

SIEMENS

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- Check against delivery -

Ladies and gentlemen,

I would like to bid you a most cordial welcome to SPS/IPC/Drives 2007 in Nuremberg; I am so pleased to address you for the fourth time at this fair. Today we have picked out a single theme which I would like to present in greater detail – the requirements of the automotive industry in respect of automation technology.

The automotive industry has always been a pioneer in automation and a driver of innovations. I would like to briefly outline why automotive is so important for automation, hence also for us as leading supplier in this field, and what kind of requirements we are confronted with as manufacturers.

Chart: The automotive markets

The automotive market can be subdivided into three major economic areas – the EU of 15, the U.S. plus Canada, and Japan with a population in total of roughly 827 million and an average vehicle density of 577 per 1,000 inhabitants – and other countries including the most interesting emerging markets of Russia, China and India. At 152 in Russia, over 7 in India and 5 in China, their vehicle density is still low.

Chart: The most important automotive growth markets

The markets growing at the fastest rate include Turkey, Iran, India, Russia and China, with new car sales being highest in China.

Chart: Split automotive markets

A clear distinction must be made between the different automotive markets. In the big three economic areas, the market will grow more through innovation and added value per vehicle, while the emerging markets are expected to expand through the number of vehicles sold, with the “5,000\$ car” being the target figure.

Chart: Tomorrow's car split

The model policies of two German manufacturers are two cases in point: since 1989 BMW has launched a new model every other year and Mercedes two new models every three years. And the great number of models continues to grow. In the future, there will also be cross-country coupé models available.

The number of model variants continues to rise. This means more niche products, smaller batches being produced in each production line and greater flexibility required in each production plant.

Chart: Production trend 1: Shorter assembly times

This is reflected in general production trends: Production times per vehicle are getting ever shorter. The number of hours worked per car at assembly lines in US factories fell significantly between 1998 and 2004, in the case of Daimler-Chrysler from 33.86 hours to 25.17 hours, and from 31.98 hours to 23.09 hours at GM.

Chart: Production trend 2: Model complexity

Prompted by high cost pressure and the concentration of established brands among increasingly few vendors, manufacturers are increasingly forced to rely on platform strategies in their global production concepts. Car manufacturers continue to restrict their activities to their own core competences and outsource other processes, i.e. have components or modules manufactured by third parties. Contracts for complete interior compartments are placed with sub-suppliers, and there is even talk of applying a film or foil to the car body rather than painting it in the paintshop. Complete modules, such as door modules, continue to be manufactured off the production line and are only assembled at the end of the final assembly process.

Chart: Production trend: “Green Car”

Another important trend applies to all car manufacturers alike – the “green car” that demonstrates how manufacturers expect to meet the environmental challenges of the future. There are several approaches to meeting future requirements, ranging from more lightweight and smaller passenger vehicles via new diesel and hybrid engines all the way to alternative drive concepts. New drive technologies such as hybrid or diesel engines will be applied on a much wider scale in the future; this is both for environmental reasons and because of ever-increasing fuel costs.

The “green car” will bring a technology push to the automotive industry from which leading technology suppliers and first-tier suppliers stand to benefit.

Daimler’s goal: “Do more with less”

The requirements which the automotive industry place on production are easily illustrated in Daimler’s goal: “Do more with less”.

“Do more” means to safeguard technological leadership in the field of automation & control, to increase the capacity, flexibility and safety of production facilities and to improve the quality of products by applying the latest processes and technologies.

“With less” means less capital expenditure and operating cost, as well as reduced complexity.

Chart: Automotive R&D departments are measured by the amount of LCC they are able to cut

In general, the overarching goal for any future car manufacturer is to bring down life cycle costs in all phases of the life cycle, starting with the design phase and including engineering, start-up and production; the aim is to reduce time and costs by 10 to 15 per cent. This is what planning departments in the automotive industry are judged by.

Chart: Standardization is today’s main trend

How can this time and cost reduction be achieved? The answer is standardisation of all development phases of a production line and clear project responsibilities.

Chart: Summary of the automotive industry's requirements

In summary, the automotive industry expects its automation suppliers a) to continuously support their planning teams with engineering advice, for all production facilities worldwide, b) to set up a project structure for each project and to support the line builders throughout the project, c) to deliver visible productivity gains on all production lines and in all phases of production, d) to be involved in the simultaneous engineering process and the definition of engineering standards, and e) to supply state-of-the-art technology which is optimised for each market and each application.

Ladies and gentlemen,

Let me now move on to the second part of my presentation. What should our portfolio include if we as manufacturers are to meet these requirements of the automotive industry?

