

SIEMENS

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- Check against delivery -

Ladies and Gentlemen,

I would also like to bid you a most cordial welcome to Chemnitz. Before Mr. Shepherd presents A&D's most important innovation to be launched at the SPS/IPC/Drives fair – WinCC Flexible, I would like to give you a brief rundown of our A&D PT, Special Products, Projects Automotive Industry and Training Division. This division currently employs a workforce of around 900, and in the last fiscal year (ending 30 September 2002) generated sales of 807 million EUR.

I am sure you are familiar with some of our activities, whilst there may be others which you may have heard about only in passing. It therefore gives me great

pleasure to take this opportunity to provide you with first-hand information on what I regard as truly interesting topics.

Special Products, Projects Automotive Industry, Training – a versatile division

A&D PT is made up of several independent, self-contained subdivisions which run their own business. These currently comprise Human Machine Interfaces (HMI), Industrial Communication, Projects Automotive Industry and Training. In addition to these subdivisions, our PT division deals with general A&D matters. These services are not sold to the “outside world” but are offered within Siemens, mainly within A&D.

Documentation for all media

The Internet Business, Catalogs and Product Data subdivision, for instance, is responsible for creating all sales documentation for Siemens A&D, from printed catalogs via interactive catalogs on CD ROM all the way to our internet presence. This involves ensuring that all A&D documentation on all media has a uniform appearance and is consistent throughout. This also goes for all pre-sales documentation such as catalogs, short descriptions, technical data sheets and price lists, irrespective of the publishing media used. One of our special tasks is to supply and design A&D’s e-mall, our electronic shopping mall, plus approximately 30 other regional and customers’ malls on a quarterly basis. We also coordinate the internet presence of the A&D Group as a whole, including the basic maintenance of the internet servers, ensuring compliance with our style guide at all times.

All types of translations

Our Translation Services translate and check pre-sales and post-sales documentation, websites, electronic catalogs and advertising copy, as well as software. In addition, they provide multi-media translations of animated computer

presentations and video scripts, and engage speakers for the required language version. We also provide interpreting services, including simultaneous interpretation at conferences and for negotiations and training courses, as well as for non-German speaking VIP visitors. The main customer of our Translation Services is Siemens A&D, but other clients include Siemens Groups such as Medical Solutions, Industrial Solutions and Services, Transport Systems, Power Transmission and Distribution, Siemens Dematic and Siemens VDO.

Let me now turn to the subdivisions which are more widely known to you.

Successful communication at all levels

Under the product name of Simatic Net, our Industrial Communication Division supplies open networks such as Industrial Ethernet, Profibus, AS Interface and EIB, as well as Sinaut, the telecontrol and substation control system. Industrial communication has now been an exciting playground for what is virtually decades, and has witnessed new activities emerge in such interesting areas as Industrial Ethernet at field level, mobile communication, security and the linking of remote stations, an increasingly important field of operation. Ongoing innovations and ever shorter life cycles have a very important role to play here, as does the integration of Local Area Networks in the services and structures of Wide Area Networks.

Selling tried and tested solutions, we have demonstrated repeatedly over the years that we have earned the right to be regarded as industrial communication trendsetters who consistently follow the correct course. We were the first to broaden the industrial communication base, and have succeeded in doing so more consistently than any of our competitors. Today, Siemens has installed over 400,000 Ethernet nodes and roughly 10 million Profibus nodes. Our customers are grateful for the unwavering consistency of our approach, which tolerates no detours, yet relies on well thought-out measures. Compatibility, consistency and, above all, investment protection for our customers: these are our main concerns. Yet we also regard ourselves as trendsetters operating at a high rate of innovation.

Profinet – many benefits in a single solution

As announced at the Hanover Fair, we are pushing Profinet alongside PNO, the Profibus user organisation. Profinet combines field bus communication with Ethernet technology, which means that it combines functions in proximity to automation with access to the IT world and its technological advantages, such as widely applied communication and software interfacing standards.

