

CENTRAL EUROPE AUTOMOTIVE REPORT™

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Regional Market Highlights

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Poland

Standard Products Building In Poland

The **Standard Products Co.** announced in late April that it plans to start producing automotive sealing products in Poland by the end of 1998. The company has established a subsidiary in Poland and has acquired land and a partially completed building in the Polish city of Bielsko-Biala.

The 55,000 square foot plant will supply sealing products for all Palio vehicles assembled in **Fiat's** facilities in Bielsko-Biala, Poland. Standard Products intends to expand its presence in Poland in the future as customer demand increases.

"The expansion of our production capabilities into Poland fits perfectly with our global strategy," said Theodore K. Zampetis, Standard Products president and chief operating officer. "Poland is a low-cost producing country located in the midst of the emerging East European market."

The Poland plant will be the fifth new automotive sealing plant Standard Products has added in the past five years. Since 1993, the company has opened new plants in the U.S., Brazil, and Mexico and is currently constructing a new factory in France that will replace an older facility.

Standard Products manufactures sealing, trim, and vibration control systems for the automotive original equipment industry in

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Profile

Ford Bank Financing Polish Consumers' Thirst for Cars

Car financing in Poland is a fast growing market, and Ford Bank Polska is racing to keep up with it. The percentage of new vehicle sales involving financing has jumped from about 35% in 1995 to some 60% in 1997.



Dr. Olaf Neitzsch

Financing companies such as Ford Bank Polska must contend with a non-existent credit checking system, strict Polish banking regulations, and tough price competition from local deposit banks.

Ford Bank Polska started operations in Poland in September 1997 when it was awarded a banking license and operational approval by the National Bank

of Poland. The new bank, a subsidiary of Ford Credit Europe, specializes in offering financing for new and used vehicles through Ford dealerships.

Dr. Olaf Neitzsch is president of Ford Bank Polska S.A. Dr. Neitzsch has worked in Poland for over three years. Prior to his current position with Ford Bank, he was

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Ronald F. Suponic, Jr.
Publisher



Jeffrey A. Jones, Esq.
Editor-in-Chief

Editorial Assistant
Barbora Grossmannova

Research Assistant
Katarina Trginova

Design
Big Sky Creative
Caroline Bond,
cetmdes@ibm.net

Web Site Design
Big Sky Creative
Ron St Clair
cetmdes@ibm.net



Reporters
Catalin Dimofte, Bucharest
Magda Sowinska, Warsaw
Pavol Varga, Bratislava
Bostjan Okorn, Ljubljana

Columnists
Ray Barker, Avon Rubber
Dr. Johan Roos, Intl. Istit. for Management
Development

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Business and Circulation Office
4800 Baseline Rd., Suite E104-340
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Tel: +1-440-843-9658 Fax: +1-206-374-5282
Email: info@cear.com

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North and South America and Europe.

Hyundai Factory in Starachowice

According to **Sobieslaw Zasada Centrum** (SZC), the annexes to an agreement for the production of **Hyundai** cars in Poland were sent to the **Ministry of the Economy** on April 28. The documents contain a declaration on the construction of a welding and paint shop, the scope of "Polonization" of the cars in successive years (i.e. increasing the amount of Polish produced parts), and planned outlays together with an investment schedule.

SZC has agreed with Hyundai that the factory will be located in Starachowice in a special economic zone. According to Marcin Trzaska, SZC press spokesman, from the moment the final agreement is signed, the factory, which will be housed in a hall already owned by SZC, will be started up within 18 months. The cost of the project is estimated at about DM 120 million (\$66 million). The Ministry of the Economy has until May 28 to approve the annexes.

Eaton in Tczew?

The Polish press has been speculating about negotiations between the **Car Transmission Factory** in Tczew, Poland's main manufacturer of gearboxes for trucks, and **Eaton Corp.** As part of composition proceedings, the factory was taken over by **Sobieslaw Zasada Centrum** (SZC) in 1995.

Speaking with the **CEAR**, Ryszard Bartnik, chairman of the board at the Tczew factory, denied the rumors. However, Marcin Trzaska, press spokesman for SZC, confirmed that Tczew is holding commercial and technological talks with Eaton.

"Yes, Eaton representatives did visit us," said Trzaska. "Certain talks are being held on cooperation and on the possible purchase of a license from that company."

New Daewoo Delivery Vehicle Factory Under Construction

The cornerstone for a new factory

producing Korean cars was laid on April 30 at **Daewoo Motor Polska** in Lublin. The planned outlays to start up production of delivery vehicles in the new factory amount to \$450 million. Of this, \$150 million will be spent on research and development work, and the rest on other investments.

In October 1997, Daewoo Motor Poland bought 23 hectares of land next to its current facility. New halls for a welding shop, paint shop, and final-assembly facility for the LD-100 delivery vehicle will be built by 2000. The total built-over area will be 93,220 sq. meters.

The LD-100 is a new-generation delivery vehicle with a total mass of up to 3.5 tons, designed by Daewoo to replace the current Lublin II. The LD-100 was designed from scratch and the technical documentation prepared at the **Daewoo Worthing Technical Center** in the UK by a team of engineers, designers, and managers from England, Korea, and Poland. The Polish group includes 150 engineers, 15 of whom work permanently in England.

The LD-100 van has a load capacity from 1 to 1.8 tons, and versions offering two axle bases and three roof heights will be available. The basic LD-100 family also includes, apart from a van, 8-15 person minibuses, as well as chassis for single or double cabs. Available engines include two turbo-charged direct injection diesel engines, with 90 hp and 100 hp. The engines will be compatible with ECE regulations on exhaust purity.

Daewoo plans to cooperate with over 100 component manufacturers, including 20 top foreign companies, some of which have declared their plans to invest in Poland.

The project will create about 30,000 new jobs in all the companies involved, including the future suppliers of over 15,000 parts and components.

**More Market Highlights
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EDITORIAL CALENDAR

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Profile Interview - interviews with regional automotive executives

Product News - information on new products, components, and vehicles in the market

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Tiremaker T.C. Debica Increases Exports and Investments

In its annual report for 1997, T.C. Debica informs that it holds a 57% share in the Polish market for first-time tires for passenger cars, 31% in the market for replacement tires for delivery vehicles, and 22% in the market for replacement steel-belted tires for trucks. Debica has a 2% share in the European market for passenger car tires.

According to Zdzislaw Chabowski, Debica's president, export sales, which accounted for 45% of the company's sales in 1997, will grow faster than domestic sales. He believes that exports to Eastern European markets will grow the quickest. Last year, the company reported sales of 756.1 million zlotys (\$222 million), of which 101 million zlotys (\$30 million) was sales to **Goodyear**, the company's strategic investor.

Over the next two years, Debica plans to invest \$50 million into its operations. The construction of a hall for steel-belted tire production is nearly finished, and production lines are being modernized.

Berlingo To Be Assembled By Daewoo in Nysa

At the Daewoo-FSO branch in Nysa, negotiations are underway for the start of assembly of Citroen Berlingo delivery vehicles. Annual output is planned at 5,000 assembled cars. The C-15 model has been assembled in Nysa since 1995.

Daewoo — End of Nexia Assembly

Daewoo Motor Polska in Lublin stopped assembling its Nexia model in early April. Last year, the factory assembled 18,000 Nexias, and nearly 22,000 units two years ago. The Nexia's popularity decreased after Daewoo started offering the Lanos.

This does not mean, however, that the Nexia will no longer be available in Daewoo showrooms. The model is still offered and can be imported if interest grows. The Nexia is the second Daewoo model, after the Polonez, that is losing popularity in Poland the most rapidly,

according to figures released by **Samar**.

A representative of **Centrum Daewoo** in Warsaw, who requested anonymity, told the **CEAR** that sales of the Nexia were high last year because the company resorted to substantial discounts in the second half of the year. Nexias manufactured in 1997 offered for sale this year were also sold at promotional prices, which led to a sudden drop in demand for the Polonez.

"In some months, the Nexia was cheaper than the Polonez by as much as 5,000 zlotys (\$1,500)," said the source. He admitted that Polonez sales will continue to decrease because the difference in technical and technological features between the Nexia, for instance, and the Polonez can span up to 30 years.

The Daewoo FSO press office in Warsaw told the **CEAR** that the Koreans do not intend to stop manufacturing the Polonez in the Zeran factory.

"We are doing our best to modernize the Polonez, one recent addition being multi-point injection," said Krystyna Danilczyk, **Daewoo-FSO Motor** press spokeswoman. "After all, this is the cheapest family car in the market."

Daewoo Cuts Prices on Polonez Spare Parts

As Krystyna Danilczyk, press spokeswoman of **Daewoo-FSO Motor**, told **CEAR** on April 28, a 10% price decrease has been introduced for some spare parts for the Polonez model, including body parts, bumpers, suspension and gearbox elements, and fuel tanks.

Parts for the Polonez truck are also cheaper, including load-carrying body sides and floors. According to Danilczyk, **Daewoo FSO Motors Autoparts**, which distributes spare parts, is negotiating price decreases with the manufacturers of other parts.

Fiat for the Handicapped

Fiat Auto Poland has introduced an Autonomy Program, through which physically challenged people who have dysfunctional lower limbs will be able to purchase certified equipment to assist

them with driving. The equipment will be available at all Fiat sales outlets.

Petroleum Sector Privatization Could Hurt Car Accessory Makers

The Polish government is preparing for the restructuring and privatization of the petroleum sector. Treasury Minister Emil Wasacz's announced in late March that an oil concern would be established by combining the assets of **CPN SA**, the fuel distribution organization, and **Petrochemia Plock SA**.

This could be bad news for manufacturers of car accessories. The new concern would dominate the retail market with the 1,350 filling stations owned by CPN and the 252 stations built over the past four years by Petrochemia. The powerful company would be in a position to exert harmful control over prices for accessories and could favor Polish producers over foreign accessory makers.

Czech Republic

Skoda Auto's First Quarter Sales Rise

Skoda Auto's sales were up 27.5% during the first quarter of 1998, totaling 86,720 vehicles. Sales of the new Octavia model accounted for 21,853 units of Skoda's total sales.

