# THE APPLICATION OF MICROSOFT'S ENTERPRISE MANAGEMENT SOFTWARE "AXAPTA" FOR MEDIUM-SIZE FIRMS

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The area of Enterprise Management systems is one of most rapid growing software domain. Among such systems intended for deserving the small and medium size firms an important place occupies the software product Microsoft Business Solutions-Axapta. One of the authors participated directly in development and implantation of this software product in a foreign firms. In the presented report it is told about this experience, which can be useful for experts which works in firms of our republic.

Enterprise Management (ERP) systems help companies accelerate the speed at which they can do business, offering them a key competitive edge in today's complex, rapidly changing markets. ERP enables business leaders to worry less about day-to-day financial transactions, so they can focus on the fast, informed decision-making that is crucial to meeting customer needs.

Microsoft Business Solutions-Axapta, technology is an enterprise business planning application designed to help mid-market companies improve sales, finance, human resources, and other business operations. Key components of the Axapta solution include the following (Fig. 1):

• Analytics tools, including a business analysis component for standard reporting and a financial management component for accounting and financial reporting.

• Distribution and supply chain management tools, including logistics, trade, and warehouse management components.

• E-commerce tools, including a commerce gateway based on Microsoft BizTalk Server and enterprise portal components to support partner, customer, and employee access to transaction information.

• Manufacturing management tools including components for production planning and management, customized product development, and shop floor control.

• A questionnaire tool to enable development of online surveys to gauge satisfaction of customers, partners, or employees.

• Human resources management tools including components to support business process management, employee recruiting and management, balanced scorecard evaluations, and employee performance management.

• Sales and marketing tools including components for marketing campaign automation and analysis, sales and marketing coordination, sales force automation, telemarketing, and sales management.

• Tools to support design, customization, testing, and debugging of the Axapta environment to support a specific business need or process.

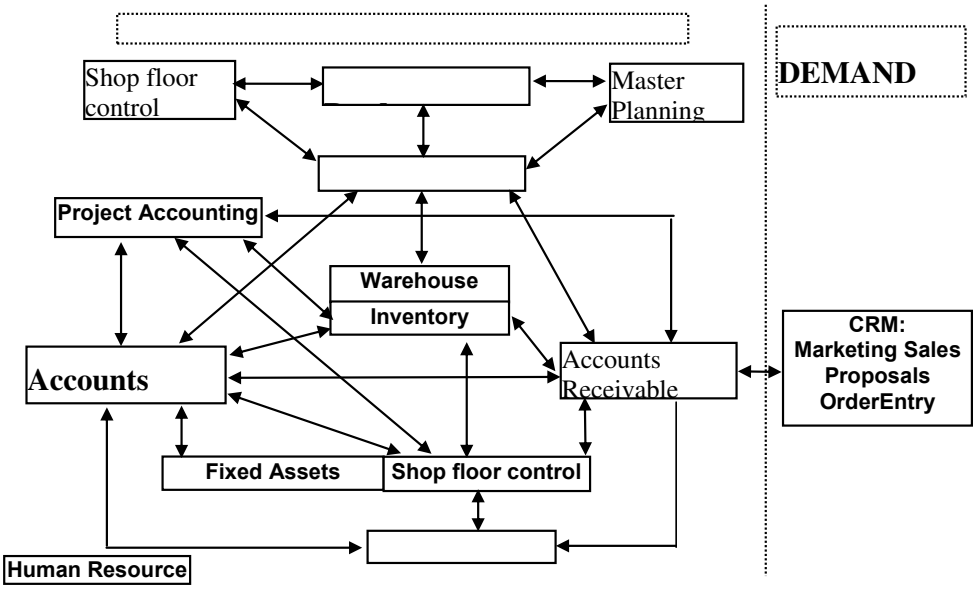


Fig. 1. Axapta Integrated Modules

Enterprise applications, or ERP applications as they are sometimes known, have not always enjoyed a reputation for delivering a positive return on investment for customers. They are often complex deployments that require input from different business areas, and have often been difficult for customers to successfully customize, deploy, and adopt.