What, then, sets Profinet apart from other currently debated alternatives? Opinions differ, especially with regard to the term "real time". Leaving aside the whole discussion on speeds, jitter, milliseconds or microseconds, the Profinet PNO solution stands out from the other concepts currently under discussion by virtue of a single crucial feature: Both conventional standard Ethernet devices and new high-speed technology systems can be operated simultaneously in the same network. This provides two major advantages.

First of all, new technology can be integrated into existing Ethernet set-ups in the future. This is a key factor in terms of investment protection because, in general, neither we nor our customers build on greenfield sites. Our customers can make a safe investment in Profinet today and add new functions later on without having to switch technologies.

Secondly, any standard subscriber can use standard TCP/IP communication to access device data or execute internet services at any time in parallel to real-time traffic, without detriment to clock synchronisation control.

At the Hanover Fair, we issued a roadmap which is still valid: the first hardware samples of Profinet products based on the new Siemens technology will be ready in 2004, and an extension of the further product range in 2005.

Wireless communication gaining ground

Another major trend is wireless communication. As with other transmission systems, industrial applications are subject to specific conditions which do not compare with those of a normal office environment. The high availability of communication links, for instance, is an essential precondition for use in production. Moreover, the design must be sturdy and rugged enough to withstand the often rough industrial environment.

At SPS/IPC/Drives, we are set to launch for the first time wireless components for Ethernet which have been designed for industrial use. This new product range features such highlights as antenna diversity for an optimum wireless connection, a robust IP65 housing, and fanless operation within a temperature range of minus 20 to plus 60 degrees Celsius. A variety of security mechanisms make for safe access control. Address tables of all authorised users, encrypted data for transmission using automatically changing codes, as well as RADIUS, the reliable Remote Authentication Dial In User Service, with which users can be authorized reliably, are some of the security features deployed.

Greater security in data traffic

IT security has become the topic of heated debates, not only in wireless communication, but increasingly also in the field of wired networks. While it is true that almost all companies protect their networks from external attacks by means of firewalls and similar systems, corporate networks have hardly any mechanisms which offer protection against unauthorised access from within the company. Given the increasing convergence of office and production applications and the continuous growth of networking between the two fields, this situation harbours risks which should not be underestimated. At the SPS/IPC/Drives fair, we will be launching a security module to be used in automation which checks the data traffic and protects plant components against unauthorised access, while also setting up a safe, encrypted VPN (Virtual Private Network) connection between individual security modules. Using certified standard technologies and easy configuration basics, even

non-IT experts will be able to protect their data communication against espionage and tampering.

Our new developments will safeguard our customers' leading position in industrial communication well into the future. They provide the solid backbone for the integration of production plants into corporate IT environments.

Diverse provisions for the automotive industry

Ladies and Gentlemen,

The automotive industry is the best industrial showcase for automation there is, and therefore represents a very significant business segment for A&D. In addition to A&D's products and systems, our outstanding competence and expertise is particularly evident in this sector. In the solution and plant business, our Projects Automotive Industry subdivision is responsible for car factory automation. I would now like to describe the services we offer as they relate to the various phases of a vehicle's life cycle.

Testing throughout the life cycle of a vehicle

During the cradle phase, that is to say at the vehicle design and development stage, our test engineering is applied on units such as engines, gearboxes, and chassis. One of the products developed for this purpose is our very own "dynamic engine tester" which features a sturdy asynchronous motor, high dynamic speed, a modern current-source inverter and precise torque sensing in both stationary and dynamic modes. One of our automotive customers was thus able to retain his existing measurement and control technology, whilst increasing braking power by around 300 per cent to 300 kilowatts.

From “the digital car” to “digital production”

Then follows the planning stage with design of the entire vehicle manufacturing plant. The “digital car” and, consequently, the “digital factory” already exist in practice. The term “digital factory” denotes a comprehensive network of digital models and methods, including simulation and 3D visualization, which has the swift and secure start-up of the vehicle manufacturing plant as its primary goal. A consistent process chain is applied in digital factory planning, and is used by our automotive customers to reconcile their target specifications in terms of time, cost, and quality. Our ultimate target is "digital production" with "virtual plant commissioning".