Sales in the Czech Republic were up 8.5% to 20,817 units. Skoda's largest export market during the first quarter was Italy, where 9,879 units were sold, up 126%. Sales in Germany hit 9,737 units, Poland 7,421 units, and Slovakia 5,836 units.

Skoda expects to sell 410,000 vehicles in 1998, a 22% increase from last year's sales.

Hella & Behr Establishing Joint Venture In Czech Republic

In March of 1998, the German automotive systems suppliers **Hella KG Hueck & Co.** and **Behr GmbH & Co.**, established an agreement regarding the development and production of front-end modules. The two companies will first set up a joint venture to supply the Czech carmaker **Skoda Auto** with front-

Continued on Page 18

Who Supplies Whom?

Regional Special Report

The supply industry in Central Europe continues to blossom, sprouting new producers, new alliances, and new opportunities. Foreign manufacturers are swarming to the region to supply the local OEMs and Western European based customers.

Domestic suppliers who've invested in quality and technology, often with the help of a foreign partner, are also getting into the action. They're finding business opportunities with the big OEMs in Central Europe, and a few are even breaking into the bigger Western European market. The list below provides a quick snapshot of some of the supplier activity in this ever changing market.

Supplier

Allied Signal, Poland
Audi Hungaria Motor, Hungary
Autoliv, Romania
Autoliv, Hungary
Autopal/Ford, Czech Republic
Barum Continental, Czech Republic
Branco, Czech Republic
CZ Strakonice, Czech Republic
Delphi Poland
Delphi Poland

Delphi/Packard Electric, Hungary
Donit Filter/Filtrauto
Draftex-Optimit, Czech Republic
Electroprecizia, Romania
FA Krosno/Delphi, Poland

Ford Hungaria, Hungary

GKN Automotive Polska, Poland
Hayes Wheels Autokola, Czech Republic
Heiland, Slovak Republic
Hella Autotechnik Mohelnice, Czech Republic
Huta im Tadeusza Sendzimira, Poland
Isuzu, Poland*
ITT Automotive, Czech Republic
ITT Automotive, Hungary

Johnson Controls, Czech Republic
Kosciuszeko Steel Mill, Poland
Lear/Emptek, Czech Republic
Lucas Autobrzdzy, Czech Republic
Magna, Czech Republic
Magnet Marelli Poland

Matador Puchov, Slovak Republic
Mezogep Linamar
MGM/Daewoo, Hungary
MMG Automatika, Hungary
Opel Hungary
Pal-Inalfa, Slovak Republic
Perion Battery Factory, Hungary
Pilkington Automotive
Presskam, Slovak Republic
Rockwell LVS Liberec, Czech Republic
Sachs Trnava, Slovak Republic
Saturnus/Hella, Slovenia
Showa Aluminum, Czech Republic*
Siemens, Czech Republic
T.C. Debica, Poland
Timken, Poland
Tofan Grup, Romania
TRW Autoelektronika, Czech Republic
Tungsram/GE

UBP-Csepel Iron Foundry, Hungary

Products

Braking systems
Engines
Seat belts
Seat belts
Lighting systems
Tires
Locks & other components
Turbo chargers & transmissions
Wiring harnesses
Heat exchangers

Wiring harnesses
Filters
Rubber car body sealing systems
Alternators
Struts and shocks

Air-fuel charging assemblies, ignition coils, fuel pumps, starters
Driveline and transmission products
Steel wheels
Seat covers
Lights
Steel products
Engines
Brakes, wipers, motors, shocks
Windscreen wipers, switches, sensors, electric motors, cables
Seats
Steel products
Overhead systems
Braking systems
Suspension, seat, & brake parts
Instrument panels, thermal systems, intake manifolds, exhaust systems

Tires
Air pumps
Ball bearings
Instruments
Engines
Pre-formed metal components
Batteries
Windshield glass
Pressed parts
Door & window components
Clutches
Lighting systems
A/C condensers
Wire harnesses
Tires
Tapered rollerbearings
Tires
Electric components & switches
Lamps

Truck tire hubs

Key Customers

Fiat
Audi
Daewoo Automobile Romania
Autoliv group companies
Ford (Germany, Spain)
Skoda Auto
Skoda, VW, Volvo, Iveco, DAF
Skoda
Fiat Auto Poland, Ford (Germany)
Daewoo FSO, Daewoo Motor Poland, Fiat Auto Poland, Opel
BMW, Opel
BMW, Audi, Skoda
Skoda, GM
Dacia
Daewoo FSO, Daewoo Motor Poland, Fiat Auto Poland, GM Poland

Ford plants in Europe and South America
Fiat Poland
Skoda, Audi, VW, Opel
Johnson Controls
Skoda
Fiat Auto Poland, Daewoo, Jelcz
Opel
Western European companies
Ford, Opel, VW, Fiat, Mercedes, Citroen, Volvo, Jaguar
Skoda
Fiat Poland, Daewoo Poland
VW Group
Skoda
BMW

Fiat
Skoda, Lada
Steyr-Daimler-Puch, Transgear, ZF
Daewoo worldwide
Lada, Magyar Suzuki
Opel
Skoda, Mercedes, Valeo, Suzuki
Magyar Suzuki, GM (Hungary)
GM Poland
Skoda
Skoda, Rockwell
VW, Skoda, Volvo, ZF
Hella, Opel, VW Group
Volvo, Audi
BMW
GM Poland, Skoda
GM, Ford, Daewoo, VW, Fiat
Daewoo
Audi, Ford, Fiat, Opel, BMW
Peugeot, Citroen, Renault, Opel, VW, BMW,
Toyota, Nissan
Raba, Hungary

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How to Reduce Polish Import Duties on Parts

Poland Streamlines Customs Procedures

Export/Import Help Desk

Andrew Davis, Senior Tax Manager, Price Waterhouse, Warsaw

Minimizing Duties on Imported Automotive Parts

Amongst the incentives provided for automotive companies to locate in Poland are the tariff concessions offered by the government on imported materials needed to feed manufacturing operations. Many car parts and sub-assemblies can be imported duty free into Poland provided they are used in manufacturing operations, while others may be imported duty free under tariff quotas administered by the Ministry of Economy.

At the top of an automotive company's list of import priorities, therefore, is always the import classification of the parts which they receive. These classifications will identify those parts that fall within a duty free category. Poland uses the same basic classification system as other WTO countries — the "Harmonized System" — and the parts falling into the duty free category primarily fall within Chapter 87 of the Tariff.

Duty Free Parts

As many of you may know, the classification rules can be complex and the distinction between a car part falling within Chapter 87 and a part which has to be classified elsewhere is not always well defined. As a general rule, however, identifiable sub-assemblies such as steering units will go under Chapter 87, while engine parts and bearings typically are classified in separate specific areas of the Tariff. It is usually necessary to have classifications assessed by an expert familiar with the Tariff rules and good practice to have classifications confirmed by the Main Customs Office.

Parts Quotas

For other key parts that don't fall into the duty free category, a company must make sure that applications are submitted to the Ministry for quota allocations. The quota pool is allocated on a

quarterly basis through a system of import permits. It is extremely important to make sure that applications are submitted on time. If as sometimes happens, a company does not get sufficient, or indeed any, quota allocation, then they have to start paying duty on their supplies usually at rates of up to 10%, but sometimes more.

Other Options

For the remainder of parts which may be potentially liable to duty, the importer then has two main possibilities to explore:

- Sourcing — Poland has a network of trade agreements in place, notably with the countries of Western and Central Europe, which provide for preferential rates of duty on products originating in those countries. For example, European Union origin car parts normally will be subject to duty in the range of 0% to 3%, compared to 9% to 15% for parts originating in North America or the Far East.
- Duty relief schemes — Dutiable components incorporated into finished products sent for export qualify for duty relief under the Inward Processing scheme. The duty payable on the imported components can either be suspended pending export, or reclaimed after export, of the finished product.

The most duty efficient importer of automotive parts in Poland is the one who can pull together these four fundamental strands into a single duty minimization plan. For example, if certain parts can be traced into export production and thus qualify for duty reduction on this basis, it may not be

necessary to use up valuable quota on them.

Simplified Customs Procedures

The process of clearing imported goods through Polish Customs has traditionally been extremely ponderous and bureaucratic, involving numerous delays. New legislation was introduced at the beginning of this year which has partially overcome this problem by introducing the possibility of importers using simplified customs clearance procedures.

"New legislation will allow authorized importers to effect customs clearance at their own premises and use their internal systems to produce the information required by Customs."

The essence of these procedures is that authorized importers should be able to effect customs clearance at their own premises and use their internal systems as much as possible to produce the information required by Customs. For the importer, use of simplified

clearance procedures reduces border delays, allows more streamlined production operations, cuts out many of the costly impediments involved in the traditional clearance system, and allows a more controlled and integrated approach to customs planning to be pursued.

Since the introduction of the legislation, the practical requirements of a simplified clearance scheme have been under development with one of the leading car producers in Poland acting as the pilot. In March 1998, this company became the first company in Poland to be authorized to operate simplified clearance procedures, and now the way is open for other companies to follow suit and take advantage of the scheme. In order to do this, it is necessary to apply to Customs for authorization.

If the application is allowed to progress, it then becomes a process of developing a customs clearance system that accommodates simplification without compromising the integrity of Customs' ability to control the flow of imports and exports and to protect the revenue. ■

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Sales of New Cars and Commercial Vehicles in Poland

	Sales (Units)						YTD March	
	1992	1993	1994	1995	1996	1997	1998	% Change vs '97
Passenger Cars								
Local Production	144,748	170,549	199,724	206,284	260,265	337,467	100,229	24.62%
Import	54,531	71,059	50,558	58,754	114,347	140,493	37,296	-25.72%
Total	199,279	241,608	250,282	265,038	374,612	477,960	137,525	5.27%
Commercial Vehicles								
Local Production	19,665	18,475	21,413	28,076	43,207	43,086	9,988	-11.23%
Import	3,250	5,497	2,542	3,870	7,586	12,217	2,378	25.09%
Total	22,915	23,972	23,955	31,946	50,793	55,303	12,366	-5.98%

Source: SAMAR, s.c.

