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To our customers, prospects, and employees:

We are proud to present the 1988 edition of our annual report, describing the activities and financial performance of the worldwide family of more than 30 companies collectively known as "Software AG."

This year, as we celebrate Software AG's 20th anniversary, our most important mission is to further spread the "news" of the Software AG success story to more people in information processing—and this annual report will help. It describes the key attributes of Software AG, unique within the software industry:

- continuous, profitable financial growth in an industry known for rapid change;
- successful partnerships with customers at more than 3500 organizations around the world;
- worldwide revenues of more than $220 million;
- U.S. revenues exceeding $82 million;
- a fully integrated product line of more than 65 information management and application development tools, built within Software AG's open, Integrated Software Architecture (ISA); and
- a growing list of customized application development services, delivered by our experts in the design and implementation of solutions to business problems

A Return to Private Status

We are pleased with the success of the merger with our parent company, Software AG, Darmstadt, West Germany, which returns us to private status. As a result, Software AG of North America can now take a longer view of its technological and corporate goals. We can devote more energy to product development and delivery, improving our customer support, and increasing the number of expert services we offer our customers.

Additionally, our status as a privately-held firm offers both our employees and our customers invaluable protection from the disruptive effects brought about by the continuing series of acquisitions and mergers which currently mark our industry. As we further strengthen our coordination with Software AG, Darmstadt, in the development, delivery, and support of new products and services, we will continue to realize the consistent growth rate that has already ranked us as the seventh largest independent software vendor ("The Top 50 Software Vendors", Software Magazine, June, 1989).

A Different Philosophy

In contrast to the disparate product offerings and the potentially conflicting customer support activities of the "software supermarkets" which result from the mergers in our industry, Software AG continues its successful focus on building integrated solutions, operable in multiple computer and system environments, using our own advanced 4th Generation technology.

The power and flexibility of our information management products allow our customers to protect the investments they have made in building an effective information strategy. Most importantly, the freedom to choose a range of computing environments using Software AG products allows our customers to control their own destiny.

There can be no better reason to implement Software AG technologies. We are confident that more organizations will discover the value of our products, services, and support, and we look forward to working with our customers, prospective customers, and employees to create new, long-term business solutions.

Sincerely,

Michael J. King  
President and Chief Executive Officer  
Software AG of North America

John Norris Maguire  
Chairman of the Board  
Software AG of North America
Software AG of North America

Selected Financial Data

The following selected data are derived from the consolidated financial statements of the Company for the years ended May 31, 1985 through 1988, and the twelve months ended December 31, 1988.

<table>
<thead>
<tr>
<th>($'s in Thousands)</th>
<th>FY 85</th>
<th>FY 86</th>
<th>FY 87</th>
<th>FY 88</th>
<th>CY 88</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic</td>
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<td>$53,300</td>
<td>$52,005</td>
<td>$58,120</td>
<td>$63,868</td>
</tr>
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<td>International</td>
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<td>$12,460</td>
<td>$15,239</td>
<td>$19,224</td>
<td>$18,459</td>
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<tr>
<td>Total</td>
<td>$52,264</td>
<td>$65,760</td>
<td>$67,244</td>
<td>$77,344</td>
<td>$82,327</td>
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<tr>
<td>Operating Income</td>
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<td>$14,917</td>
<td>$5,599</td>
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<td>$5,010</td>
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<tr>
<td>Total Installations - U.S.</td>
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<td>622</td>
<td>774</td>
<td>909</td>
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<tr>
<td>Total Assets</td>
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<td>$59,537</td>
<td>$62,330</td>
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<td>Current ratio</td>
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<td>3.20</td>
<td>4.41</td>
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<td>2.83</td>
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<tr>
<td>Employees</td>
<td>311</td>
<td>382</td>
<td>432</td>
<td>509</td>
<td>501</td>
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5 Year Financial Indicators

Total Revenue

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<th>10</th>
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<td>$67,244</td>
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<td>$65,760</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>$52,264</td>
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</table>

Employees

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<thead>
<tr>
<th></th>
<th>100</th>
<th>200</th>
<th>300</th>
<th>400</th>
<th>500</th>
<th>600</th>
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Total Installations

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<td>965</td>
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<td>FY 88</td>
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<td>FY 87</td>
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<tr>
<td>FY 85</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>521</td>
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</table>
Software AG in Figures

In 1988, Software AG experienced strong growth in all product and service areas throughout the world. The following rate of growth was achieved over last year's:

World-wide revenue from sales of Software AG products and services for the Group rose to 426.2 million DM. Revenue for the Software AG Concern was 320 million DM; the first consolidated balance sheet will be presented in 1989. Revenue for the Organization in the Federal Republic of Germany increased to 230.5 million DM.

Key Figures – Organization in West Germany

The Organization in the Federal Republic of Germany comprises Software AG and Software AG Anwendung & Co. (Applications corporation). The Group also includes partner companies which are owned by Software AG or, where not owned by Software AG, represent the revenue generated by Software AG products.

Operating results and cash flow increased in relation to revenue as against the previous year, both in absolute and in relative terms.

The employees hired in 1987 and 1988 contributed significantly to this success.

As a result of the acquisition in 1988 of Software AG's North American affiliate, outside financing (mainly medium-term) increased, and the equity ratio changed accordingly.

In 1988 Software AG invested roughly 16% of revenue – around 36 million DM – in the development of new products. As had been planned, the number of staff employed in Research and Development rose by more than the average for the company as a whole – consistent with Software AG's history.
Revenue by business line (Software AG Germany)

<table>
<thead>
<tr>
<th>Area</th>
<th>50</th>
<th>100</th>
<th>150</th>
<th>200</th>
<th>1988</th>
<th>1987</th>
<th>1986</th>
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<tr>
<td>Licenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>159.3</td>
<td>117.4</td>
<td>111.4</td>
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<tr>
<td>Maintenance</td>
<td>39.6</td>
<td>29.7</td>
<td>24.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Custom Solutions</td>
<td>17.9</td>
<td>14.0</td>
<td>8.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td>8.5</td>
<td>6.3</td>
<td>4.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Other</td>
<td>5.2</td>
<td>3.5</td>
<td>3.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>230.5</td>
<td>170.9</td>
<td>151.8</td>
<td></td>
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</tbody>
</table>

in million DM

Significant Numbers – Group

Revenue by geographic region

<table>
<thead>
<tr>
<th>Region</th>
<th>50</th>
<th>100</th>
<th>150</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>1988</th>
<th>1987</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>228.4</td>
<td>163.1</td>
<td>134.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td></td>
<td></td>
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<td></td>
<td>103.8</td>
<td>85.7</td>
<td>84.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overseas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>94.0</td>
<td>82.0</td>
<td>78.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>426.2</td>
<td>330.8</td>
<td>297.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

in million DM

Employees by geographic region

<table>
<thead>
<tr>
<th>Region</th>
<th>500</th>
<th>1000</th>
<th>1500</th>
<th>1988</th>
<th>1987</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td></td>
<td></td>
<td></td>
<td>1,432</td>
<td>959</td>
<td>666</td>
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<tr>
<td>USA</td>
<td></td>
<td></td>
<td></td>
<td>501</td>
<td>470</td>
<td>440</td>
</tr>
<tr>
<td>Overseas</td>
<td></td>
<td></td>
<td></td>
<td>756</td>
<td>628</td>
<td>485</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>2,689</td>
<td>2,057</td>
<td>1,591</td>
</tr>
</tbody>
</table>
Taking Stock and Looking Ahead

1988 was Software AG's twentieth successful year of business - a long time for the fast-moving data processing industry, and for the software market in particular. This is especially true, given the life span of many organizations and the rapid progress made by information management technology within this period.

Continuity has been Software AG's main feature in those twenty years. The organization has grown steadily in all areas against a backdrop of constant, turbulent change, economic ups and downs, and short-lived fashions and fads in technology. The number of employees and customers, revenue, and the size of the Software AG product family have all grown constantly, and for a number of reasons.

Continuous Innovation

The most important reason for Software AG's enduring success is its long-term, well-founded technological concept, which it adopted from its inception. We have systematically enhanced our product range through integrated, in-house development based on long-term analysis rather than short-lived trends. Technological gaps and incompatible product acquisitions were avoided.

At the same time, continuity was combined with innovation: Software AG repeatedly introduced state-of-the-art new products that set the standard for leading-edge technology. Data independence was achieved with the ADABAS database management system as far back as the early seventies - long before it was "required" by relational theory.