We also implement complete vehicle manufacturing plants with professional project management support. In doing so, we rely on the products and systems from Siemens A&D – the Totally Integrated Automation portfolio – to supply customised automation solutions according to individual requirements. We possess particular expertise in the provision of IT solutions using MES (Manufacturing Execution Systems). Our integrated IT offering for factories provides transparency and clarity every step of the way, from the body shell via the paintshop all the way to final assembly.

One of the projects we have implemented was for Audi/VW in Curitiba, Brazil. There we supplied the final assembly in its entirety, together with the body store, hoists and conveyors, as well as the build-on line in the body shop. The daily output is 700 Audi A3 and VW Golf units. Aspects which helped to sway the customer’s decision in our favour included final vehicle assembly from a single source, coupled with creation of as much local content in Brazil as possible. Over 60 per cent value added was created locally. We have set up a highly productive manufacturing system which is flexible in terms of models and quantities, as well as fixtures and fittings.

Diverse testing systems in production

We also supply the testing facilities used in production, including test bays for engines, gearboxes and chassis, right up to the final inspection stage where our

ECOS, or Electronic Check-Out System, is deployed. Car owners expect a superior quality product from the manufacturer. The car industry fulfils these expectations not only by relying on research and development but also, to a significant degree, thanks to the test systems used in production.

A case in point is our “road surface simulator” which combines ESP (Electronic Stability Program) tests with vibration tests; this simulator is used at Audi in Ingolstadt. By using this simulator for testing purposes, Audi can avoid costly and time-consuming test drives on the road or on a test track.

Test equipment for workshops

The life cycle of a vehicle comes full circle in the workshop, where it is serviced with the help of our after-sales service technology. Diagnostics engineering and new diagnostic methods help workshops to cope with the increasing share of electronic components built into modern cars today.

One example of this is our VAS vehicle diagnostic system designed for the Volkswagen group. We recently shipped the 25,000th unit of this system, which can now be found in almost every VW workshop around the globe. BMW uses some 10,000 units of our vehicle diagnostic system, while truck manufacturer DAF has around 1,000. We supply both hardware and the respective software based on expert systems, as well as providing system service around the globe.

Automotive projects around the world

To give you an idea of our current activities, I would like to outline a few selected projects:

We are supplying the drives for a new engine and gearbox test bay at Daimler-Chrysler in Stuttgart-Untertürkheim. And at the company’s Rastatt plant, we are involved in the final assembly of the new A-Class, after winning an order worth some

50 million EUR. We supply the instrumentation and control systems for production and the testing and conveying systems used in final assembly, as well as providing for their integration into the whole logistics chain. The conveying systems, for instance, include four electric suspended conveyor lines with 1,000 suspended units, with the logistics line extending over almost four kilometers.

At VW, we are involved in the body shell shop and assembly of the new Golf at the factories in Wolfsburg, Mosel and Brussels; at BMW, our systems are used in the assembly lines in Munich and Regensburg; and at Audi's Neckarsulm factory we are responsible for final assembly line, as well as for testing and finishing. We have also begun to ship systems for use in testing and the body shell shop to China for VW.

Real and virtual learning for automation

Ladies and Gentlemen,

Last, but certainly not least, I would now like to discuss our Training subdivision. Operated as a profit center, this subdivision is responsible for A&D product and system training worldwide, the development and marketing of training material, and the organisation of training courses for both internal A&D staff and external target groups. Our efficient training programs sell under the familiar product name of Sitrain; we have training centers in over 60 countries worldwide, helping our customers to implement automation-oriented and drive-related tasks as skilfully and effectively as possible. Although systems are becoming increasingly easy to handle, there remains a need for professional training which conveys the essential elements within a short space of time. Training is an important service which we provide to our customers worldwide. Wherever automation is involved, wherever machines or processes are automated, Siemens Training is present, be it in Beijing or Sao Paulo. 65 per cent of our training activities take place outside Germany, for instance in our regional companies in Europe, the United States, and South-east Asia. Our training is very well received by our customers, and our courses are attended by some 60,000 participants every year.