Best Selling Models in Poland (YTD March 1998)

Passenger Cars			Light Commercial Vehicles			Medium Commercial Vehicles		
Make	Units	% Change '98 v '97	Make	Units	% Change '98 v '97	Make	Units	% Change '98 v '97
Daewoo Tico	13,171	89.37	FSO Polonez Truck	2,585	-18.69	Daewoo Lublin	2,675	1.06
PF 126	11,136	-19.09	Citroen C15	712	-23.61	Mercedes Vito	804	118.48
Daewoo Lanos	10,380	-	Skoda Pick up	672	111.99	VW Transporter	559	115.00
Fiat Cinquecento	9,902	-35.22	Citroen Berlingo	417	13800.00	FSC - Zuk	446	-49.38
Fiat Siena	9,681	-	Fiat Uno Van	414	-18.34	Ford Transit	370	-35.76
Opel Astra	6,198	32.86	GM - Opel Combo	220	-19.12	Iveco Daily	332	114.19
FSO - Polonez	5,938	-51.40	Peugeot Partner	166	-25.23	Mercedes Sprinter	207	100.97
Skoda Felicia	5,723	21.15	Fiat Cinquecento Van	125	-89.80	Peugeot Boxer	206	171.05
Fiat Punto	4,638	0.41	VW Caddy	83	-44.83	Kia Ceres	163	94.05
Fiat Uno	4,474	-32.16	FSO Polonez Cargo	77	-25.96	Fiat Ducato	157	-48.86

Source: SAMAR, s.c.

Tips For Success In Central Europe

Improving Worker Mobility



Jeff Jones

The lack of worker mobility in Central Europe is a big problem for many companies operating in the region. Companies that I've spoken with employ a number of different tactics to overcome the problem, from busing to home loans.

Ford Hungaria, for instance, operates a factory in Szekesfehervar, 63 kilometers outside of Budapest. To attract engineers and finance people (positions in high demand) at universities in Budapest, the company has a special home loan program. According to management, it works out well. The fact that such a program is necessary to attract people that are only 63 kilometers away, should give you an idea of the magnitude of the problem.

This issue was recently addressed in the CEAR Central Europe Automotive Forum™ (<http://www.pear/autoforum>) by Elise Ginsburg of Personnel Select in Warsaw. Elise's comments are quite instructive and worthy of repeating:

"[The lack of mobility] has arisen primarily due to a severe lack of housing (especially affordable housing), and family ties (often several generations) to a particular town, city, or region. The situation is also complicated by the fact that in most families in Central Europe, both spouses are bread winners, so that if one spouse has to relocate, it could mean a huge cut in family income if the other spouse cannot find a job.

Add to this scenario the loss of the apartment, which was probably either in the family for years, or was a state apartment which means that the family is paying well-below the market rate for the space, and you can understand why there has been a lack of interest in relocation.

Recently, I have seen some innovation on the part of employers to encourage workers to relocate. This may include the company paying the rent on the apartment, providing subsidized loans for the purchase of a new flat, or paying for weekend flights/train trips home so that the entire family does not have to relocate. I have even seen employers, desperate to find highly skilled and trained employees (such as in Warsaw), double the salary that they would pay in Warsaw in order to entice that person to move to Poznan or Lodz. I predict in the next two years that this trend will reverse, and employees will simply look for the best overall offer, and then choose to relocate for the benefit of their career."

jones@pear.com

Visit the **CEAR Central Europe Automotive Forum™** at <http://www.pear.com/autoforum> or click here **CEAR.COM™**

Fastest Sales Climbers in Poland (YTD March 1998)

Passenger Cars			Light Commercial Vehicles			Medium Commercial Vehicles		
Make	Units	Change '98 v. '97	Make	Units	Change '98 v. '97	Make	Units	Change '98 v. '97
		Units			Units			Units
Daewoo Lanos	10,380	10380	Citroen Berlingo	417	414	Mercedes Vito	804	436
Fiat Siena	9,681	9681	Skoda Pick up	672	355	VW Transporter	559	299
Daewoo Tico	13,171	6216	Renault Kangoo Exp.	35	35	Iveco Daily	332	177
Daewoo Nubira	3,168	3168	Peugeot 306 XA	29	20	Peugeot Boxer	206	130
Toyota Corolla	2,643	2040	Peugeot 106XA	6	5	Mercedes Sprinter	207	104
Fiat Palio Wknd	1,794	1794	Seat Inca	33	1	Kia Prego	83	83
Opel Astra	6,198	1533	Piaggio Porter	8	1	Kia Ceres	163	79
Citroen Xsara	1,489	1489				Hyundai H100 P/V	96	42
Toyota Avensis	1,131	1131				Daewoo Lublin	2,675	28
Honda Civic	3,950	1115				Citroen Jumpy	28	28

Source: SAMAR, s.c.

Managing for Excellence

Facing the Intellectual Capital Challenge — Part I

This new CEAR column will bring you coverage of cutting edge issues, ideas, and strategies to help you achieve excellence in the management of your enterprise. For the next three months, Dr. Johan Roos, Professor of General Management and Strategy at the International Institute for Management Development, will discuss how to maximize the value of your company's intellectual capital.

Intellectual capital, which includes knowledge, customer relations, supply-on-demand, and micromanagement, is one of the most important and sustainable sources of competitive advantage for today's modern companies. Most companies, however, don't even know how to measure their intellectual capital. This month, Dr. Roos will provide you with a foundation for understanding the concept of intellectual capital and why it is important to your company.

Like your company, many of today's best companies have done their utmost to squeeze every penny out of their hard assets, physical and monetary. Cycle time has been reduced to the bare minimum, inventory is virtually zero, and investments are carefully selected in terms of a balance between short-term and long-term resources.

On the competitive side, multi-million dollar ad campaigns are launched to conquer every last bit of the potential market, or to scrub away half a percentage point of market share from competitors.

But things are not always what they seem to be in the business world of today. Let's switch around from a sales and hard asset perspective to one that instead places value creation at the forefront. From the sales and asset perspective, **Microsoft's** is not very impressive. With only a fraction of the sales and assets of its industrial counterpart **General Motors**, however, the market value of Microsoft was \$200 billion in early 1998. This made Microsoft the second most valuable company in the US.

It is clear that knowledge, brands, innovation projects, and other 'invisible' assets enable more wealth creation than the classical production factors, and often much quicker. The reason for **Caterpillar** to be valued almost five times its hard assets is all of the 'invisible' value, and potential for new value creation stemming from its well-known Cat brand, its unique dealership network, and the knowledge and skills of its employees.

The main message of this article series is that in the modern business world you have to be even better at managing the intellectual capital of your organization. Good management has become much more than management of hard assets and "human resources". This is why managers on different levels, across industries, and from different countries are beginning to apply the thinking and practice of intellectual capital.

The Changing Economy

The global economy is changing. I am not talking about technological advances, although these certainly had something to do with it. The information or knowledge components of products of today have dramatically increased. But, why is there an increase in the amount of knowledge and information circulating in the business world?

First, technological progress has revolutionized the way information is processed and stored. Computers have enabled data processing at low costs and high speed, and made it possible for managers to use more information in their routines. Of course, the ability to use more information suddenly generated a request for more information.

Second, communication technology, together with improved transportation, also caused a much closer connection among geographically separate countries and regions. The closer connection in turn increased the complexity of any action, because now factors influencing the action could come from all over the

world. The final effect of these tight links between all the world economies is that more information is needed to act, but one action also generates more information than before.

Third, the level of sophistication of both consumers and strategists has increased. For consumers, this means that they want more for what they buy (and this "more" in most cases translates into additional services, i.e. information and knowledge) and they want to know more about what they buy. Also, the increased experience of consumers with the products can help the same consumers to understand their needs better, and pinpoint their preferences to companies.

The mirror side of this phenomenon is that more sophisticated strategies are required to reach consumers, which, once again, require more information to prepare and implement. Just think of the many options offered to a car buyer. The competitive focus in many companies has already shifted towards the supply of additional information and services in conjunction with the products. Intellectual capital has become the driver of future profits.

The conclusion is obvious: Your ability to understand growth or decline in your company's intellectual capital — and take early action based on this — will become increasingly important. To help managers do this new tools have recently been developed to better visualize and even measure IC, as well as integrating IC thinking and practice into existing organizational processes.

What is Intellectual Capital?

In this article series I define IC as the sum of the "hidden" assets in an organization. With hidden I mean that they do not typically show up in your company's balance sheet.

The knowledge (heads), skills (hands) and motivation (heart) of people are clearly at the core of what is meant by intellectual capital. But, there is more to it. Employees need a company infrastructure, "recipes" of how to do things, conversations with colleagues to create value. Companies also own intangible assets, like patents, trademarks, and brands. Although they

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Automotive Companies Flock to Poland's Special Economic Zones

Among Poland's 17 special economic zones (SSEs), motor sector investors have been especially interested in two: the Katowice zone, spread over several different cities, and the Walbrzych zone.

In the Katowice zone, 827 hectares, or 24 percent of the total area, was purchased by investors as of March 31, 1998. Through the end of the first quarter of 1998, permits granted to businesses for operation in the zone guarantee investments to the tune of about PZ 2 billion (\$590 million) and the creation of 7,000 new jobs.

"Every day, we conduct talks with new companies or their representatives," Włodzimierz Zak, head of the services department of SSE Katowice, told the **CEAR**. "Often during our first contact with a consulting firm or bank planning to finance a given project, we don't even know the name of their client seeking to invest in the zone. This explains why press speculation about potential investors is a disturbing factor — it hardly helps finalize contracts."

The Polish press has suggested that talks have been held with **Toyota** and **Mando Machinery**, but neither company has confirmed that they are interested in investing in Katowice zone.

Katowice Attracts Big Names

So far, big investors in the SSE Katowice zone include **General Motors**, **Isuzu**, and **Ieper Polska**. GM is completing work on a new factory for the production of the Opel Astra. This project will end ahead of schedule, with the first cars rolling off its assembly lines as early as September.

In Tychy, on the other hand, Isuzu has started building an engine factory that — in keeping with a stipulation in the company's zone permit — should be completed by mid-1999 to start production with a workforce of about 400.