**MorphX - Development Environment in Axapta**

The development environment in Axapta is called MorphX. It is referred to as an Integrated Development Environment, or IDE, because it integrates many different functions such as designing, editing, compiling, and debugging within a common environment. In most traditional development tools, each of these functions would operate as a separate program, each with its own interface.

In the Application Object Tree, the developer can create new application objects by using drag-and-drop, and setting properties. To make the developer's job easier and faster, the system has auto default settings for all application object properties.

The concept of inheritance is central to the system. Inheritance means that what is defined at lower levels in the system is automatically inherited by higher levels. One illustration of the concept

of inheritance is the way a developer may modify and augment the system functionality by writing his own methods.

An Axapta application is flexible and easily modifiable on many levels. Typically you need to modify only a single parameter for the entire system to inherit the change. If, for example, you change the length of a database field from ten characters to twenty, this is automatically reflected on all forms in the application that display this field.

X++ is the object oriented programming language used in the MorphX environment. X++ uses object-oriented programming principles such as encapsulation, inheritance, classes, objects, methods, and properties. The language has Java-like syntax, and incorporates SQL data manipulation statements.

Axapta is not tied to a specific database platform but has been designed to be used on top of a relational database such as Microsoft SQL server or Oracle.

All in one means your data is stored in one database with one set of business logic thereby assuring that your data is more stable (no synchronization of data is necessary with only one database) and the quality of the data is higher due to the one set of business rules being consistently enforced.

**Microsoft Business Solutions Axapta Architecture**

Due to the very flexible architecture of Microsoft Axapta it is possible to build configurations for virtually any environment - ranging from small installations with a few dedicated 2-tier clients to large environments with remote connectivity. Migration from one architecture to another does not have to be completed all at once, but can be done over a period of time thereby easing implementation of new architectures.

The Axapta Server is part of the Axapta 3-tier client server Solution and it is both scaleable and flexible. The server is scaleable because you can add Axapta Server to any environment, in order to gain more processor execution power. The server is flexible because you are able to connect to the system with a variety of hardware unite and client types. Flexibility means that you are not limited to the windows GUI. You are able to make your own interface by using a web browser.

Microsoft Axapta Object Server is based on well-established industry standards. This keeps technical requirements to a minimum for both technical installations and staff. The network communication is based on TCP/IP and, as with Axapta in general, the database support is provided by an SQL database. All system-related tasks are based on the facilities provided by the operating system (logging, performance monitoring, etc.).

For communication between clients and server, the specially developed Axapta Object Communication Protocol (AOCP) serves as a robust and easily administered protocol. AOCP is

based on TCP/IP, which makes it run virtually in any environment - LAN as well as WAN. Using TCP/IP even makes it possible to implement WAN environments based on Internet as communication to the provider. The strict implementation of AOCP also eases the use of Virtual Private Network (VPN) for providing extended transmission security when using public networks such as the Internet. AOCP also provides built-in traffic encryption.

The database engine for the Axapta Object Server is a further evolution of the engine used in the Axapta 2–tier clients. The database engine features have been extended with capabilities to share resources amongst all the connected clients. These new features include sharing data cache, SQL connections, and cursors to optimize performance.

The fairly unique concept of Axapta Intelligent Client (AIC) makes it possible to build a setup where clients with different hardware potential (clock speed, network, memory, etc.) each benefit most from the AOS architecture. AIC enables heavy client machinery with high bandwidth to exploit their possibilities by accessing SQL Database directly while still allowing other clients to run as "thin" clients with the AOS executing business logic for them. Both the rich Windows GUI Client and the Axapta COM Connector/Internet Connector are supported by the AOS.

The AOS itself is built as a Windows NT/Windows 2000 Service with a number of additional processes running the AOS Instances. Each process is responsible for running one Axapta application. One Windows NT Server can run multiple AOS' and thereby service clients with multiple applications. Multiple Windows NT Servers can cooperate on servicing a single application. Different possibilities are present for this, each having its own characteristics concerning maintenance, performance, scalability, and reliability. These setups are based on the two basic modes of the AOS: single and multi-node.