At the end of the same decade, Software AG became the first manufacturer to introduce fourth-generation technology with comprehensive functionality - NATURAL. This helped address the problems that many organizations had with application backlogs and extremely high maintenance requirements.

An Integrated Software Architecture

At the beginning of the eighties, NATURAL became the basis for an integrated range of products with a common interface for programmers and end users. This product family was constructed according to the principles of a software architecture. When others discovered the idea of the software architecture, and began to describe it as a purely theoretical concept, Software AG could already point to a concrete, systematically created architecture.
This architecture was fully defined in 1987 as ISA – the open Integrated Software Architecture. The principle of integration is enhanced by that of openness: external components such as other data formats or standards (SQL, LU 6.2, SNADS, VMS, UNIX, etc.) can be integrated, as can technical advances. This way change no longer entails throwing everything overboard and starting again; instead, applications can build on existing structures without a break.

At the same time, this continuity gave Software AG users a long-term stability. They were not required to change technologies at any stage, nor were their investments in application solutions ever in danger, since openness also means the integration of a wide range of hardware. Instead, they were able to develop their corporate information management strategy irrespective of proprietary hardware considerations. Customers who installed ADABAS at the beginning of the 1970s still base their information management on the same technology, and have not been troubled by discussions about changing their database systems or application development technologies. At the same time, they can enjoy the benefits of state-of-the-art functionality.

**Focusing on Human Needs**

In turn, this technical concept is based on Software AG’s development philosophy. A practical orientation toward users’ needs, as opposed to abstract academic theories, has been the guiding rule in the development of Software AG technologies. In this approach, software development is an interactive process in which the theoretical design is constantly measured against practical requirements, and repeatedly modified by input received from users.

In fact, dialog with users was the most important principle behind our product development from the very start. Especially important are the Software AG User Groups, which were founded in the early seventies. At regularly scheduled meetings, members of special work groups discuss product development and draw up suggestions. For example, during the development of ADABAS 3 into ADABAS 4, roughly 90 per cent of all such user suggestions were incorporated. Other products, such as ADABAS TRS (text retrieval) and NATURAL STATISTICAL LINK, are the direct result of particular customers’ concrete needs.
International Presence

After twenty years of systematic development, Software AG’s ISA offers integrated functionality that can meet an organization’s ever-changing information management requirements. Such a complex functional package requires considerable investment in research and development – on an international scale that has never been matched by any other independent software vendor.

In 1972 Software AG of North America (SAGNA) was founded, and in 1974 Software AG of Far East, which has its headquarters in Tokyo, was formed. In addition, the organization has founded affiliates in Europe and the Middle East since the beginning of the 1980s.

All of these international affiliated companies maintain extensive user group activity, and participate in world-wide development of new Software AG technologies.

Software AG now enjoys a leading position in all world markets. More than 3,500 organizations in 60 countries now base their information management strategy on ISA systems. Throughout the world, Software AG is known as an innovative, internationally successful organization, that absorbs impulses from all over the world and uses them as the basis for further developing its technologies.

The Human Touch

By continually developing state-of-the-art technology, Software AG has also made a significant contribution to information management in its twenty-year history. The most important result has been that data processing is being dictated less and less by internal technical considerations, but instead is coming closer and closer to a human viewpoint. The basic idea behind all Software AG products is the separation of the logical and physical layers of processing – i.e. end users’ problems are completely isolated from the characteristics of the information management tools used to solved them. This principle gave ADABAS its flexibility and universality, and was the basis for the high development productivity characteristic of fourth-generation
tools. It was also consistently followed in the Software AG architecture model, with its clearly defined functional layers. This architecture allows the integration of more and more complex functions and their presentations to users in an increasingly “natural” form that reflects human reasoning. These are prerequisites for meeting the new challenges facing information management.

The Strategic Challenges

Commercial information management is currently undergoing a fundamental change. Automating business management processes is becoming less and less important. Instead, information processing increasingly has to give organizations a competitive advantage. Information management thus becomes a control instrument with which corporate activities can be optimized and better coordinated, or even new activities made possible. This strategic function is assuming an even more central position in view of the challenges to be met in the next few years.

Market segmentation; shorter innovation cycles entailing optimum time management; the explosion in preparatory costs plus a corresponding need for even better cost management; the globalization of markets and internationalized production and distribution; all are only a few examples of future trends. These will be further intensified from 1992 onwards, when the planned European Internal Market comes into force. Information processing tasks include recreating and controlling an increasingly complex corporate reality, integrating new components with existing organization and information management structures within a uniform corporate strategy, and coping with multiple languages. Equally, the corporate information repository must offer cogent information on markets which today are largely unknown, and must provide an early warning system for change to the corporate environment as a whole.

The Strategic Solution: Software

At the same time, the ongoing developments in data processing make new requirements on software. Decentralization is spreading rapidly, particularly for cost reasons. New computers with an even better price/performance ratio are being developed and will have to be integrated with existing hardware and software applications. Since the growing number of possible solutions makes corporate data processing more and more involved, software systems must be able to “manage complexity”. And this in turn creates extremely high demands on system performance. Only a coherent, fully-realized software architecture is able to unite such contradictory trends within a uniform strategy.
New Services, New Technology

Software AG is prepared for these challenges. Our range of services is becoming more and more comprehensive and currently includes complete application solutions, customized application development, consultancy and seminars – in addition to more than 65 integrated products. We are adapting our technology to meet these new requirements, and again are setting new standards. The performance of our basic systems is constantly being improved, and new functions implemented. For example, Software AG’s integrated fourth-generation CASE technology can generate and manage highly complex corporate models while at the same time allowing further significant increases in productivity. Expert system development tools that are fully integrated into information management structures provide efficient solutions to problems that could either not be solved at all using conventional methods, or only by investing unacceptably high amounts of resources. Examples are problems with very large numbers of variables, processing vague or incomplete knowledge, and qualitative evaluations.

Entity Relationship: Tomorrow’s Technology

The basis for these and similar complex systems is an enhanced data base technology employing the Entity-Relationship approach. This allows the creation of structured information objects as a whole, in keeping with their natural form, and so preserves their semantic consistency. Software AG is the first manufacturer to offer this state-of-the-art technology for commercial data processing (with a product release planned for 1989). With the Entity-Relationship approach, organizations can realistically tackle other challenges such as CIM or voice processing. At the same time, this technology offers the prospect of storing information objects and the activities relating to them together, overcoming the separation in traditional information management structures between data and application procedures. “Application development” might then simply consist of invoking pre-defined objects with their relevant interfaces and initiating them using commands. Processing would take place in a mixed multi-user/single-user environment, with each function being performed in the most suitable place. Thus data processing – which used to be extremely technically oriented – will now be able to reflect human thought processes even more closely.
1988 – An Overview

Software AG’s orientation on a global uniform strategy and corporate culture dominated operations in 1988. Corporate activities expanded considerably, and the organization was able to improve its position in all world markets. Software AG’s strategic goals are based on the assumption that long-term partnerships with independent software manufacturers will become more and more important to customers in the future.

Following Software AG’s purchase of the shares in Software AG of North America (SAGNA) from the American stock market, an orientation on Software AG’s worldwide goals was initiated within the North American market. These goals are:

- Customer and staff relations which are based on the idea of a partnership
- The creation of user-friendly DP solutions
- A long-term orientation for the software architecture
- The promotion of international cooperation.

On an international level, the long-term orientation already emphasized in 1987 by the formulation of Software AG’s open Integrated Software Architecture (ISA), continued to provide a response to customers’ ever-growing demand for continuity.

For many customers, the products now available within ISA’s framework form the basis for data processing facilities that contribute both strategically and productively to achieving corporate goals.

The importance of the open Integrated Software Architecture was clearly recognized by customers last year. In the future, too, ISA will provide a framework within which more and more powerful software systems can be created, systems that will serve as the basis for more and more sophisticated application systems.

In addition to product licensing, Software AG’s customized application development teams are becoming more and more important. Customers consider the combination of powerful software products with Software AG’s assumption of responsibility for application development projects as a successful approach to solving their problems. During 1988, Software AG successfully completed more than 160 customized projects in the “Application Systems” area.

Washington D.C.
Status Report

1. General

For the first time, this Status Report contains both data on Software AG Germany and statements on the Software AG Group as a whole and on the Software AG Concern (these terms are explained below).