As early as October, production of special nets for keeping shipments from

moving into the passenger cab of vehicles will begin at the **Ieper Polska** plant in Tychy for the needs of **Audi** and **Volkswagen**. This plant, financed with German and Belgian capital, will employ 180 workers.

The Katowice zone was established in the center of heavy industry — including steel and coal — and its goal is to economically revive the region through the development of other industries.

"We sometimes come across an accusation that the local economy will again become dominated by a single industry, this time by the motor industry, and in the event of poorer market trends in the sector, some extraordinary measures will have to be taken again to guarantee work to people," Zak said.

"It is true that in terms of investment spending in the zone, companies linked with the car industry dominate, but in terms of the number of companies, this is not the case. Construction companies and companies representing food processing, furniture production, and household appliances are all interested in investment in the zone."

Zak believes that it is also necessary to remember that the car industry means modern technology and represents a major driving force behind advancement in the economy.

Parts Makers Find Homes in Walbrzych

In Walbrzych, no one wants to disclose which new investors are applying for permits for operation in the zone. "This is required by the rules of the talks," the zone's investment department told the **CEAR**.

Among already-disclosed projects, construction of a **Petri** factory for the production of plastic accessories is underway. The factory will be launched in late June or early July. **Grossman Polska's** facility for the production car interior parts — in keeping with its permit — should start production by the end of the year. And at the same time, a

BTR Automotive factory will be launched to make rubber hoses for cooling and air-conditioning systems.

Will Zone Rules Change?

Zone officials note that investors frequently ask about guarantees for the stability of legal regulations — primarily tax regulations used in the zones — in the context of Poland's upcoming entry into the European Union.

"We act bona fide," said Zak. "The first six zones established over the past several years, including our zone, have a better legal situation than the other ones, because they do not have a clause stating that some rules may change after Poland enters the EU," he said. "That means the rules for investors in SSE Katowice cannot change and are guaranteed by Polish law."

The Katowice zone, considered to be the most advanced as far as investment is concerned, has been running a databank on companies for several months now. Included in the databank are construction companies, legal advisors, consultancies, parts producers, and Polish companies seeking cooperation.

"Investors, especially foreign ones, often want someone to provide services and assistance to them during the investment process," said Zak. "For this reason, we have launched our databank, which exclusively covers companies that we can recommend."

Who To Contact:

Specjalna Strefa Ekonomiczna
KATOWICE
ul. Lompy 13
40-032 Katowice
Piotr Wojaczek—President
tel. (+48-32) 51-09-58, 51-07-36
fax (+48-32) 51-37-66

Specjalna Strefa Ekonomiczna
WALBRZYCH
Invest-Park Sp. z o.o.
ul. Uczniowska 21
58-306 Walbrzych
Miroslaw Greber—President
tel. (+48-74) 41-35-00, 41-35-63
fax (+48-74) 41-01-77

Magda Sowinska (Warsaw)

Quality Expectations of the Global Automotive Industry

Building Supplier Quality: Lesson 3

With Ray Barker, Group Director,
Business Excellence Strategy, Avon Rubber

New Feature

This month's column focuses on what automotive manufacturers expect of their suppliers in today's global automotive industry.

The essence of the customer requirements are embodied within the QS-9000 "Quality System Requirements" Standard. But beware. The expectations will not be satisfied if the supplier simply achieves 3rd party registration through the diligence of its Management Representative for Quality and the company's traditional quality department.

Traditional quality departments have their roots in inspection related functions (i.e. check after the event). The expectations of the new global automotive industry demand that the supplier be focused on the prevention of concerns and problems. This requires the Total Quality approach of all management as explained in last month's column.

To achieve the expectations discussed below, it is essential to prepare the ground for the seeds to mature, blossom, and have sustainable growth. Preparing the grounds means creating the right management and company-wide attitude to create and develop competencies that will allow the seeds to grow — i.e. the effective and sustained use of appropriate systems, tools, and techniques. Training in the techniques is simply not enough. Competencies must be developed, as must an environment of support, mentoring, and leadership.

QS-9000 Quality System Requirements

QS-9000 Quality System Requirements that are often met "in principle" but which demand in-depth knowledge to meet customer expectations include the following:

Quality Planning

If there is a responsibility for Product Design, then this process of planning starts with the "Voice of the Customer", i.e. Quality Function Deployment (QFD)

and Experimentation to ensure the robustness of design.

Feasibility reviews to investigate and confirm manufacturing feasibility of proposed products then follow, prior to contracting to produce those products together with process design and experimentation for process robustness.

Potential Failure Mode and Effects Analysis for both product and process is required, as is action to eliminate potential concerns or the identification of parameters which need to be controlled and documented in a Control Plan, which covers all aspects from prototype, through pre-launch, and during production.

Cross function teams are demanded for these activities, which cover not only different departments in a company, but could also involve personnel external to the company.

Design Skills

QS-9000 states, "The supplier's design activity should be qualified in the following skills, as appropriate:

- Geometric Dimensioning and Tolerance (GD&T)
- Quality Function Deployment (QFD)
- Design Manufacturing (DFM)/ Design for Assembly (DFA)
- Value Engineering (VE)
- Design of Experiments (DOE; Taguchi and Classical)
- Failure Mode and Effects Analysis (DFMEA/PFMEA)
- Finite Element Analysis (FEA)
- Solid Modeling
- Simulation Techniques
- Computer Aided Design (CAD)/ Computer Aided Engineering (CAE)
- Reliability Engineering Plans"

It should be noted that "qualified" means competent, not only trained.

Evaluation of Sub-Contractors; Sub-Contractor Development

QS-9000 states, "Suppliers shall perform sub-contractor quality system development, using Sections I and II of QS-9000 as the fundamental quality system requirement."

This is obviously a very demanding requirement when suppliers are in the midst of applying the stringent QS-9000 (and other customer expectations) within their own organization.

Preliminary Process Capability Requirements; On-going Process Performance Requirements

For customer-designated special characteristics for new processes, the capability indices shall meet customer requirements.

For unspecified requirements, the preliminary process capability (Ppk value), should be ≥ 1.67 .

For on-going processes, process capability requirements (Cpk value) should be ≥ 1.33 .

Regardless of the capability requirement or the demonstrated process capability, continuous improvement is required, with the highest priority on special characteristics.

Many automotive customers are now demanding the achievement of published process capability goals against time, and endeavoring to support these demands by providing training for suppliers to achieve competency in process improvement. The expectation is clearly that suppliers must develop such improvement action plans.

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Quality in Action

Skoda Auto's Supplier Development Task Force and Skoda's active involvement in partnering local suppliers with Western companies has enabled it to source nearly 75% by value of its purchasing volume from 279 Czech and Slovak suppliers.

head of Ford Credit Poland SA.

CEAR: How are Ford's financial services activities organized in Poland?

Neitzsch: Ford has two financial service operations in Poland. The first one set up, Ford Credit Poland SA, started in 1995 and offers operational leasing for commercial vehicles. My organization, Ford Bank Polska, provides retail finance for both private customers and commercial organizations. These companies are run in Poland as two separate operational and legal entities.

CEAR: How is the sales and marketing function organized?

Neitzsch: All the sales and marketing is directed through the Ford dealer network. The dealer acts as an agent for both Ford Bank and Ford Credit. There are currently 50 Ford dealers across Poland and these are the exclusive agents for Ford's financial services. With the dealer network, we have near saturation coverage of the country.

CEAR: How important is financing for vehicle purchases in Poland?

Neitzsch: Very important. Exact numbers are difficult to get, though. In 1997, it's estimated that 60% of all new vehicle sales had some form of financing involved, either a loan or a lease. This has grown from an estimated 35% in 1995. This is much higher than in Western Europe.

But it is expected that the levels of financing seen in this country will move to be more in line with those seen in Western Europe, where the norm is around 30-40%. I have no doubt that over the next five years this will happen, as it has with most aspects of commercial life.

We inevitably are very dependent on new car sales. The high growth rate in new vehicle sales seems to have slowed down a lot this year, largely due to the new import quota regulations. New car sales will probably grow again in 1998, but definitely not at the levels seen in 1996 and 1997. The recent growth rates seen over the past few years and the

slowdown seen this year make it very difficult for finance companies to predict the level of demand for vehicle financing.

CEAR: Is loan defaulting a major problem in Poland?

Neitzsch: So far, we have not experienced any bad debt yet, but we

"In 1997, it's estimated that 60% of all new vehicle sales had some form of financing involved. This has grown from about 35% in 1995."

have only just started. Generally in Poland, debt defaulting is very good with private customers — only around 1% of all loans is defaulted, which is very low. The attitude here is positive towards repayment.

Customers seem to regard it as an obligation to repay debt. Perhaps this is because consumer financing of this sort is very new and customers feel they should meet their obligations. This is different from the rest of Western Europe where people are very used to credit and there often seems to be a far more relaxed attitude about repayment defaulting.

CEAR: How difficult is credit checking in Poland?

Neitzsch: It is very different [compared] to Western Europe. There is no company such as **HPI-Equifax** doing this. People and companies here do not have any credit history and obviously this makes it a much longer process to assess a customer's credit worthiness.

A credit checking system is under development by the Polish banking association and according to them, it will be running within the next twelve months. But it will be several, maybe five years before it is active and virtually all customers are in the database.

I saw how long it took in East Germany when I worked at Ford Bank in Leipzig in the early 1990's. It took over three

years for the credit checking system to build up the database of customers. So it will take some time.

CEAR: So how is credit checking done now?

Neitzsch: It takes longer than it does in the rest of Europe and is less precise. Mainly, credit companies have to rely on income statements signed by employers. Inevitably, this is far more labor intensive than in Western Europe, where it can be done over the telephone or via an on-line search.

CEAR: What are the specific advantages that Ford Bank Polska can offer its customers?

Dr Neitzsch: We work with the dealers and through them we can offer "one-stop shopping". Prior to our arrival, customers had to shop around for finance. Now, the dealer can supply much better levels of service by providing financing as well. Again, this is becoming the same as in Western Europe, where we offer the best levels of service and quality to our customers.

CEAR: Who are your major competitors?