The automotive industry – a key industry for A&D

I am in charge of the A&D Automotive Competence Center, established in 1996 with a view to providing qualified advice to our customers and to receiving direct feedback on our own developments. The Automotive Competence Center supports our 19 corporate account managers who look after all leading car manufacturers worldwide, providing both technical and sales support. Together with the car manufacturers and plant suppliers, new automation concepts are being optimized for productivity, piloted, tested and followed through to mass production, from the press all the way to the final assembly. Based on TIA (Totally Integrated Automation) and the full product and system range of Siemens A&D, this competence center is perfectly capable of developing comprehensive solutions for the body shop and other production areas in collaboration with its partners. It is part of a global competence network comprising over 250 staff in total. Thus A&D provides the automotive industry

with a future-oriented automation strategy, whilst also driving such technologies as the 'digital factory'.

The automotive industry acts as a trendsetter pushing new automation concepts, new control technologies and communications. At a very early stage we translate these into TIA which we make available to other manufacturing industries. A case in point is a conveyor application which we are showcasing in our Machine Manufacturing Center at the heart of our booth and which I will be describing very briefly towards the end of my presentation.

Chart: 1. Worldwide Support Structure through our Account Management Automotive and Customer Support

Over 250 account managers and technical specialists provide car manufacturers in the key automotive regions with expert advice. Our worldwide Customer Support also guarantees technical support around the clock in all countries of the world.

Chart: 2. Engineering Teams develop automation concepts together with the planners

The automotive industry asks for more than the delivery of products. Together with the car manufacturers we work out technical concepts which are based on existing production plants. Here you see a typical work cell in body making where we have been developing a state-of-the-art automation concept which demonstrates how capital expenditure and life cycle costs can be reduced.

Chart: Siemens Control Concept based on Profinet and Safety

Such a concept naturally integrates safety systems based on Profinet. The entire production plant is networked including safe and non-safe applications. Our new panel PCs enable an ergonomic plant operation and rapid trouble shooting via integrated diagnostic mechanisms. Wireless technology is also

applied in body making. At the fair, we are showing a mobile panel to operate the production plant. We are also showing new energy saving motors.

Chart: Integrated Safety Technology with Industrial WLAN

Profinet has taken a further step forward by integrating safety systems in the form of Profisafe, now boasting a unique combination of wireless and open communications via IWLAN in an unprecedented innovation push. Whilst it was previously impossible to replace trailing cables or slip rings because of the use of safety systems, Profinet can now save substantial costs thanks to its Profisafe and IWLAN technologies. Their full integration into the entire system has also made complex safety systems considerably simpler and more efficient to implement.

Chart: Saving costs of up to 35%...

Based on this automation concept, up to 35% of capital expenditure can be saved for this work cell. This is because the safety system has been fully integrated (no switching cabinet), all plants appear in an efficient layout, and savings have been made in engineering.

Chart: Saving Maintenance Costs with Simatic Maintenance Station

This opens entirely new possibilities in maintenance. Maintenance has changed completely over the years: in the old days, diagnosis was based on time and labour consuming checking of individual LEDs on automation components. Today, Profinet offers many more ways to pick up maintenance-related data in the field, to process this data in a central place, to visualize this data and ideally, use it directly to manage status-oriented and preventive, i.e. cost-optimised, maintenance.

This exactly what the Simatic Maintenance Station does. This advanced optional package operates in conjunction with our Simatic WinCC process visualisation system. Without any great engineering input, it helps channel the ever greater flood of information and manage it within an efficient and reasonably priced maintenance system. The package can be applied either on a Station together with a WinCC application or on a separate PC.

In engineering, components are identified electronically which means that the system does not require configuration, thus eliminating any risk of configuration error. Automated operation saves time and precludes transmission errors. Access to relevant data resources is also possible via established WinCC options such as server-client solutions. The Maintenance Station thus provides the user with a continuous overview of all pending maintenance jobs and their current status. The program does not respond only after a fault has occurred, as is the case in classical corrective maintenance; rather it reacts to a range of events stored in the system which helps prevent faults before they occur. It thus enables preventive maintenance which is more efficient. The user is notified in good time and schedules the required personnel, tools and spare parts in optimum fashion. This minimises maintenance-related downtime; or, in other words, maximises availability and productivity.

Chart: A turn for the better with Profinet

Profinet is another example of our attractive automation range for the automotive industry. Audi's extra-small-scale new R8 roadster production in Neckarsulm, using fully automated robotic work cells, relies on Siemens control systems. Thanks to Profinet with integrated safety and wireless communications (wireless LAN), the car manufacturer achieves a high degree of integration and consistency in communications which translates into cost advantages in respect of commissioning, maintenance, diagnosis, operations and spare parts inventories.