Software AG Germany (SAG D)
The main organizations active in Germany are
Software AG (the parent company) and Software AG Anwendungen & Co. (SAG AN)

SAG AN, which provides application solutions for Software AG customers, began business activities on January 1st 1988. The sum of the activities of the two companies is comparable to Software AG's business in 1987.

Software AG Concern (SAG C)
The Software AG Concern comprises all those companies in which Software AG holds a majority interest. These include both the vast majority of European affiliates and Software AG of North America.

Software AG Group (SAG G)
In addition to these affiliates, a series of partners throughout the world also distribute and support Software AG products, either as their only or as their primary business activity.

The addresses of the individual affiliates and partners are given in this Report.

Once again, results for 1988 were good. Despite strong competition, the number of user licenses for Software AG products increased over the previous year throughout the world. In particular, the number of licenses granted for the data base management system ADABAS in the extremely competitive IBM/SIEMENS market is worth mentioning. Sales of over 330 new licenses represent a further clear increase on the previous year, which yielded slightly more than 300. The total number of systems installed, including licences for DEC/VAX machines, rose to over 3,500.

In addition to the ADABAS licenses, a corresponding number of licenses were granted for the NATURAL Development system.

Benchmark Results Prove Performance

Also worth special mention here is the standard performance test conducted for ADABAS, which resulted in a figure of 388 standard TP1 transactions per second. This clearly exceeds the performance offered by other systems.
All the new products and product versions listed in the Status Report for 1987 as “available in 1988” were completed and delivered on time.

Particularly Successful New Products are:

- ADABAS ONLINE SERVICES, an ADABAS Selectable Unit that allows interactive management of ADABAS data bases
- NATURAL OPTIMIZER COMPILER, a NATURAL Selectable Unit that generates optimized machine code from the NATURAL source code
- NATURAL DB2, which allows IBM/DB2 data to be processed in a NATURAL environment
- CON-NECT, an office automation system
- NET-PASS, a VTAM-based session manager
- ADABAS TRS and NATURAL DOCUMENT MANAGEMENT, text and document management systems that allow contents-based retrieval
- NATURAL PROCESS, a system for monitoring and controlling the operating system environment

As in the past, the organization was characterized by a significant growth in staff during the year under report. The number of SAG D employees rose from 497 at the end of 1987 to 729 at the end of 1988. North American employees increased to more than 500. Although growth occurred in all areas, it was particularly pronounced in sales, customer support, application development and product development.

In addition, the standard ET1 test was performed in an IBM environment for the first time. Here too, ADABAS gave convincing proof of its power, with 167 transactions per second (measured from the point at which a terminal message reached the TP system, to the point at which the reply was transferred to the terminal). Thus Software AG has proved that its systems can offer customers unbeatable throughput, the major criterion for selection, and hence an unbeatable cost/perform- ance ratio as well.

Beyond the ADABAS/NATURAL new sales, other Software AG products continue to be well accepted by new and existing customers. The average number of licenses for Software AG products concluded per new customer was over six.
SAG D’s revenue increased from DM 171 million (1987) to DM 230 million in 1988. SAGNA revenues increased from $ 67 million to $ 77 million during FY 88. After its conversion to a calendar-based fiscal year, SAGNA posted CY 88 revenues of $ 82 million.

This growth is due both to an increase in Software AG’s customary software systems business and to the extended range of products and services offered in the area of customized application development.

2. Areas of Activity

As in previous years, the main area of corporate activity was development and the granting of licenses for software systems to be used in developing application systems. Related areas were customer support for installation, training of customer employees, and the modification and further development of the installed systems.

Once again, Software AG was able to expand its activities in the area of customized application solutions considerably. In Europe alone, over 600 well-trained application developers were employed in creating turn-key solutions. Thus, for customers, Software AG is increasingly changing from a simple software supplier into a partner with whom they can solve their problems.

The products developed by Software AG are used to develop high-performance, state-of-the-art applications. Not only do they aid cost reduction in the customer environment, they also achieve a qualitative improvement in the application solutions created.

3. Business Developments

Software AG distributes its products world-wide. In Europe and North America sales are mainly conducted via affiliates, while in the rest of the world cooperation partners are used.

Software AG’s European market strategy of representation by its own national affiliates paid off once again in 1988, since customers increasingly expect services such as training, technical support, consultancy and turn-key project development from their software systems suppliers. In other words, Software AG’s success in all markets depends on the extent and quality of its local representation. All independently operating local units are able to offer the technical, consulting and sales services required.
In keeping with Software AG’s general goals, all partner organizations are headed by executives who are either native to, or intimately familiar with, the host country and its culture. Consequently, all partner organizations are run in accordance with local management principles. Close cooperation ensures that the necessary know-how is constantly refreshed. A number of partner organizations are actively involved in product development, which is performed throughout the world.

Once again, 1988 saw a qualitative and quantitative expansion in the network of partner organizations in the Middle East, Europe and North America.

Software AG purchased all shares of Software AG of North America (SAGNA), strengthening its presence in this vital market.

A joint venture company was founded in 1988 in Kuwait.

In Italy, Software AG Italia was founded. The organization’s main office is in Milan, with a branch office in Rome.

Preparations were made for the foundation of Software AG Turkey, which has offices in Istanbul and Ankara. The company was registered in the Spring of 1989.

In Mexico, Software AG Mexico was founded.

This brings the total number of countries in which Software AG is represented by subsidiaries or partners to 31; Software AG products have now been installed in over 60 countries.
The recruitment of qualified staff continued in 1988 (see figure).

As had been planned, the proportion of employees in Application and Product Development rose by more than the average for the company as a whole.

<table>
<thead>
<tr>
<th>Region</th>
<th>500</th>
<th>1000</th>
<th>1500</th>
<th>1988</th>
<th>1987</th>
<th>% *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td></td>
<td></td>
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<td>1,432</td>
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<tr>
<td>Overseas</td>
<td>756</td>
<td>628</td>
<td></td>
<td></td>
<td></td>
<td>+20</td>
</tr>
<tr>
<td>SAG Group</td>
<td>2,689</td>
<td>2,057</td>
<td></td>
<td></td>
<td></td>
<td>+31</td>
</tr>
</tbody>
</table>

* increase in %

The Group invested over DM 60 million in the development of new products in 1988.

The majority of the new employees contributed immediately to the organization’s success, so that the rise in revenue corresponds to the increase in staff (see top and center figures).

<table>
<thead>
<tr>
<th>Region</th>
<th>50</th>
<th>100</th>
<th>150</th>
<th>200</th>
<th>250</th>
<th>% *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>228.4</td>
<td>163.1</td>
<td></td>
<td>103.8</td>
<td>85.7</td>
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<td>USA</td>
<td>94.0</td>
<td>82.0</td>
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</tr>
<tr>
<td>Overseas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAG Group</td>
<td>426.2</td>
<td>330.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* increase in % ** in million DM

A number of markets were particularly successful (see bottom figure).

The contracts of cooperation concluded with Software AG’s European sales partners provide that these should act as intermediaries between Software AG and users. The latter are granted copyrighted, non-transferable, one-off licenses to use Software AG systems.

The increase in revenue in the Application Solutions area (72 %) is greater than the rise in staff numbers in this area (70 %). This is due to the fact that the majority of employees who joined this division of Software AG in 1987 were already working productively.

Revenue for Training in Europe rose in 1988 by 30% as against 1987. This area now accounts for 6% of total revenue.

<table>
<thead>
<tr>
<th>Market</th>
<th>50</th>
<th>100</th>
<th>% *</th>
</tr>
</thead>
<tbody>
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<td>USA</td>
<td>103.8</td>
<td>85.7</td>
<td>+21</td>
</tr>
<tr>
<td>Spain</td>
<td>33.1</td>
<td>17.0</td>
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</tr>
<tr>
<td>Great Britain</td>
<td>30.9</td>
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<td>+21</td>
</tr>
<tr>
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<tr>
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<td>12.6</td>
<td>9.3</td>
<td>+37</td>
</tr>
<tr>
<td>West Germany</td>
<td>83.5</td>
<td>63.0</td>
<td>+33</td>
</tr>
</tbody>
</table>

* increase in % ** in million DM
Installations (as of Dec. 31, 1988)

<table>
<thead>
<tr>
<th>Region</th>
<th>500</th>
<th>1000</th>
<th>1500</th>
<th>2000</th>
<th>2500</th>
<th>3000</th>
<th>3500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Overseas</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>SAG Group</td>
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<td></td>
</tr>
</tbody>
</table>

4. Customer Relations

As in previous years, the range of products and services offered by Software AG increased in 1988. Customers made intensive use of product support services offered by both centrally and locally based teams of specialists, and of training facilities, which are increasingly being extended.