Neitzsch: The main competition comes from the Polish deposit banks who compete on price, but not necessarily on service. The Polish banks vary enormously in the levels of service that they provide.

We aim to be competitive on price, but we are not necessarily the cheapest. We do have much faster response rates than these banks. We also have standardized levels of service across our dealer networks that they cannot match.

Opel has also started its own bank to provide financing through its dealer network. In addition to the major companies with their captive leasing companies, other providers of financing include numerous small and financially weak companies.

CEAR: Where do you see Ford Bank in 5 years time?

Neitzsch: I see Ford Bank as having exactly the same range of financial products and levels of service as provided by Ford throughout the rest of

Western Europe. I also envisage on-line credit checking and connections between all the dealers and Ford Bank, which will greatly speed up the service levels we can provide to customers.

CEAR: What is your expected market share?

Neitzsch: Again, I envisage that the market share we obtain in Poland will be comparable to that which is achieved throughout Western Europe and we will be providing financing for 30-40% of all vehicles sold by Ford.

We now have the necessary infrastructure, systems, and key people in place for the business to develop. There are now 40 employees and we will probably have 50 in two years time; it will obviously depend on the level of business.

CEAR: Many companies have found it difficult to recruit suitably qualified staff in Poland. Have you had similar experiences?

Neitzsch: We are very satisfied with the dedication and abilities of the staff that

we have employed. They show a lot of commitment. Admittedly, many of our staff had limited experience when they joined us, but they are highly motivated to learn, especially in the new markets that we are developing.

“Generally in Poland, debt defaulting is very good with private customers — only around 1% of all loans are defaulted. Customers seem to regard it as an obligation to repay debt.”

CEAR: How do you find staff? This can be a difficult and time consuming process in Poland?

Neitzsch: We mainly use newspaper advertisements. When we started, we used head-hunters, but for the level of staff we are now recruiting, advertising works fine. Ford has a very good name and we can attract quality candidates who want to work for us. We have strict selection criteria.

CEAR: How important is training to Ford Bank?

Neitzsch: Essential. The key to our business is a willing and able staff. The workload in processing applications for

financing in Poland is far higher than in the rest of Europe. We depend on staff who are motivated and trained. We spend a lot of time and money on training staff in this country and at Ford Credit training centers internationally. Ford personnel also receive a lot of on the job training.

CEAR: What is the most difficult aspect of your job in Poland.

Neitzsch: I find my role here very interesting and challenging. The situation in Poland is quite different from that in Western Europe. In Poland, we have to be registered as a bank, complying with the regulations laid down under Polish banking laws. Whereas in the rest of Europe, it is not always necessary to be registered as a bank to provide the range of services that we offer. Complying with Polish banking laws creates a lot more administrative requirements for us to adhere to.

CEAR: What will be the key to Ford Bank’s success in the future?

Neitzsch: Without a doubt, the key will be to ensure service and quality. This will be [achieved with a] well trained staff. We also aim to have more efficient systems that ensure the best levels of service for customers ■

Poland’s Special Economic Zones

- Kracow
- Mazovia
- Mielec
- Katowice
- Suwalki
- Legnica
- Walbrzych
- Lodz
- Zarnowiec
- Tczew (Gdansk province)
- Kamienna Gora (Jelenia Gora province)
- Kostrzyn-Slubice (Gorzow province)
- Starachowice (Kielce province)
- Slupsk
- Tarnobrzeg
- Olsztyn
- Czestochowa

New Car Registrations Growth in Europe (YTD March)

	<u>Country</u>	<u>1998</u>	<u>1997</u>	<u>% Change</u>
1	Germany**	971,900	869,320	11.8
2	Italy**	716,500	617,672	16.0
3	U.K.	622,600	550,486	13.1
4	France	460,200	406,897	13.1
5	Spain**	272,000	239,016	13.8
6	Netherlands**	167,800	159,052	5.5
7	Poland*	137,525	130,635	5.3
8	Belgium	136,500	122,862	11.1
9	Austria**	80,000	75,472	6.0
10	Switzerland**	69,100	68,688	0.6
11	Portugal**	58,800	55,577	5.8
12	Sweden	58,300	51,411	13.4
13	Ireland**	56,400	51,180	10.2
14	Greece**	44,900	41,005	9.5
15	Denmark**	40,400	39,300	2.8
16	Finland	34,200	30,292	12.9
17	Norway	27,000	29,703	-9.1
18	Luxembourg	9,900	9,602	3.1

*Grey import not included
** Provisional figures

Source: SAMAR, s.c.

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The U.S. Department of Energy's ("DOE") Initiatives for Proliferation Prevention ("IPP") program is a unique opportunity for US automotive companies seeking to take advantage of the abundant raw materials and under-employed skilled labor pool in the former Soviet Union.

The IPP funds projects at the 10 largest DOE National Laboratories, which in turn subcontract with institutes in Russia, Belarus, Kazakhstan, and Ukraine that formerly had connections with nuclear, chemical, or biological defense work. The emphasis is on commercialization of technology from these institutes.

The IPP helps to compensate for dramatic drops in budgets at these institutes and the lack of meaningful alternate employment, which represent a significant proliferation concern for the world.

Two Stage Procedure

The first project stage is a technical feasibility stage. If the project produces the desired results, then there is a second stage which involves a US industry partner in a three way relationship. To participate, however, the company must put up its own money. It must match, in terms of work in its own R&D establishment, the dollar amount that the DOE puts into the DOE national laboratory (half of which in turn goes to the foreign institute under a subcontract).

Current Projects

The IPP program has spawned several projects that have automotive applications. In one first stage project, Los Alamos scientists and engineers will work with the **Institute for Electro Physics** to investigate the use of intense ion beams to produce surface coatings for manufactured goods, a process that dramatically hardens metal surfaces to reduce wear.

General Motors, DuPont, and ISM Corporation have all expressed interest in future cooperation on this project.

The project, however, is still in the technology feasibility stage.

Two other automotive related IPP projects have reached the second stage of development. They both involve the **Lawrence Livermore National Laboratory** and the Russian center at Snezhinsk (Chelyabinsk-70). The projects involve the development of superplastic roll forming technology for the production of automotive components using various metal alloys.

IPP Funds Electric Vehicle Battery Production in Siberia

Energy Conversion Devices, Inc. ("ECD") is involved in an IPP funded project to further develop ECD's proprietary clean energy technologies for the Russian market. The project provides a good example of how an automotive company can tangibly benefit from the IPP program.

Proposals for the project were made by **Sovlux**, ECD's Russian-American joint venture with **Scientific and Industrial Enterprise KVANT** and the **Russian Ministry of Atomic Energy**. **Sovlux Battery**, a branch of Sovlux, is 50% owned by ECD and 50% by the **Chepetsky Mechanical Plant** in Glazov, Siberia. Sovlux Battery will produce NiMH battery materials and batteries for the emerging two- and three- wheeled electric vehicle market in Europe and Asia.

"This comes at a very important time in the development of our battery business in the emerging electric vehicle market," said Stanford R. Ovshinsky, President and CEO of ECD. "Sovlux Battery will help us provide [NiMH] batteries at a reduced cost."

How was the project set up?

DOE National Laboratories involved in the project received funding in order to enter into cooperative R&D Agreements with ECD, which matched, dollar-for-dollar, the DOE funding. Of the DOE funding to the labs, at least half went to

Russian institutes or other entities to fund technical work under a subcontract mechanism.

Under this mechanism, payment is made only when agreed-upon deliverables are received by the DOE National Laboratory from the foreign institute. Part of the role of the DOE National Laboratory is to evaluate the deliverables and see if they meet the contractual standard. Deliverables can be hardware, data, reports, software, or other products of scientific or engineering work.

According to ECD, the IPP funding will be used to:

- employ scientists and engineers formerly engaged in the production of metal alloys for nuclear weapons in the production of metal alloys and components for nickel metal hydride (NiMH) batteries
- employ scientists formerly engaged in the design and production of nuclear weapons chambers in the design and production of manufacturing equipment for photovoltaic roofing materials to be produced by Sovlux
- employ scientists formerly engaged in uranium enrichment to recycle imported gases used in production of photovoltaic cells produced by Sovlux

For more information about how your company can get involved in the IPP program, please contact:

William J. Desmond
Program Director, IPP
Office of Arms Control and
Nonproliferation
US Department of Energy
tel: 202-586-6439
fax: 202-586-2164
e-mail: william.desmond@hq.doe.gov

Tax Advantages Behind Poland's Special Economic Zones

Katarzyna Sawicka-Hughes & Anna Strzelecka,
Tax Advisors, Arthur Andersen Warsaw & Katowice offices

Due to the rapid development of Poland, and the Silesian region in particular, many international companies have decided to do business in this market. In order to attract investors, the Polish government issued a special regulation that allows the Minister of Finance to establish Special Economic Zones (SSEs). One such zone was created in 1996 in the Katowice region. The creation of this zone caused a massive amount of automotive related investment to flow into the south of Poland, especially after the news that **General Motors** had decided to build a new factory in Gliwice.

Special Economic Zones

Entities investing in SSEs may be granted very attractive tax allowances such as:

- full exemption of income tax for half of the period for which the zone is established (in most cases 10 years);
- exemption of 50% of income from taxation during the remaining years of the zone's existence (in most

- cases another 10-year period); and
- possibility to increase the rate of depreciation.

In order to be granted special tax allowances, companies must satisfy certain conditions. The most important and also the most often misunderstood

"The law states that at least 30% of the sales price of goods produced in the zones must be connected with services and goods produced and rendered in the zones."

condition is "a local content" requirement. The law states that at least 30% of the sales price of goods produced in the zones (i.e. materials and services used to manufacture goods in SSEs) must be connected with services and goods produced and rendered in the zones.

Many automotive companies who decided to invest in SSEs established assembling units that do not use goods produced locally to manufacture the final product. As a result, they are not able to satisfy "the local content" condition.

The only locally incurred costs are usually the labor force and depreciation which together often do not constitute 30% of the sales price. Thus, it is very important for companies to determine in advance whether they will be able to satisfy all conditions, especially the local content requirement.