Thanks to Profinet and integrated safety and wireless communications, Audi makes substantial savings in terms of maintenance expenses because data is

transmitted without causing any wear in moving parts. The reduced hardware diversity optimises the spare parts inventory. Audi benefits from a shorter time-to-market through earlier production start-up. Data integration is also reflected in further cost advantages related to the operation and diagnosis of production facilities.

Charts: 3. Product life cycle management / Automation Designer

Ideal production life cycle management requires a smooth and seamless transfer of data and knowledge from the digital to the real factory. And although hardware still plays a major role in this context, the share of software continues to grow in this sector. The textbook example is the Simatic Automation Designer. Simatic Automation Designer picks up and largely automates the generation of program codes for controls and operator panels from plant descriptions and flow charts. It creates a uniform view of configuration data, which is complemented by expert automation know-how and can be used directly for the configuration of PLC programs, for instance. Thus, based on planning and design data, the plant gradually becomes reality in the computer. In addition, customisable standard components are created which can be re-used in subsequent projects, thereby further reducing the time-to-market. Error risks and engineering expenditure are significantly reduced, which also helps to accelerate plant availability and new product launches.

Chart: Concepts for ERP and MES are being developed together with the Automotive Industry

Besides automation, information technology is becoming increasingly important. Together with the automotive industry, we are currently working on such tasks as production sequencing and monitoring based on Simatic IT. In collaboration with the Siemens SIS group, we also provide solutions for vehicle configurations and production planning at the enterprise resource level.

Siemens at the SPS/IPC/Drives fair 2007

Ladies and gentlemen,

At the end of my presentation, I would like to draw your attention to our showcase at this fair, booth 310 in Hall 9. This is where we substantiate our claim to leadership in automation in mechanical engineering and industrial projects. Besides a wide-ranging high-performance control and drives portfolio, Siemens also provides the services that cover the full life cycle from design to everyday operation – this is what makes us a competent partner for machine builders and operators alike. The centrepiece of our showcase is the Machine Manufacturing Center.

Charts: Machine building center at SPS/IPC/DRIVES 2007 / The Siemens product portfolio for factory automation

Today, as you are no doubt aware, Siemens not only demonstrates and proves its industry expertise in the automotive industry but also in other industries such as food, chemicals, or oil & gas. This is what we are showcasing in our Machine Manufacturing Center at the heart of our booth, a conveyor application comprising our wide range of drive and automation components. Totally Integrated Automation facilitates engineering as well as integrated and consistent communications and maintenance and, last but not least, safety and security for man, machine, and IT alike.

Ladies and gentlemen,

To us, this is what innovation leadership is all about: to identify these trends, to correctly analyse and assess them, and to turn them into marketable products, solutions and services. This is what Siemens is demonstrating at this year's SPS/IPC/Drives 2007. No matter the product division or the industry, users' requirements are very similar: ever shorter innovation and development cycles combined with an ever growing product and variant diversity. Machine and plant

builders require a partner in automation who provides the best possible support for systems, solutions and services in order to increase users' productivity anywhere in the world. To ensure a more flexible use of their machines and plants and increase the availability of these, Siemens has long relied on generally integrated automation concepts applying Totally Integrated Automation, thus guaranteeing its customers flexibility, future viability, shorter time-to-market and a reduction in life-cycle costs. Shorter time-to-market means that processes in the life cycle of a product or a production line are consistently accelerated. In addition to the central Machine Manufacturing Center, Siemens is focussing on three main themes: Digital factory, plant intelligence and maintenance.

In conclusion, I would like to invite you to visit our booth to see the large number of product innovations including fail-safe and highly available controls operating via new HMI solutions and peripherals. They include in particular the Simatic S7-400-CPU 412-3H for the redundant design of minor applications, the Simatic Field PG M2 for top system performance using the latest Intel processors, the Simatic Panel PC 577B with high performance on a small footprint, the Simatic Microbox PC 427B with three processors to choose from and extended Compact Flash Cards, the TD 400C text display featuring simple and intuitive operation, the Simatic PCS 7 Safety Integrated with CPU 412-3FH, the low-cost variant for safe, fault-tolerant applications, the RTX software control which is now also available for the Simatic PCS 7, the fast IO controls with Simotion P350-3 based on communications via Profinet with IRT, the Simotion D410 with Sinamics S120 for full automation of a machine module with one axis, the Sinamics S120 and G120 with safety functions integrated in the drive and, finally, the latest camera range, Simatic VS 720A, which covers seven new cameras for monochrome and colour image processing as well as transmission via Profinet

Have an enjoyable and interesting tour of SPS/IPC/Drives 2007!

Thank you for your kind attention.