In addition to the direct support offered by Software AG, customers are able to draw on a growing number of software firms offering services based on Software AG products.

The policy of granting product licences at reduced rates to universities allows more students to train in the use of Software Technology. This means that customers can draw on growing numbers of young, qualified employees – and greater corporate acceptance of Software AG technologies.

Software AG's International User Group meetings allow users to exchange information with each other, and also serve as a forum for communicating new needs for extended product functionality. The lively exchange of views characteristic of User Group meetings proves the value of such a forum for information and communication.

As in the past, 1988 witnessed international and national User Conferences with growing numbers of participants. More than 2,200 people attended the conference in Nashville, Tennessee, and more than 1,000 attended the European conference in Vienna. These User Conferences are among the largest of their kind in the industry.
5. Employees

The number of Software AG staff is growing continuously. A total of 729 (232 more than in the previous year) were employed by SAG D at the end of 1988; over 500 people are employed by Software AG in North America. The organization's networked matrix structure of management has been a complete success in all areas. A comparison with the recent results gained from theoretical models of corporate structures shows that Software AG has already implemented in practice many of the principles of corporate management that are only now being confirmed in theory. Thus, for example, flat project structures such as those used by Software AG have been recognized as an advantage for enterprises operating in innovative markets, because they allow increased communication and encourage individual initiative.

The organization of personnel into small, identically structured units creates an environment in which individual employees can exercise maximum responsibility in their work and in which they have the chance to contribute.

In order to provide staff with an appropriate working environment, Software AG acquired another office building in 1987 in Alsbach.
Software AG’s new building in Alsbach an der Bergstraße, the headquarters of Software AG Anwendungen & Co.

Software AG of North America’s new headquarters in Reston, Virginia, near Washington D.C.

7. Outlook

Software AG anticipates a further increase in revenue from existing products. In addition, the following new products should make a significant contribution to future operating results:

- ADABAS HPE/TPF, a high-performance variety of ADABAS which offers integrated transaction processing components;
- ADABAS, NATURAL, and PREDICT for WANG/VS computers;
- PREDICT CASE, a computer-aided software engineering system that supports all phases of application implementation;
- NATURAL CONSTRUCT and NATURAL ARCHITECT WORKSTATION, CASE systems which automate application generation activities.

In addition, activities in the Applications area will be expanded further.

For 1989, Software AG is aiming at a significant increase in activity in the North American market.

Through increased CASE offerings; a growing product line for Digital Equipment Corporation and WANG users; expanded teams of Custom Solutions personnel; and new technologies which allow users to maximize the capabilities of alternate data management environments (as NATURAL DB2 does for DB2 users), Software AG will continue to gain new users in North America.

6. Cooperation

Cooperation with sales partners outside Europe is extremely important, both for improving market penetration and for customer support. Software AG’s relations with its partners were extended and reinforced.

Software AG Anwendungen & Co offers tailor-made application solutions for the German-speaking market. The company was founded by Software AG Germany and the Swiss SAG Software Systems AG.

In North America, Software AG Custom Solutions teams of expert consultants use Software AG technology to create business solutions for a growing list of customers.
Development of Software AG Products in 1988

In 1988, as in previous years, Software AG customers were provided with a series of new product versions in accordance with their maintenance agreements. In this way, the performance of the systems and their value to users is continually increased. In addition, a number of new products were completed and licensed to customers.

Software AG again consistently expanded its product range within the framework of its open Integrated Software Architecture (ISA) in 1988. The company offers its customers a range of integrated functionality that cannot currently be equalled by any other manufacturer.

ISA provides the basic architecture with which to develop new functions in an integrated fashion, using new technical facilities, and without users having to make significant modifications to existing application systems.

IBM/SIEMENS Environment
New Product Versions and Products

1. Tools for Productive Application Development

The demand for new, customized DP solutions to support all areas of corporate activity is as strong as ever.

The use of fourth-generation systems in many different areas has provided considerable gains in productivity, both short-term and long-term. Software AG has many years' experience in the development and use of such state-of-the-art systems.

The application development system NATURAL, the active data dictionary PREDICT, and the database management system ADABAS are important, powerful components with which powerful application systems can be efficiently created.
NATURAL OPTIMIZER COMPILER
(Selectable Unit for an existing product)

The introduction of NATURAL OPTIMIZER COMPILER conclusively disproves the argument that users have to pay for fourth-generation systems with reductions in application system throughput.

NATURAL OPTIMIZER COMPILER creates optimized machine code for data manipulation functions that matches the throughput obtained with conventional programming languages. Performance comparison tests have proved that the machine code created by NATURAL for data processing operations is as fast as, and in some cases faster than, the comparable functions in conventional programming languages such as COBOL.

Thus NATURAL can also be used without restriction for batch applications involving complex data manipulation.

NATURAL SQL/DB2
Support
(Selectable Unit for an existing product)

SQL/DS and DB2 users have been led by strategical considerations to adopt data base systems whose manufacturers do not as yet offer an integrated environment for implementing application systems.

NATURAL SQL/DB2 offers these users a fourth-generation development environment with an active, integrated dictionary.

Since NATURAL SQL/DB2 optionally supports VSAM, DL1 and ADABAS in addition to the above-mentioned data storage systems, users can create applications that process data from all these environments transparently and simultaneously.

PREDICT CASE
(new product)

Software AG's PREDICT CASE is a computer support system for implementing large-scale application systems. It supports systematic, planned requirements analysis and implementation structuring.

PREDICT CASE offers Software AG customers a powerful CASE technology that forms a positive contrast to the other products in this area already on the market.

NATURAL CONSTRUCT
(new product)

NATURAL CONSTRUCT allows users to generate complete application systems automatically, without having to write programs.

Application system functionality is determined automatically from a small number of parameters using data maintenance, query and report generation programs. NATURAL CONSTRUCT automatically generates both the programs needed and the menu procedures for selecting individual functions.
2. Data Base Management Systems

As the number of interactive application systems to be run on the basis of an integrated data base grows, so do the requirements made on the DBMS itself.

All technical opportunities offered by the operating system environment must be used if maximum system performance is to be achieved.

ADABAS has long been optimally integrated into its various operating system environments.

A further opportunity to increase performance is now offered by an integrated DB/DC environment.

ADABAS HPE/TPF
(new product)

Software AG's ADABAS HPE/TPF offers an integrated DB/DC environment for IBM's MVS/XA and MVS/ESA operating systems. It completely eliminates the communication and coordination between multiple address spaces that is normally necessary. Use at customer sites has confirmed that ADABAS HPE/TPF reduces total CPU load by roughly 40% in absolute terms, in comparison with conventional transaction systems operating in separate address spaces.

3. End-User Systems and Office Automation

More and more customers now urgently need integrated text and data processing and commercial application systems. Not only do they need to display and manipulate text excerpts in document form flexibly, they also have to be able to retrieve text on the basis of its contents, by combining several search terms.

NATURAL DOCUMENT MANAGEMENT
(new product)

NATURAL DOCUMENT MANAGEMENT allows the flexible specification of document structures (author, title, date, text, divisions, etc.) via parameters. All data entry, maintenance, query and document display functions are automatically available.

Users can create a flexible document management system with NATURAL DOCUMENT MANAGEMENT, without first having to write application programs.
4. Communication Systems

In addition to transaction processing with TP monitors, there is a growing need for session management across different processing environments.

This means that IBM user functions such as Window Management and Session Switching can be offered. These are currently otherwise only available in a PC environment and will not be incorporated as a standard in IBM's SAA architecture until later.

VM-PASS
(new product)

With VM-PASS, a session management system is now also available for VM environments. The interface is based on that of NET-PASS, which means that compatible functionality exists for the two environments.

CON-NECT TELEX

With the CON-NECT TELEX link, telex texts can be entered and modified in CON-NECT and then sent directly to the telex machine via a hardware link. Equally, telexes can be received in the same way and then distributed via CON-NECT to the addressees.

Zurich
5. Computer Center Automation Systems

Large computer centers operating myriad parallel application systems need to be able to automate operations, especially when applications are run across distributed processing nodes. This entails the ability to include the functions needed to run applications within these systems themselves.

NATURAL PROCESS (new product)

At present, NATURAL PROCESS enables users to access and control activities in IBM’s MVS operating system. The system environment control functions can be implemented as NATURAL programs and thus integrated into applications.