It should also be noted that companies may lose the right to tax allowances if during the performance of economic activities in SSEs they have unpaid tax liabilities exceeding a certain level. Considering that the VAT system in Poland is still very complicated, automotive companies must be very diligent with their VAT settlements. If tax allowance rights are lost because of unpaid tax liabilities, the company must reverse the effect of the incentives and add to their income the amount of the income previously exempt from tax.

As the Polish legal system and tax regulations are still prone to frequent changes, it is of utmost importance to stay on top of all regulations in order to prevent any loss of tax incentives or exemptions ■

New Car Registrations in Slovenia by Brand

SOURCE: REVOZ

Brand	YTD April '97	Market Share	YTD April '98	Market Share	Units Change	Share Change
RENAULT	4,943	20.66%	4,387	18.83%	-11.25%	-8.87%
VOLKSWAGEN	2,961	12.38%	2,887	12.39%	-2.50%	0.12%
DAEWOO	841	3.51%	2,032	8.72%	141.62%	148.10%
FIAT	2,280	9.53%	1,915	8.22%	-16.01%	-13.76%
CITROEN	1,192	4.98%	1,743	7.48%	46.22%	50.15%
OPEL	1,254	5.24%	1,354	5.81%	7.97%	10.87%
SKODA	1,630	6.81%	1,174	5.04%	-27.98%	-26.04%
HYUNDAI	1,629	6.81%	1,018	4.37%	-37.51%	-35.83%
FORD	1,307	5.46%	968	4.15%	-25.94%	-23.95%
KIA	343	1.43%	821	3.52%	139.36%	145.78%
SEAT	810	3.39%	768	3.30%	-5.19%	-2.64%
AUDI	557	2.33%	686	2.94%	23.16%	26.46%
PEUGEOT	673	2.81%	593	2.54%	-11.89%	-9.52%
HONDA	469	1.96%	476	2.04%	1.49%	4.21%
ROVER	455	1.90%	393	1.69%	-13.63%	-11.31%
MITSUBISHI	109	0.46%	272	1.17%	149.54%	156.23%
ALFA ROMEO	154	0.64%	246	1.06%	59.74%	64.02%
SUZUKI	561	2.34%	243	1.04%	-56.68%	-55.52%
LADA	362	1.51%	186	0.80%	-48.62%	-47.24%
BMW	189	0.79%	179	0.77%	-5.29%	-2.75%
VOLVO	126	0.53%	109	0.47%	-13.49%	-11.17%
OTHER	1,082	4.52%	852	3.66%	-21.26%	-19.14%
TOTAL	23,927	100.00%	23,302	100.00%	-2.61%	

1997 Skoda Quality Award Winners

COMPANY

Delphi Packard Electric, Ceska Lipa (1)

SAS Autosystemtechnik, Mlada Boleslav (1)

Blaimer International, Bela pod Bezdezem (1)

Perovna Hostivar, Prague (1)

ITT Automotive CZ, Kolomuty (1)

Pronovia, Velka Bites (1)

TOS Kurim, Kurim (1)

ZVL Tribometal, Kolny Kubin (2)

VDO Instruments, Prague (2)

Temac, Zverinek (2)

Metals, Nejdek (2)

Avon-Rubena, Rudnik (2)

AKUMA, Mlada Boleslav (4)

Sluzba VDI, Nitra (4)

PEKM Knobloch, Liberec (5)

() indicates the number of years the company has won the award

Quality Continued from Page 11

Measurement System Analysis (MSA)

Evidence is required that appropriate statistical studies have been conducted to analyze the variation in the results of each type of measuring and test system, utilizing gauge repeatability and reproducibility studies (R&R studies).

It is expected that process capability variation resulting from standard deviations in measurement capability will be controlled within a very tight limit. This is an often forgotten source of variation.

Corrective and Preventive Action — Problem Solving Methods

Disciplined problem solving methods for corrective and preventive actions shall be used when an internal or external non-conformance specification or requirement occurs.

For problem solving using a team approach, it is essential to ensure that positive team dynamics are developed to create and benefit from the synergy arriving from team membership skills. This and the teaching/understanding and application of a disciplined problem solving methodology generally requires specialist support for success.

Next Month: Quality Expectations in the Global Automotive Industry Part II

Excellence Continued from Page 9

do not exist physically, these assets are increasingly very important to the company. Just think of the value of car brands or the extreme case of the tremendous value of the Coca-Cola brand. Finally, IC also includes the value created by customers (and supplier's) loyalty.

These basic categories, and the flow between them, make up the IC of companies. This is why IC is a much better predictor of future profits than most other measures used in companies today. Thus, IC offers clear guidelines for what is good management practice.

The Management Challenge

Having become lean manufacturers, reduced your costs by setting up in Central Europe, and moving towards a zero defect environment, the next challenge lies in IC. The concepts behind IC are helping managers view strategic and operational issues in a new way and are spreading quickly across industries and countries.

The management challenge from this perspective is to nurture, and leverage growth in your company's intellectual capital, and pick up on early warning signs of declining IC. This is how you can get a better grip on what will drive profits tomorrow. But first you need to develop a tool to visualize IC and that will be the topic of next month's article.

Next Month: Developing Tools for Measuring Intellectual Capital

Central European Purchasing Executives

COMPANY

Daewoo Motor Polska

Fiat Auto Poland

Ford (Czech Republic)

Ford Hungaria

GM Poland

Isuzu Motors Polska

Magyar Suzuki

Opel Czech & Slovak

Renault/Revoz (Slovenia)

Skoda Auto a.s.

VW (Czech Republic)

NAME/TITLE

Yeon-Seob Jeong, Purchasing Director

Giovanni Patelli, Purchasing Manager

Stefan Tyrpak, Purchasing Manager

Zsolt Marton, Purchasing Manager

Achim Kuehne, Purchasing Director

Ichiro Murai, Gen. Manager Purchasing

Mrs. Eva Klujber, Purchasing Director

Josef Dolezal, Purchasing Manager

Pierre Couillerot, Director of Purchasing

Gunter Becker, Head of Purchasing

Hana Cejnarova

CONTACT

Tel: 48-81-749-3301; Fax: 48-81-749-3309

Tel: 48-33-132-542; Fax: 48-33-126-988

Tel: 420-2-2481-1727; Fax: 420-2-2481-2488

Tel: 36-1-250-9865; Fax: 36-1-250-9866

Tel: 48-22-676-3100; Fax: 48-22-676-2803

Tel: 48-32-217-7307; Fax: 48-32-217-7308

Tel: 36-33-414-311; Fax: 36-33-412-014

Tel: 420-2-2438-400; Fax: 420-2-6121-1259

Tel: 386-61-1723-301; Fax: 386-61-1723-320

Tel: 420-32-681-1153; Fax: 420-32-681-1173

Tel: 420-32-681-1002; Fax: 420-32-681-1179

Manufacturer of driving shafts, steering shafts, steering gears, and spare parts seeks foreign investor
Wieslaw Kosieradzki
PIAST
tel: 48-22-827-8700
fax: 48-22-826-7341
Poland

Manufacturer of centrifugal oil separators, heaters, water and oil coolers for cars & trucks, water pumps for vans, trucks, and ships seeks foreign investor
Wieslaw Kosieradzki
PIAST
tel: 48-22-827-8700
fax: 48-22-826-7341
Poland

Manufacturer of fuel supply systems for car & van engines, compressors for pneumatic braking systems for cars, buses, & farm tractors, compressor units & pneumatic fittings, & spare parts for compressors seeks foreign investor
Wieslaw Kosieradzki
PIAST
tel: 48-22-827-8700

fax: 48-22-826-7341
Poland

Manufacturer of hydraulic cylinders, up to 32 bars pressure, 25-160 piston diameter, up to 4,000 mm length, seeks Slovak Republic commercial cooperation, offers production to order
Jorgen Varkonda
SNAZIR
re:Rerosa s.r.o.
tel: 421-7-5335-175
fax: 421-7-5335-022
Slovak Republic

Manufacturer of exhaust flanges, light welded steel constructions, agricultural machines, and hydraulic components under Sauer Co. license seeks joint venture partner
Jorgen Varkonda
SNAZIR
re: Topolcianske Strojarne
tel: 421-7-5335-175
fax: 421-7-5335-022
Slovak Republic

Manufacturer of car & truck air and oil filters seeks joint

venture partner for production, financial, and distribution cooperation.
Monthly air filter capacity for cars of 60,000, and 6,000 for trucks
Jorgen Varkonda
SNAZIR
re: Sandrik a.s.
tel: 421-7-5335-175
fax: 421-7-5335-022
Slovak Republic

Manufacturer of pressed parts for cars, press units, electric carriages, and machine tools seeks commercial or production cooperation
Jorgen Varkonda
SNAZIR
re: BAZ a.s.
tel: 421-7-5335-175
fax: 421-7-5335-022
Slovak Republic

U.S. partner sought for Czech producer of crankshafts (various sizes up to 2500 mm lengths) for purpose of contract manufacturing. Company is supplier to producers of engines for trucks, tractors,

ships, & stationary aggregates. 1996 turnover expected to be \$20 million.
Jan Vesely IESC
tel: 420-2-2499-3170
fax: 420-2-2499-3176
Czech Republic

Partner sought for producer of diesel injection equipment for development, production, & sale of single and multi-cylinder in-line injection pumps for all types of diesel engines, as well as for injection systems, testing, measuring, & adjustment equipment. 1995 turnover was \$40 million.
Jan Vesely IESC
tel: 420-2-2499-3170
fax: 420-2-2499-3176
Czech Republic

Manufacturer of plastic parts for Opel, Mercedes, VW, & Suzuki seeks equity partner who is engaged in plastic processing business \$5 million
Csaba Kilian, ITDH
re: Pemu
tel: 36-1-118-0051
fax: 36-1-118-3732
Hungary

Supplier of seats for Suzuki cars & Spare parts for Ikarus seeks purchaser. Company undergoing privatization process.
Csaba Kilian, ITDH
re: 02/Aut/96
tel: 36-1-118-0051
fax: 36-1-118-3732

Hungary

Battery manufacturer seeks joint venture partner for processing used vehicle starter batteries \$2.1 million
Csaba Kilian, ITDH
re: Perion
tel: 36-1-118-0051
fax: 36-1-118-3732
Hungary

Russian bus company seeks American joint venture partner to manufacture new bus models. Business plan available in English
Victor Sergeevich Kostromin
General Director
Pavlovo Bus Co.
tel: 7-83171-6-81-14
fax: 7-83171-6-03-18
Russia

Russian company seeks a joint venture partner to rebuild car and truck tires and recycle tires and other rubber products into pellets.
Alexander Nikolayevich Kalin
General Director
Kstovo Tire Repair & Recycling Plant
Tel: 7-8312-38-12-75
Fax: 7-8312-38-12-75

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end modules and air conditioning systems from a joint production plant in the Czech Republic. Hella brings to the venture its car lighting systems and electronics manufacturing expertise, while Behr contributes its skill as a producer of air conditioning and engine cooling systems.

