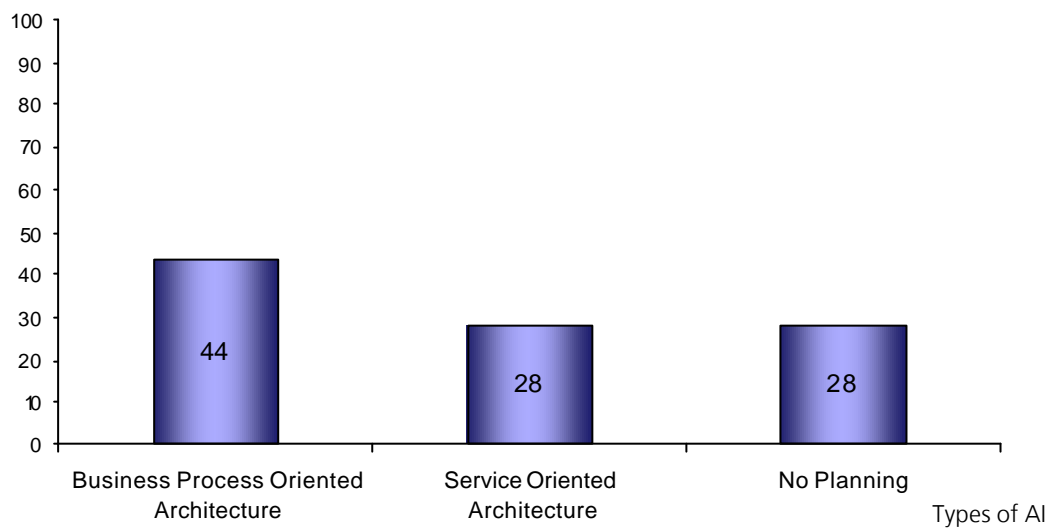
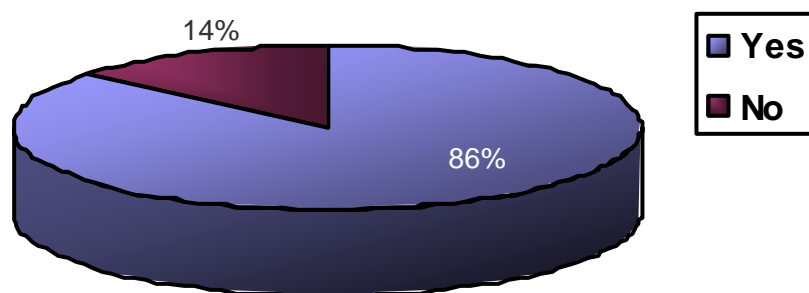


Figure 12: High tendency of using Web Services



#: Percentage of respondents

Finding 4: Future of EAI

4. Many enterprises are moving to more advanced level of application integration when planning for the success of future integration.

SOAI is usually considered as the golden key for achieving real time application integration which will optimise business' benefits from AI.

Approx. 50% of all respondents thought that they will apply BPOAI in a couple of years. Nearly 30% of all respondents are planning to implement SOAI with the hope that their EAI capabilities will be optimised and new opportunities for improving and facilitating business performance will be created (see Figure 11).

In order to realize AI projects at service level, most respondents thought that Web Services would be an enabling technology and they will choose Web Services as a major priority for long-term investment. 86% respondents said that they will use Web Services in the coming years when further expanding AI projects (see Figure 12).

But nevertheless, due to budget constraints and other difficulties, nearly 30% of respondents did not envision their integration objectives changing over the next few years (see Figure 11).



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Conclusion

The reason many enterprises focus on expanding EAI capabilities is that they are increasingly realizing the real business value of EAI. Apparently, the lack of business integration intra- and inter-enterprise is one of the possible root causes of poor performance.

We found that most enterprises have a common notion of the importance of EAI, and expect to improve their performance as long as they set an effective EAI strategy with proper investment in EAI staff and EAI technology.

Despite future challenges in both technical and business aspects of EAI, enterprises showed to be ready to face these when implementing a suitable AI solution. The tendency to use commercial EAI products is a proof of being more professional and strategic.

The common approach to AI of most enterprises is to follow a multi-level EAI strategy founded on the enterprises' requirements. After finishing the implementation of the basic level of integration (IOAI), enterprises are attempting to access more advanced types of application integration (SOAI, BPOAI, POAI) by more strategic investment and an even stronger emphasis on business requirements to set the goals for AI.

Most enterprises are on the way to make more improvement to optimise their EAI capabilities in the future, so that they will possibly have business processes that are strongly integrated by a smooth and seamless underlying IT infrastructure in the e-business world.



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Outlook

As a fairly limited MBA project lasting only one semester, this assessment should not be considered complete or as scientific research.

Nevertheless, the assessment was executed with great effort and concentration to:

- Learn how enterprises are implementing their EAI capabilities when they are increasingly spending on AI projects.
- Find out what is the return on their spending on AI projects.
- How AI will grow to integrated inter-enterprises.

This assessment will be detailed in an upcoming Master Thesis starting in September 2005 in order to investigate selected findings at a more detailed and scientific level.

Enterprises interested in participating in this thesis are invited to contact the authors.

The authors would like to thank the participating enterprises for their effort and support in this assessment.

References & Abbreviations

- [1] Linthicum, D.S., Next Generation Application Integration: From Simple Information to Web Services, Addison Wesley, August 2003.
- [2] Gosain, S., Hindi, F., Realizing the Business Value of EAI, March 2004. (<http://www.ebizq.net/topics/collaboration/features/4324.html>)

Abbreviation/ Acronym	
AI	Application Integration
BPOAI	Business Process Oriented Application Integration
CEO	Chief Executive Officer
EAI	Enterprise Application Integration
IOAI	Information Oriented Application Integration
POAI	Portal Oriented Application Integration
SOAI	Service Oriented Application Integration



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