DEC/VAX Environment

The use of DEC computers for high-volume commercial applications continues to grow dramatically.

With proven performance at high transaction volumes, Software AG Digital products will continue to gain acceptance among DEC/VAX users.

New Product Versions and New Products

ADABAS (VMS) 1.5 (new product version)

ADABAS (VMS) 1.5 further simplifies database administration for users, thanks to new or improved utilities and, in addition, optimizes transaction processing.
NATURAL (VMS) 1.4
(new product version)
NATURAL (VMS) 1.4 offers users a further increase in performance, especially in terminal communication.

NATURAL CONSTRUCT (VMS)
(new product)
NATURAL CONSTRUCT (VMS) is a system for generating applications in a NATURAL/PREDICT environment. In addition to a program composer, it provides a help text system and a program frame management environment.

NATURAL PROFESSIONAL (VMS)
(new product)
NATURAL PROFESSIONAL (VMS) is a tool kit that further simplifies the development and maintenance of NATURAL applications.

NATURAL GRAPHICS (VMS)
(new product)
NATURAL GRAPHICS (VMS) allows NATURAL users to process reports graphically.

WANG Environment
Since 1988, Software AG products have also been available to users in WANG/VS environments. The WANG/VS environment is, in regard to Software AG products, completely compatible with the IBM/370 environment. The new WANG VS5000 and VS7000 computers provide a financially attractive alternative to departmental data processing on the basis of fully IBM-compatible machines.

ADABAS, NATURAL, PREDICT, SUPER NATURAL and NATURAL CONSTRUCT are available for the WANG/VS environment.

Their functionality is identical to that of the versions for the IBM environment.
Research and Development

Once again, numerous development projects were continued or started in 1988. The results will be offered to Software AG customers in the near future as new product versions and products.

Existing product ranges are being extended and a number of new basic technologies developed as described below.

Enhanced Data Base Functionality

ADABAS ENTIRE
With ADABAS ENTIRE, the manipulation of complex, structured data objects becomes part of standard data base functionality. The product provides capabilities for recursive searches and active cross-references, while actively monitoring data consistency.

ADABAS ENTIRE is an integrated component of the PREDICT CASE and NATURAL EXPERT products.

ADABAS ENTIRE will be made available in early 1990.

ADABAS GEOGRAPHIC
More and more commercial applications require the geographical localization of commercial data. Until now, only addresses could be used.

ADABAS GEOGRAPHIC enables the precise geographical notation of commercial data via their localization on an "electronic" map. Equally, it supports the retrieval of such data on the basis of this geographical notation.

ADABAS GEOGRAPHIC will be available early in 1990.

ADABAS FAST-PATH
ADABAS FAST-PATH is specially designed for use with large storage resources such as those which will be available with MVS/ESA. Tables that are only needed for access can be managed transparently under the control of the user task in data spaces in the central store. This significantly reduces CPU load during access.

ADABAS FAST-PATH will be available at the end of 1989.
Application Development Systems

PREDICT APPLICATION CONTROL
As the number of application systems implemented using NATURAL grows, so does demand for a status control for all application elements.
PREDICT APPLICATION CONTROL manages and controls all the components belonging to an application and maintains historical versions.
PREDICT APPLICATION CONTROL will be available at the end of 1989.

NATURAL GEOGRAPHIC WORKSTATION
NATURAL GEOGRAPHIC WORKSTATION allows data and their geographical locations to be manipulated at a graphic workstation. Maps can be displayed on a PC terminal, individual areas enlarged and commercial data projected onto the map.
NATURAL GEOGRAPHIC WORKSTATION will be available in early 1990.

NATURAL ACTIVE VIEW PROCESSOR
NATURAL ACTIVE VIEW PROCESSOR makes the representation of data as used in application programs absolutely independent of their representation during storage. This provides complete logical data independence for both access and data modification.
NATURAL ACTIVE VIEW PROCESSOR will be available at the end of 1990.
PREDICT CASE 2
PREDICT CASE 2 is a NATURAL-based computer-supported application development environment that covers all stages in an application's life cycle, from the initial design to maintenance of the finished programs.

Business functions and data are specified in the PREDICT CASE environment, as opposed to individual programs. The programs are automatically assembled, which means that maintenance can also be performed at the specification level.

PREDICT CASE 2 will be available in 1989.

PREDICT CASE WORKSTATION
PREDICT CASE WORKSTATION is the graphic workstation used to process objects from the PREDICT CASE development database in graphic form.

PREDICT CASE WORKSTATION automatically arranges the selected objects graphically, so that graphics that would otherwise take hours to create can now be completed in a matter of seconds.

PREDICT CASE WORKSTATION will be available in 1989.

End-user Systems

NATURAL SPREADSHEET
NATURAL SPREADSHEET enhances SUPER NATURAL functionality to include a mainframe-based, three-dimensional spreadsheet.

This means that data produced by a number of different PC users can be consolidated on the mainframe and further processed there using spreadsheet functions.

NATURAL SPREADSHEET will be available in 1989.

NATURAL EXPERT
Expert systems can be used in applications to solve complex problems, in which decisions have to be made on the basis of a large number of criteria.

Examples include insurance risk analysis, bank credit evaluation, and medical and technical diagnostic systems.

NATURAL EXPERT extends NATURAL functionality to include a rule-based expert system that can be completely integrated in applications. The product provides high throughput, and supports numerous concurrent users.

NATURAL EXPERT will be available at the end of 1989.
CON-NECT PC WORKSTATION

Office automation requires a central component for document storage and central control of communication. PCs, with their rapid local intelligence, are suitable for use as workstations. CON-NECT PC WORKSTATION links CON-NECT on the mainframe with special work center functions on the PC. Users can process tasks transparently on the mainframe or PC as appropriate, and documents and programs can be exchanged flexibly between the two.

CON-NECT PC WORKSTATION will be available in 1989.

NATURAL EXECUTIVE

NATURAL EXECUTIVE provides a new user interface that is more tailored to end users’ needs.

Making use of NATURAL2 features, NATURAL EXECUTIVE offers a windowing technique, active help functions and a wide range of functions that users can configure in any way desired.

NATURAL EXECUTIVE will be available at the end of 1989.

NATURAL STATISTICAL LINK

The SAS® software package offers users a wide range of statistical and graphic reporting functions.

NATURAL STATISTICAL LINK creates a direct link between SAS and SUPER NATURAL, which means that users can utilize functions from both systems transparently and in parallel, without being aware that they are switching between two different systems.

NATURAL STATISTICAL LINK illustrates how the openness of ISA provides optimum integration of other manufacturers’ products.

NATURAL STATISTICAL LINK will be available in 1989.

* SAS is a registered trademark of the SAS Corporation
Transaction Processing and Communication Systems

COM-PLETE 4.5
COM-PLETE 4.5 allows complete adaptation to MVS/XA or ESA environments and supports multiprocessor operations with conversational transaction processing.

The data management systems supported are ADABAS, which provides optimum communication, and IBM’s DB2.

COM-PLETE 4.5 will be available in 1989.

Computer Center Automation Systems

NATURAL PROCESS (VSE and BS2000 environments)
The proven NATURAL PROCESS technology for the MVS environment will be extended to cover BS2000 and VSE. Thus users will be provided with functions with which to automate system environment operations from within application systems.

NATURAL PROCESS VSE/BS2000 will be available in 1989.

NATURAL OPERATIONS
NATURAL PROCESS marked Software AG’s entry into the market for system-oriented products for computer center automation.

NATURAL OPERATIONS, which is based on NATURAL PROCESS, offers automated job process control.

NATURAL OPERATIONS allows the creation of job networks, including restart procedures and the initiation of online applications. Its functionality can be further extended via NATURAL programs.

NATURAL OPERATIONS will be available in 1989.
**NATURAL CONSOLE**

NATURAL CONSOLE allows system console operations to be automated to a large extent. Messages can be distributed across a number of "logical" consoles and answered with automatic procedures, which means that the system can perform many routine activities automatically.

NATURAL CONSOLE will be available in 1989.

**DEC/VAX Environment**

**NATURAL 2**

NATURAL 2 for DEC/VAX environments will provide full compatibility between the IBM and DEC/VAX worlds at the NATURAL 2 level. The system has been considerably restructured and is thus capable of extension into an OLTP transaction system.

NATURAL 2 will be available in 1989.