Skoda Auto Awards its Best Suppliers

In April, **Skoda Auto** presented its 15 best suppliers with the 1997 Skoda Quality Award. Skoda purchased CK 54.8 billion (\$1.6 billion) worth of supplies in 1997, with almost 70% of this amount coming from Czech based suppliers. Czech suppliers delivered supplies to other **VW** group companies valued at CK 7.6 billion (\$223 million).

“VW and Skoda Auto support those suppliers who are capable of taking over the results of our parts and products engineering quickly, in prime quality and in an innovative manner,” said Francisco Garcia Sanz, member of the VW brand board responsible for purchasing. (*see chart of award winners on page 16*)

Daewoo Avia's First Quarter Results — Car & Truck Sales Drop

During the first quarter of 1998, **Daewoo Avia** sold 661 Avia trucks, down about 30% from the 939 units sold during the same period in 1997. First quarter sales of Daewoo Lublin trucks totaled 132, down slightly from 137 units a year ago.

Daewoo Avia's first quarter sales of Daewoo cars in the Czech Republic decreased by over 43% compared to the same period last year. First quarter 1998 sales totaled 669 units, compared to 1,181 units sold during the same period last year.

The big drop was primarily due to the end of Tico sales in the Czech Republic. In mid 1997, sales of the popular Tico were stopped due to strict emission regulations in the Czech Republic. The Tico will be replaced by the new Matiz, launched in Korea in late March. Sales of the Matiz in the Czech Republic will begin in the second half of 1998.

New Light Commercial Vehicle

Back in March, Daewoo Avia introduced the new light commercial vehicle Lublin 3.5. The Lublin 3.5 will be assembled at Daewoo Avia's factory in the Czech Republic from kits delivered by **Daewoo Motor Poland** in Lublin, Poland.

The assembled Lublin 3.5 will be sold in the Czech Republic through Daewoo Avia's sales network. More than 1,100 Lublin trucks of various modification have been sold in the Czech market since early 1997 when Daewoo Avia started assembling the trucks.

Czech Government To Offer Unprecedented Investment Incentives

In late April 1998, the Czech government approved the country's first formal package of national investment incentives since the fall of communism in 1989. All new manufacturing investments in the Czech Republic of over \$25 million will be eligible for benefits under the 6-point package.

The package covers corporate taxation deferrals and bonuses, customs duty waivers and beneficial VAT arrangements on imported equipment, the provision of low-cost development land, job training grants, special job creation benefits for firms locating in under-developed regions, and special customs zones for major investors.

Hungary

Suzuki Willing To Expand In Hungary — Wants Help From Government

Suzuki may invest another \$75 million or more into its Hungarian car plant — **Magyar Suzuki** — if the Hungarian government provides more support, Osamu Suzuki, president of **Suzuki Motors Corp.**, said at a recent press conference. Mr. Suzuki indicated that the capacity of the plant might be increased to 100,000 units. Current production capacity is 70,000 units.

Magyar Suzuki's revenues in 1997 totaled 77 billion forints (\$366 million), up 36% compared to 1996. Net income rose to 1.65 billion forints (\$7.8 million), an 86% increase over 1996's results.

GM Opening New Transmission Operation In Hungary; Opel Assembly Phased Out

General Motors Corp. plans to increase its investment in Hungary by pumping another \$128 million into a transmission plant in Szentgotthard in Western Hungary. The new plant will have an annual capacity of 250,000 units and is expected to employ 500 people. Operations are slated to begin in the year 2001.

According to company officials, by the end of this year GM will discontinue its Opel Astra assembly operation in Szentgotthard to free up resources for the new project. Officials have also indicated that a new engine facility is not likely to be built in Hungary, but instead will probably go to Germany.

GM currently assembles the Opel Astra and produces engines and cylinder heads in Szentgotthard. The new investment brings GM's total investment in Hungary to over \$500 million.

New Car Sales in Hungary Up 50% During First Quarter

New car sales in Hungary jumped over 50% during the first quarter of 1998. First quarter sales totaled 21,688 units, compared to 14,374 units sold during the first quarter of 1997. Reasons cited for the big increase are an improving Hungarian economy, the availability of better car financing programs, and unattractive bank savings rates.

Local manufacturer **Magyar Suzuki** saw its sales rise over 50% to 4,704 vehicles, compared to sales of 3,122 units during the same period last year. The company's market share held steady at almost 22%. **Opel's** sales also rose sharply to 3,362 units, compared to 2,165 units sold in Q1 1997. Opel's market share rose slightly from 15.06% to 15.50%.

Ford took over the third position from **Volkswagen** with sales of 1,953 units and a market share of 9%. **Volkswagen's** sales totaled 1,820 units, giving it a market share of 8.4%. At this time last year VW's market share was almost 13%.

Fiat's sales rose over 140%, from 668 units during Q1 1997 to 1,608 units in Q1 1998. The company saw its market share jump from 4.6% to 7.4%.

Daewoo's sales were slightly off at 1,338 units. The Korean carmaker's market share slid from 9.6% to 6.4%.

Slovak Republic

VW/Siemens JV To Boost Wire Harness Production

Volkswagen Elektricke Systemy is boosting its wire harness production to keep up with increased demand for **VW Group** models. The company, a joint venture between **Volkswagen AG** and **Siemens AG**, is moving from two shift to three shift production, and by the end of May expects to increase the number of its employees from 1,330 to 1,500-1,600.

VW Elektricke's current production area in Nitra, Slovakia is 40,000 sq. meters, of which production halls cover 14,510 sq. meters. Soon, this will be not enough, reported the company's

economic director Hermann Krueder.

VW Elektricke's customers include **VW Bratislava**, **Audi Hungary**, and **Skoda Auto** in the Czech Republic. In May 1998, the company plans to start supplying harnesses just-in-time to **VW Bratislava**. The harnesses will be installed by VW Elektricke employees working directly on the VW Bratislava assembly line.

VW Elektricke's turnover in 1998 should reach DM 80 million (\$44 million). Net profit in 1997 was DM 800,000 (\$444,444) and turnover reached DM 28.9 million (\$16 million). The capital stock of the company is just over DM 4 million.

The average monthly salary of the company's workers in Slovakia is SK 10,500 (\$300), which does not include salaries paid to the German top management.

VW Elektricke is a daughter company of **VW Bordnetze AG**, Berlin, Germany. Established in January of 1996, the first

harnesses were produced by the joint venture in June 1996.

Slovenia

Revoz/Renault Replacing Clio Production with Clio II

Slovenia's only car producer, **Revoz d.d.**'s (54% owned by **Renault S.A., France**) production plan for 1998 is for more than 90,000 cars, with the Clio being gradually replaced by the Clio II. In late 1998, the Clio II will be the sole model produced in Slovenia.

Installed capacity at the Slovenian factory is 100,000 units, using two shifts and a five day working week. Last year, the company achieved a record production of 95,951 Renault Clio models. Exports totaling 89,404 cars were made mostly to Italy, Germany, France, and Austria. As of December 31, 1997, Revoz had 2,560 employees ■

Who Continued from Page 5

Supplier

UT Automotive, Hungary
VAB Tychy, Poland
VDO Instruments, Czech Republic

Volkswagen Elektricke Systemy, Slovak Republic
VSZ, Slovak Republic

Wix-Filtron, Poland
Yazaki Debnar, Slovakia
ZK Kuznicze Ltd, Poland

Products

Wiring harnesses
Stampings
Instrument panels, fuel management systems
Cabling systems
Steel products

Filters
Wiring harnesses
Metal forgings

Key Customers

GM, Ford, Land Rover
GM Poland*

Skoda, GM Poland,* Daewoo Avia (1999)
VW Bratislava, Skoda, Audi Hungary
Skoda, VAZ Togliatti, Daewoo, Dacia, Fiat, Mercedes, Ford
Fiat, Daewoo FSO, Daewoo Lublin
Ford
Rockwell International, Dana, Fiat Auto Poland, Daewoo FSO, GM, TRW Steering Systems Poland

*Under construction

1998 CEAR™ Central European Automotive Excellence Award

The CENTRAL EUROPE AUTOMOTIVE REPORT™ is accepting nominations for the 1998 CEAR™ Central European Automotive Excellence Award. This award will be presented to the Central European automotive manufacturer or supplier that has best demonstrated market leadership through its use of innovative manufacturing and marketing systems. The award is given to recognize the positive influence such exemplary leadership has on the development of the Central European automotive sector. We would greatly appreciate your input in nominating candidates for this award. You may nominate your own company or others. The deadline for nominations is August 15, 1998.

Nominee

Reasons

Fax to: +1-206-374-5282 Email to: cetmlc@ibm.net

Distribution of Asian Cars in Eastern Europe

Elaine Hardy, Project Director,
Harbour Wade Brown

National Sales Companies

In 1997, all Asian makes in Eastern Europe (including Central Europe, The Balkans and The Baltics), except **Daihatsu** and **Subaru**, enjoyed effective 95-100% coverage. Daihatsu is absent from ten countries (reaching only 37% of potential buyers) and Subaru is absent from six.

Only three of the makes own any importers or sales organizations in these regions: **Daewoo** has six, including three linked with its manufacturing activities in the Czech Republic, Poland, and Romania. It also owns its importers in the other Central European countries: Hungary, Slovakia, and Slovenia. These six countries are the highest volume markets in the region.