First-hand knowledge

Sitrain's success can be attributed to its outstanding instructors, the high proportion of practical knowledge imparted, proximity to the manufacturer, and the use of specially designed training units - in other words, to "first-hand knowledge". The full range of training options in the field of automation and drives is published in the international learning portal under www.siemens.com/sitrain; it is tailored to meet our customers' needs and combines diversity and innovative teaching methods. "Blended learning", for example, is a new concept which we will be launching at the SPS/IPC/Drives fair. More about that a little later on.

With a market share of automation training of roughly 40 per cent in Germany, we regard ourselves as trendsetters, applying such concepts as "blended learning" or virtual learning. We can see several trends in further education which we wish to shape in a proactive fashion. There is certainly a growing need to specifically tailor courses to the individual needs of our customers in terms of participants, venue, and contents. E-learning makes learning more flexible, detaching it from geographical and time constraints. As a result, learning becomes more cost-effective because no travel expenses are incurred.

Keeping training up-to-date

Our "blended learning" concept has been developed so that we can actively keep pace with these new trends. It will be presented for the first time at the SPS/IPC/Drives fair in the form of a Simatic S7 TIA service training course, with a TIA programming course set to follow in the spring of 2004. Our aim is to extend this "blended learning" concept on an ongoing basis.

"Blended learning" combines classroom instruction with learning based on literature, self-teaching media on CD ROM or on the internet, and web-based, tutor-assisted online training. "Blended learning" is based on modules, and relies on a variety of media and teaching methods. All teaching units can be coordinated and matched to suit individual requirements; they include preparation modules, optional modules, the

classroom instruction element and refresher courses, all of which are framed by optional initial and final tests. Innovative systems such as the media builder support us in the development of our learning software.

The centrepiece of “blended learning” remains the classroom instruction held in our regional training centres. The level of knowledge of each individual student is tested online before the course starts in order to determine the appropriate course for the respective participant. Theoretical knowledge is imparted via preparation modules and is subsequently consolidated in the classroom instruction that follows. Optional modules are designed to broaden our customers’ knowledge at any suitable time. Refresher courses are available on the internet.

“Blended learning” offers a high degree of learning efficiency by combining different methods with a wide range of learning media; it builds on the expertise of practice-oriented and competent instructors, relies on clearly defined units and highly visualized contents, uses educational training systems and incorporates interactive learning. Self-teaching programs and online learning which can be used anywhere and at any time help to reduce costs by cutting travel expenses and downtimes.

The specific example of the Simatic S7 TIA service training course for Totally Integrated Automation highlights the great advantages of “blended learning”. This type of training focuses on solutions: Plant mock-ups simulate practical failures and participants practise trouble-shooting and fault debugging. Besides automation control topics, other major contents covered include communication, operation & monitoring and drives. Modules designed for preparation and evaluation of the classroom element enhance the success rate; after having attended the course, the customer will be able to reduce the number of plant failures, diagnose and overcome problems and modify programs much more effectively than before, and hence operate his plant more efficiently.

Productivity-increasing innovations ensure acceptance

Ladies and Gentlemen,

pioneering innovations provide the basis for expanding our automation and drives business. As a rule, our customers do not judge us by the volume of sales we generate or by our market share. We are measured by the edge our technology has over that of our competitors, by the way in which our innovations help our customers to increase their productivity, and by the extent to which we help them to save costs.

One of the most recent outstanding A&D innovations will be described by Mr. Shepherd in the following presentation: Simatic WinCC Flexible for operating and monitoring.

This gives me particular pleasure, since I have been privileged to be a part of the WinCC success story. Some of you may recall that I presented Simatic WinCC at a trade press conference in Nuremberg in October 1996. This was Version 1.0 of Siemens' first Windows-based SCADA software, which we were poised to market worldwide.