**NATURAL Rdb and RMS Support**

Software AG's NATURAL Rdb Support opens up the NATURAL system to allow data from DEC-specific data storage systems to be processed.

The familiar NATURAL data manipulation statements can now also be used with Rdb and RMS files.

NATURAL Rdb and RMS will be available in 1989.

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Melbourne
NATURAL CONNECTION

NATURAL CONNECTION will allow IBM PCs to be used as workstations with DEC/VAX computers.

In this context NATURAL CONNECTION offers the same functionality as in a purely IBM world, including facilities for active data transfer and terminal emulation.

NATURAL CONNECTION will be available in 1989.

ADABAS/NATURAL PC

ADABAS/NATURAL PC offers full mainframe functionality for users of OS/2 operating system. Thus PCs may be used as stand-alone devices or, when linked together via LANs, as a development environment or for running local applications.

In addition to its ADABAS link, NATURAL can also process data from SQL-based systems in this environment.

ADABAS/NATURAL PC will be available in 1989.

ADABAS/NATURAL UNIX

Software AG's ADABAS/NATURAL UNIX meets the requirement voiced by many users who wish to improve the flexibility of application operations using a UNIX environment, but who cannot achieve this using SQL and the "C" programming language alone.

ADABAS/NATURAL UNIX is further proof the portability offered by the open Integrated Software Architecture.

ADABAS/NATURAL UNIX will be made available in the course of 1990.

Concluding Remarks:

As this list of developing technologies demonstrates, Software AG is continually enhancing its existing systems and also rapidly extending the functionality offered by ISA. This is a prerequisite if the organization is to be a competent partner for its customers in the future.
Activities in the Application Sector

As with Custom Solutions in North America, Software AG’s Applications sector in Europe creates tailor-made, turn-key application systems for customers. The organization either assumes complete responsibility for the project, or acts in cooperation with the client, as desired.

Software AG is investing continuously in this arena to provide customers with qualified support for application system development. Over the last few years, it has completed numerous projects successfully and amassed considerable know-how, both in different application sectors and in targeted project management. In 1988, more than 600 staff were employed in the Applications sector in Europe alone.

The following paragraphs present a brief overview of some of the application projects completed in 1988, or currently under development, by Software AG application consultant teams around the world:

Austria

The largest private tour operator group in Austria, ITAS, PACO LEONE and LAUDA TOURS, has developed its own ADABAS/NATURAL-based booking system and an accompanying accounting application from scratch within a year. Owners Basile Varvaressos and Niki Lauda were convinced by the rapid development possible with NATURAL, and the low-redundancy, relational storage provided by ADABAS, as well as by the easy portability, which provides additional security. The central system uses a SIEMENS BS2000 machine, with a WANG VS as a backup. The system’s open design has already been put to the test: the application could be hooked up to the travel agency network, START, in only six weeks.
Belgium

SOLVAY is one of the largest chemicals and pharmaceuticals manufacturers. Together with Software AG, the organization developed the SIR international information system (Système d’Information Rapide). The system, which is based on ADABAS and NATURAL, coordinates the distribution of strategic information on daily business between the headquarters in Brussels and over 50 subsidiaries. It runs on a central IBM 3090 and uses local PCs as integrated workstations.

Considerable attention was paid to automating all procedures, and to data security.

A second project, the Base des Données Techniques de l’Usine (BDTU), was also developed for SOLVAY. This application system is designed to manage, analyze and check chemical-technical production data. A number of interfaces to other systems exist.

The new system’s outstanding feature is its multilingual capacity, which is designed to allow it to be installed effortlessly in the different branches. The system will be used in production on IBM and DEC/VAX computers in exactly the same way, thanks to the portability of NATURAL functions.

Federal Republic of Germany

In 1988 the ZDF, West Germany’s second national television channel, started production of its press information system SPHINX. With it, news items received online by the central computer via a direct link to the dpa (a German press agency) can be stored and indexed immediately in a press data base. Thus editors always have access to the latest news from this source. The system has considerably improved the topicality of the news items and makes the editors’ job easier at the same time.

A system for internal and external order allocation for large projects has been created for the Lufthansa Order File (ULAD) at Messerschmitt-Bölkow-Blohm (MBB). These large projects, and the orders resulting from them, are monitored via management of funding and personnel resources, and technical progress control. Particularly noteworthy are the integration of CON-NECT (text processing and electronic mail) and interfaces to standard packages.

An employee information system, MIFOS, was created for BOSCH-SIEMENS-Appliances. The system comprises the components “initial transfer from the operational standard personnel management system”, “monthly comparison with operational files”, “variable selectable dialog-based analysis for personnel selection and management”, “standard analysis and statistics” and “reporting”.

Brussels: the Old Town and Place Catheirne
Finland
With revenue of more than DM 10,000,000,000 per annum, Finnpap is Finland’s largest paper dealer. Its new sales and distribution system is based on ADABAS and NATURAL. Despite its extremely large size, it was completed on time and in accordance with specifications. The system is run in all sales organizations throughout the world on a heterogeneous network of central IBM computers and distributed DEC/VAX machines.

France
Société Générale is a large French bank, which mainly specializes in providing services to private customers. The bank uses Software AG products at ten different sites. Software AG France was chosen from among more than 100 service companies who work with Société Générale to develop a number of applications connected with the bank’s central customer file.

SOLLAC is the leading iron and steel producer in France and uses Software AG products at all its facilities throughout the world. In 1988 SOLLAC completed a number of applications that are to be used either throughout the group or for individual companies within it.
The international credit card company EUROCARD has its headquarters in France. In 1988 it implemented a strategic application for billing all EUROCARD credit card accounts world-wide, which is based on ADABAS and NATURAL. In addition, the company created its own support tools for implementing applications on the basis of ADABAS and NATURAL.

Great Britain

The British Film Institute (BFI) manages information on more than 30,000 films and television programs, some of which even date back to the last century. In addition, they provide information on personalities, organizations, festivals, awards, etc.

In 1988, Software AG UK delivered the SIFT system (Summary of Information on Film and Television) to the BFI. This allows information to be provided both online and in report form to the BFI's own departments, members, libraries and educational institutes.

Following SIFT's success, the BFI has signed a number of contracts with SAG UK for further applications connected with the central data base. SIFT runs on a DEC/VAX 8250 and is linked to communication services via DECnet.
Holland

In April 1986, the general betting organization LADBROKE acquired the right to act as bookmakers for Dutch horse races for 20 years. At the time, a computer-supported betting system did not exist. Recognizing the importance of such a computer-aided system, LADBROKE engaged two experienced Australian consultants to help develop one.

Five Australians began developing the system in September 1987, although at this point neither a computer, nor a computer center, nor software, applications or programmers were available.

The system was planned to go into production in April 1988.

LADBROKE then decided to acquire licenses for a number of Software AG products. This made it possible to create a complete online betting system and to go into production with it as planned on 1st April 1988 in over 2,000 betting shops, which are linked to headquarters in The Hague.

The system provides all possible information on race courses, individual results, etc. and allows bets to be placed up until a few seconds before the race starts.

USA

US SPRINT is one of the largest telecommunications firms in the United States. It commissioned a Customer Information System that can accommodate more than 3,000 active users simultaneously during peak business hours. More than a million online transactions are handled each day, not to mention the various batch jobs. All in all, the data base has to process more than 80 million calls per day.
Venezuela

The Ministry of Transport switched from manual processing to computer-supported procedures (including documentation and training) in only three months. The system created is used to register all vehicles in the country (roughly 2 million). In addition, it processes all updates, such as changes of ownership. Roughly 80,000 transactions are performed per day.

To aid in issuing driving licenses, the system is also integrated with the resident’s registration office, which contains data on more than 40 million people.

All the applications were created in NATURAL: a COBOL compiler is not used. The system is run on an IBM 4381. Conversion from VSE to MVS was completed in four days.

BANCO CONSOLIDADO decided to convert to IBM machines to cope with its increasing volume of business, and installed an IBM 3090 150E with 1,000 terminals. ADABAS and NATURAL were selected as the basis for application development.

All existing applications were converted within 12 months, and a further thirty developed. These include risk appraisal, short-, medium-, and long-term investments, savings deposits, and current and savings account maintenance. The system processes more than 300,000 online transactions per day using a country-wide network.

Banking Software

The development of complex, sophisticated application solutions is Software AG’s answer to its customers’ growing need for tailor-made, strategic, integrated and comprehensive solutions.

In cooperation with three banks, Software AG is developing a comprehensive application solution to cover all common areas of banking activity.

This new development guarantees a system offering optimum functionality, extendability, integration and portability. The aim is to produce an application solution with a high degree of functionality and high quality also represent an optimum solution for other banks.

Software AG guarantees long-term maintenance of the system.

Activities in the Training Sector

The consistent realization of Software AG’s clear concept led to a significant increase in activity in the training sector, and the services offered. The foundation of the Software AG Academic provides a forum for specialist seminars at a more general level than that of the product training that already existed.

The Software AG Academic

Following the foundation of the Software AG Academic, ten different specialist seminars on topical themes in information processing were held in Germany. The target groups for these seminars ranged from top management to DP specialists and management, and took in both customers and other software system manufacturers.

Product training

In this area, Software AG currently offers 32 different courses on the use of its products. In Germany alone, a total of 35 trainers taught roughly 7,000 participants in 550 courses. A corresponding number of courses were also held in other countries.
Consolidated Domestic Accounts for 1988
### Software AG Darmstadt, consolidated (domestic) balance sheet as of Dec. 31, 1988

(In thousands of Deutschmarks)

<table>
<thead>
<tr>
<th>Assets</th>
<th>December 31, 1988</th>
<th>December 31, 1987</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fixed assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intangible assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Patents, trademarks and similar rights</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- as well as licences thereto</td>
<td>291</td>
<td>237</td>
</tr>
<tr>
<td><strong>Tangible assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Land and leasehold rights and buildings,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>including buildings on land owned by others</td>
<td>33,245</td>
<td>32,457</td>
</tr>
<tr>
<td>- Other fixtures and fittings, tools and equipment</td>
<td>18,699</td>
<td>14,843</td>
</tr>
<tr>
<td>- Payments on account and tangible assets in the course of construction</td>
<td>8,457</td>
<td>60,401</td>
</tr>
<tr>
<td><strong>Financial assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Shares in affiliated undertakings</td>
<td>34,526</td>
<td>1,096</td>
</tr>
<tr>
<td>- Other loans</td>
<td>1,770</td>
<td>36,296</td>
</tr>
<tr>
<td></td>
<td>96,988</td>
<td>1,244</td>
</tr>
<tr>
<td><strong>Current assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Stocks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Sales and services still to be invoiced</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>- Accounts receivable and other assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Accounts receivable</td>
<td>46,373</td>
<td>34,943</td>
</tr>
<tr>
<td>- not due within one year:</td>
<td>804 TDM</td>
<td></td>
</tr>
<tr>
<td>- Due from affiliated companies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- not due within one year:</td>
<td>2,264 TDM</td>
<td>20,804</td>
</tr>
<tr>
<td>- Other assets</td>
<td>255 TDM</td>
<td>9,783</td>
</tr>
<tr>
<td>- not due within one year:</td>
<td></td>
<td>15,203</td>
</tr>
<tr>
<td>- Securities</td>
<td>91,519</td>
<td>70,950</td>
</tr>
<tr>
<td>- Other securities</td>
<td>12,063</td>
<td>12,160</td>
</tr>
<tr>
<td>- Checks, cash on hand/on deposit with the Deutsche Bundesbank and in postal checking accounts, cash in other bank accounts</td>
<td>14,769</td>
<td>4,390</td>
</tr>
<tr>
<td>- Prepaid expenses and deferred charges</td>
<td>26,832</td>
<td>118,376</td>
</tr>
<tr>
<td>- Balance sheet total</td>
<td>215,528</td>
<td>137,871</td>
</tr>
</tbody>
</table>

*plus figures for the previous year*
<table>
<thead>
<tr>
<th>Liabilities</th>
<th>December 31, 1988</th>
<th>December 31, 1987</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TDM</td>
<td>TDM</td>
</tr>
<tr>
<td><strong>Capital and reserves</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subscribed capital</td>
<td>5,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Revenue reserves</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Legal reserves</td>
<td>77,110</td>
<td>71,317</td>
</tr>
<tr>
<td>Other reserves</td>
<td>1,118</td>
<td>6,792</td>
</tr>
<tr>
<td>Consolidated profits</td>
<td>103</td>
<td>--</td>
</tr>
<tr>
<td>Adjustment for shares belonging to other shareholders</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>83,831</td>
<td>83,609</td>
</tr>
<tr>
<td><strong>Provisions for liabilities and charges</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provisions for pensions</td>
<td>9,354</td>
<td>9,171</td>
</tr>
<tr>
<td>Provisions for taxation</td>
<td>30</td>
<td>578</td>
</tr>
<tr>
<td>Other provisions</td>
<td>23,573</td>
<td>21,766</td>
</tr>
<tr>
<td></td>
<td>32,957</td>
<td>31,515</td>
</tr>
<tr>
<td><strong>Creditors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amounts owed to credit institutions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- due within one year:</td>
<td>21,502 TDM</td>
<td></td>
</tr>
<tr>
<td>Payments received on account of orders</td>
<td>87,502</td>
<td>13,000</td>
</tr>
<tr>
<td>- due within one year:</td>
<td>872 TDM</td>
<td>--</td>
</tr>
<tr>
<td>Accounts payable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- due within one year:</td>
<td>6,224 TDM</td>
<td>5,813</td>
</tr>
<tr>
<td>Due to affiliated companies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- due within one year:</td>
<td>43 TDM</td>
<td>1</td>
</tr>
<tr>
<td>Other liabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- tax</td>
<td>2,316 TDM</td>
<td></td>
</tr>
<tr>
<td>- social security:</td>
<td>963 TDM</td>
<td></td>
</tr>
<tr>
<td>- due within one year:</td>
<td>4,099 TDM</td>
<td>3,933</td>
</tr>
<tr>
<td></td>
<td></td>
<td>98,740</td>
</tr>
<tr>
<td><strong>Balance sheet total</strong></td>
<td></td>
<td>215,528</td>
</tr>
<tr>
<td></td>
<td></td>
<td>137,871</td>
</tr>
<tr>
<td><strong>Liabilities entered into</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contingent liabilities</td>
<td>DM --</td>
<td>(TDM 488 in previous year)</td>
</tr>
<tr>
<td>Guarantees</td>
<td>TDM 1,351 (DM -- in previous year)</td>
<td></td>
</tr>
</tbody>
</table>
### Consolidated (domestic) statement of income for the year ended Dec. 31, 1988

<table>
<thead>
<tr>
<th>Description</th>
<th>1988 TDM</th>
<th>1987 TDM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales revenues</td>
<td>230,508</td>
<td>170,915</td>
</tr>
<tr>
<td>Increases in inventory due to sales and services not yet invoiced</td>
<td>+ 25</td>
<td></td>
</tr>
<tr>
<td>Other operating income</td>
<td>+ 8,325</td>
<td></td>
</tr>
<tr>
<td>+ 238,858</td>
<td></td>
<td>+ 4,169</td>
</tr>
<tr>
<td>+ 175,084</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Wages and salaries</td>
<td>- 59,988</td>
<td></td>
</tr>
<tr>
<td>b) Social security costs,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>thereof related to pensions: 903 TDM</td>
<td>- 7,955</td>
<td>- 67,943</td>
</tr>
<tr>
<td>Depreciation and writedowns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) on property, plant and equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>and on intangible assets</td>
<td>- 12,124</td>
<td></td>
</tr>
<tr>
<td>b) on current assets, to the extent that these exceed the normal amount</td>
<td>- 102,113</td>
<td>- 76,562</td>
</tr>
<tr>
<td>Other operating charges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income from holdings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>thereof derived from affiliated undertakings: 43 TDM</td>
<td>+ 43</td>
<td>+ 43</td>
</tr>
<tr>
<td>Income from lendings of financial assets</td>
<td>+ 2</td>
<td>+ 15</td>
</tr>
<tr>
<td>Other interest and similar income,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>thereof derived from affiliated undertakings: 96 TDM</td>
<td>+ 1,436</td>
<td>+ 1,793</td>
</tr>
<tr>
<td>Writedown on investments and securities held as current assets</td>
<td>- 103</td>
<td>- 241</td>
</tr>
<tr>
<td>Interest and similar expenses,</td>
<td>- 3,657</td>
<td>- 179</td>
</tr>
<tr>
<td>thereof due to affiliated undertakings: -,- TDM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profit on ordinary activities</td>
<td>+ 54,399</td>
<td>+ 36,277</td>
</tr>
<tr>
<td>Extraordinary expenditure (writedowns on investments)</td>
<td>- 50,483</td>
<td></td>
</tr>
<tr>
<td>Taxes on income and net worth</td>
<td>- 1,255</td>
<td>- 21,751</td>
</tr>
<tr>
<td>Other taxes</td>
<td>- 1,540</td>
<td>- 941</td>
</tr>
<tr>
<td>Consolidated net income</td>
<td>1,121</td>
<td>13,585</td>
</tr>
<tr>
<td>Profit due to other shareholders</td>
<td>- 3</td>
<td></td>
</tr>
<tr>
<td>Consolidated profits</td>
<td>1,118</td>
<td>13,585</td>
</tr>
</tbody>
</table>
1. General Remarks on the Consolidated Domestic Accounts, and on the Methods of Accounting and Valuation Used

In 1988 Software AG presented consolidated domestic accounts for the first time, following the creation of the “Applications” division as a separate legal entity. The consolidated domestic accounts comprise the end-of-year accounts for Software AG, the controlling company for Software AG Anwendungen & Co., in Alsbach.

Last year’s SAG figures are given for each balance sheet item, since the SAG accounts for that year are fully comparable with the consolidated domestic accounts.

Consolidation Principles

Full consolidation was performed in accordance with section 300, paragraph 2 of the Federal German Commercial Code. The cut-off date for the consolidated accounts, Dec. 31, 1988, is also the reporting date for both companies’ annual accounts. Uniform methods of valuation and statement were laid down and adopted for both sets of annual accounts.

The annual accounts for Software AG and Software AG Anwendungen & Co., and the consolidated domestic accounts, have been audited and granted an unqualified auditors’ certificate.

Currency Translation:

Income and expenditures in foreign currencies were booked during the year at the rate of accrual. Accounts receivable and liabilities open on the reporting date were valued at the market price on that date, except where their rates of accrual were lower (in the case of assets) or higher (in the case of liabilities).

2. Explanation of the Balance Sheet

The intangible assets mentioned (patents, trademarks and similar rights) refer to software acquired for a consideration.

Land and leasehold rights together with buildings increased as against the previous year through the acquisition of a piece of real estate and by leasehold improvements.

DM 7.7 million was invested in EDP equipment in 1988.

The item payments on account and tangible assets in the course of construction refers in particular to the Office Building II in the Uhlandstrasse in Darmstadt, construction of which began in 1988.
Shares in affiliated undertakings amount to TDM 34,526. The holdings concerned mainly act as sales companies. All capital contributions had been made in full at the balance sheet date; the book value in each case corresponds to the original costs.

Other loans refers exclusively to employee loans.

The amount of accounts receivable has increased with the expansion of business activities.

The amount due from affiliated companies has increased as against the previous year. This is mainly the result of ongoing sales activities and accounts receivable from Software AG's new subsidiaries.

In the item capital and reserves, the subscribed capital comprises 100,000 bearer shares with a nominal value of DM 50,- each.

The revenue reserves comprise the legally required minimum reserves of DM 500,000, plus other reserves amounting to DM 77,109,498.47.

The sum of DM 5,792,481.81 was transferred from the net income shown in the balance sheet for the previous year to the other reserves by the general meeting of the shareholders.

The item provisions for pensions refers solely to commitments to individuals.


As in the past, other provisions cover obligations in respect to guarantees, holidays and bonuses, as well as other risks foreseeable on the balance sheet date.

The amounts owed to credit institutions mainly served to finance the acquisition of the interest in Software AG Systems Inc. The accounts payable are almost the same as in the previous year.

### 3. Explanation of the Profit and Loss Account

As in the past, the total cost method of short-term results accounting was used.

#### Breakdown of sales revenues (in TDM)

<table>
<thead>
<tr>
<th>According to area of activity</th>
<th>1988</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td>○ granting of rights of use</td>
<td>159,283</td>
<td>117,400</td>
</tr>
<tr>
<td>○ maintenance</td>
<td>39,635</td>
<td>29,656</td>
</tr>
<tr>
<td>○ other technical revenues</td>
<td>31,590</td>
<td>23,858</td>
</tr>
<tr>
<td></td>
<td>230,508</td>
<td>170,914</td>
</tr>
<tr>
<td>thereof</td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ in the Federal Republic of Germany</td>
<td>83,494</td>
<td>63,027</td>
</tr>
<tr>
<td>○ abroad</td>
<td>147,014</td>
<td>107,887</td>
</tr>
</tbody>
</table>

The increase in revenue amounted to DM 59.6 million (~35%).

The item "other technical revenues" refers mainly to application development (TDM 17,906), training (TDM 8,455) and consultancy (TDM 2,139).
About the Company

1969

Software AG is founded in Darmstadt.

The idea of an adaptable, all-purpose data base management system is born out of extensive experience of DP applications and the development of the company's first software products.

The aim is to provide rapid, flexible access to electronically stored information.

1971

The first version of the ADABAS data base management system is implemented on a commercial basis. This creates the technical product basis for the company's success.

1972

Software AG of North America is founded.

1974

Software AG of Far East is founded in Japan.

1976

Development of NATURAL starts. This software system enables customers to create their own DP applications far more economically.

1979

NATURAL is implemented commercially for the first time. The system contains new technological features which have since become software standards.

NATURAL and ADABAS are now among the most commonly used products of their kind worldwide.

1980 – 1986

The two systems undergo continuous development and refinement and become the basis for numerous other software components. These now form a harmonious overall system for all corporate DP and office function systems.

The creation of national subsidiaries in Europe and cooperation ventures overseas lays the foundations for the company's worldwide success.

1987

ISA, the open Integrated Software Architecture, defines total functionality at various levels with clear interfaces. Users are provided with even more freedom of choice and security in their planning.

Software AG consolidates its success worldwide. It is now present in all major markets, with twelve national subsidiaries in Europe and the Middle East and representatives in more than fifty countries.

1988

The acquisition of Software AG of North America and the foundation of national subsidiaries in Italy and Mexico have further strengthened Software AG's position in these important markets. In order to provide its rapidly growing world headquarters staff with a suitable environment, the concern moved into a further building in the Federal Republic (Asbach). At the same time, work also started on the second stage of the main building in Darmstadt-Eberstadt.

Outlook for 1989

Software AG Turkey, which has offices in Istanbul and Ankara, was founded in order to increase Software AG's visibility for customers further.
Sales and Service Offices

International Headquarters
Software AG
Software AG Anwendungen & Co.
D-6100 Darmstadt 13, Uhlrandstraße 12
West-Germany
Phone: (0 61 51) 50 40, telex: 4197 104
Fax: (0 61 51) 504 191

Software AG of North America
1190 Sunrise Valley Drive
Reston, VA 22091
Phone: (703) 860-5050
Telex: 275301
Fax: (703) 391-6975
Toll-free 1-800-843-9534

U. S. SALES

Atlanta
100 Ashford Center North
Atlanta, GA 30338
Phone: (404) 390-9258

Boston
100 Grandview Road
Bedford, MA 02173
Phone: (617) 848-5057

Chicago
Citicorp Plaza
8420 W. Bryn Mawr Avenue
Chicago, IL 60631
Phone: (312) 693-0430

Cleveland
Four Commerce Park Square
23200 Chagrin Boulevard
Beachwood, OH 44122
Phone: (216) 292-8182

Dallas
5005 L. B. J. Freeway
Dallas, TX 75244
Phone: (214) 991-8900

Denver
300 Union Boulevard
Suite 610
Lakewood, CO 80228
Phone: (303) 987-3972

Detroit
3911 W. 6 Mile Road
Livonia, MI 48152
Phone: (313) 591-7222

Houston
515 West Greens Road
Houston, TX 77067
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Kansas City
8900 Indian Creek Pkwy
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Overland Park, KS 66212
Phone: (913) 451-1651

Los Angeles
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Irvine, CA 92715
Phone: (714) 553-0880

Minneapolis
1650 W. 82nd Street
Bloomington, MN 55431
Phone: (612) 888-4404

New Jersey
400 Kelby Street
Fort Lee, NJ 07024
Phone: (201) 461-6611

Philadelphia
630 SENTRY Parkway
Blue Bell, PA 19422
Phone: (215) 941-2140

Pittsburgh
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1 Station Square
Pittsburgh, PA 15222
Phone: (412) 471-4667

Puerto Rico
SYNTAX
Edificio Medico Santa Cruz
Suite 211, 73 Calle, Santa Cruz
Bayamon, Puerto Rico 00619
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