Honda owns its importers in four of the five most advanced markets (i.e. those of Central Europe). These four countries: Czech Republic, Hungary, Slovakia, and

Poland, constitute 75% of the region's vehicle market. **Hyundai** owns its importer in the region's dominant market, Poland, which contributes over 40% of the overall regional volume.

Dealer Networks

Average dealer network size and structure for each of the make groupings in 1997 are outlined in the nearby chart.

The network data clearly reflects the early lead enjoyed by the Korean makes, with Daewoo taking the lion's share not only of the Korean makes, but all other groupings as well. Hyundai and **Kia**'s networks are very similar in size to the

average for Western European volume makes.

Amongst the Japanese makes, **Suzuki** has the largest network — 200 main dealers — the second largest of any Asian make. Sixty-percent of Suzuki's network is located in Hungary where it has its vehicle manufacturing operation and where it is the second leading seller behind **Opel**.

Excluding Suzuki, the smaller Japanese makes' average network falls to only 25 main dealers. Proton is also an Asian make (albeit Malaysian) and has captured a small market, mainly in Croatia and Slovenia.

Average Dealer Network Size and Structure (1997)

	Main	Secondary	Total
Koreans:			
Daewoo	531	0	531
Hyundai/Kia	173	0	173
Overall Avg. of the 3 makes	292	0	292
Major Japanese Avg.	125	11	136
Medium Japanese Avg.	106	2	108
Smaller Japanese Avg.	83	0	83
Proton Avg.	16	0	16
Western European Volume Makes Avg.	171	38	209

Note: Daewoo's total includes 420 dealers in the three markets in which it has vehicle manufacturing facilities.

Source: Harbour Wade Brown

Exhibitions, Conferences, and Shows in 1998 & 1999

1998

June 2-5 **Dusseldorf, Germany** Int'l Symposium on Automotive Technology & Automation
 June 3-14 **Buenos Aires, Argentina** Auto Show
 June 6-11 **Brno, Czech Republic** AutoTec
 June 18-20 **Beijing, China** Automotive Sourcing in China
 June 22-27 **Kiev, Ukraine** Auto Show
 June 23-30 **Beijing, China** Auto China '98
 June 24-25 **Vienna, Austria** Commercial Opportunities in CIS Auto Industry Conference
 June 24-28 **Rio de Janeiro, Brazil** Auto Brazil 98
 August 26-30 **Moscow, Russia** Moscow Int'l Motor Show
 Sept. 3-10 **Hanover, Germany** Auto Show
 Sept. 14-16 **Nagaya, Japan** Int'l Symposium on Advanced Vehicle Controls
 Sept. 15-20 **Nitra, Slovakia** Autosalon Nitra
 Sept. 15-20 **Frankfurt, Germany** Automechanika
 Sept. 18-27 **Bucharest, Romania** Bucharest Motor Show
 Sept. 27-Oct. 1 **Paris, France** FISITA World Congress
 Sept. 29-Oct. 1 **Detroit, MI** Int'l body Engineering Conference
 Sept. 29-Oct. 4 **Budapest, Hungary** Autotechnika
 Oct. 1-3 **Brussels, Belgium** Int'l Electric Vehicle Symposium
 Oct. 1-11 **Paris, France** Int'l Road Transport Exhibition
 Oct. 1-11 **Paris, France** Int'l Paris Motor Show
 Oct. 6-8 **Detroit, MI** Global Powertrain Congress
 Oct. 8-12 **Ho Chi Minh City, Vietnam** Auto Vietnam 98
 Oct. 13-15 **Amsterdam, The Netherlands** InterAuto '98
 Oct. 16-25 **Sydney, Australia** Int'l Motor Show
 Oct. 16-25 **Panama City, Panama** Panama Auto Expo
 Oct. 23-Nov. 1 **Birmingham, UK** British Int'l Motor Show

Oct. 29-Nov. 1 **Istanbul, Turkey** Commercial Vehicles '98
 Oct. 29-Nov. 8 **Sao Paulo, Brazil** Brazil Int'l Automobile Trade Show
 Nov. 4-7 **Bangkok, Thailand** Asia Automotive '98
 Nov. 4-8 **St. Petersburg, Russia** St. Petersburg Auto & Service Show
 Nov. 5-8 **Istanbul, Turkey** Auto Show
 Nov. 12-15 **Cairo, Egypt** Cairo Motor Show
 Nov. 14-22 **Suntec City, Singapore** Singapore Motor Show
 Nov. 17-21 **Sofia, Bulgaria** Bulgaria Int'l Specialized Trade Show
 Nov. 26-Dec. 6 **Montevideo, Uruguay** Montevideo Motor Show
 Nov. 27-Dec. 6 **Essen, Germany** Essen Motor Show
 Nov. 30-Dec. 2 **Graz, Austria** SAE Total Life Cycle Conference & Exposition
 Dec. 2-5 **Jakarta, Indonesia** Indonesia Auto Show
 Dec. **Detroit, MI** SAE Global Vehicle Development Conference

1999

Jan. 16-24 **Brussels, Belgium** Brussels Int'l Motor Show
 Feb. 4-14 **Amsterdam, The Netherlands** Int'l Motor Show
 March 11-21 **Geneva, Switzerland** Geneva Int'l Motor Show
 April 8-16 **Stockholm, Sweden** Stockholm Int'l Motor Show
 May 22-30 **Barcelona, Spain** Barcelona Int'l Motor Show
 May 27-June 1 **Poznan, Poland** Int'l Automotive Show
 Nov. 13-21 **Athens, Greece** Athens Int'l Motor Show

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Fax: [36] 1-129-8233

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springs, shock
absorbers
Dezso Boldi
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Laszlo Bernath
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Fax: [36] 1-2524829

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strands, integrated
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Agnes Hegyi
Tel: [36] 1-2045718
Fax: [36] 1-2045648

BMT Ipari
Kereskedelmi
engine and other
parts
Dr. Miklos Ferenc
Tel: [36] 28-310031
Fax: [36] 28-310013

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Fax: [36] 48-354496

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Reverse Flow Catalytic Converter & Fuel Injection Systems Cut Emissions

New Product Review

The Canadian-based **Alternative Fuel Systems** has introduced a patented reverse flow catalytic converter with applications for all internal combustion engines, including gasoline. The company has also developed a fuel injection system for converting gasoline and diesel engines to burn cleaner fuels. Both products are especially suitable for use in regions plagued by high pollution levels.

The revolutionary catalytic converter has been jointly developed by AFS and the US company **Matros Technologies**. It uses a unique process for increasing the temperature within the converter, which significantly reduces emissions to acceptable levels or lower by greatly enhancing the catalytic process. A U.S. patent has been accepted and a global patent application has been submitted for targeting certain countries.

The development of the reverse flow converter began back in 1995 when a technical presentation given by AFS vice president Ed Mirosh on diesel dual-fuel technology was heard by Dr. Yuri Matros, an expatriate Russian scientist who had emigrated to the United States.

Dr. Matros was experienced in converting low heat, high volume exhaust gas streams from chemical plants using a reverse flow concept involving immense catalysts and reversing valves. By modeling these reactions, he was confident he could adapt the process for treating low heat, low volume exhaust gases from engines.

Dr. Matros and Mr. Mirosh began a dialogue that resulted in a program of testing and mathematical modeling that led to a patent application in 1996. Dr. Mirosh and AFS engineer Dr. Ming Zheng fine-tuned the concept. Further testing was conducted by a University of Alberta team of research scientists and partially funded by the National Research Council of Canada.

No hydrocarbon fuel is completely emissions free, but the AFS reverse flow catalytic converter comes close to eliminating methane and carbon monoxide from the exhaust of hydrocarbon fueled vehicles.

The unique character of the reverse flow converter has brought invitations for

AFS personnel to present technical papers this year at various automotive conferences, including the Society of Automotive Engineers (SAE) International Congress in Detroit, the International Conference and Exhibition for Natural Gas Vehicles in Cologne, the FISITA World Automotive Congress in Paris, and conferences on catalysis in Russia and Italy.

AFS has also developed fuel injection systems for converting gasoline and diesel engines to cleaner burning compressed natural gas (CNG) and propane (LPG) — the AFS Eagle, a multi-point diesel dual fuel management system, and the AFS Sparrow, used for converting gasoline engines to CNG or LPG. Both are simple to install, do not reduce engine power, and increase operational efficiency.

The AFS Eagle dual-fuel system has been tested in pilot projects in cities such as Tokyo, Sao Paulo, Osaka, Seoul, and Pusan. In Mexico City a project was launched in late December 1997 to convert minibuses and other vehicles from gasoline to CNG using the AFS Sparrow. Some 10,000 vehicles per year over a 10-year period will be converted at a cost of \$2,000 each. The Mexico City project will provide a model for other cities around the world facing similar pollution problems ■

Best Selling Brands in Poland (YTD March 1998) Ranking By Retail Volume

Passenger Cars

Make	Volume	Market Share
FIAT	44,223	32.16%
DAEWOO	38,126	27.72%
GM - OPEL	10,558	7.68%
SKODA	6,658	4.84%
RENAULT	5,344	3.89%
FORD	5,134	3.73%
VW	4,339	3.16%
TOYOTA	4,308	3.13%
HONDA	4,284	3.12%
SEAT	3,394	2.47%

Commercial Vehicles

Make	Volume	Market Share
DAEWOO MTR.	3,121	25.24%
DAEWOO	2,662	21.53%
CITROEN	1,252	10.12%
MERCEDES	1,011	8.18%
VW	807	6.53%
FIAT	696	5.63%
SKODA	672	5.43%
FORD	448	3.62%
PEUGEOT	428	3.46%
IVECO	332	2.68%

Source: SAMAR, s.c.

FUTURE ISSUES

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Daewoo Sinks \$4 million Into New Operation & Service Center in Slovakia

Company Spotlight

Company: Daewoo Motor Slovakia
Location: Bratislava, Slovak Republic
Contact: Peter Halgas, Marketing Manager
Business: Distribution & Sales

Daewoo Motor Slovakia has chosen Piestany, Slovakia as the site for its new SK 140 million (\$4 million) operation and service center. "Due to the big sales volume [of Daewoo cars] in 1996 and 1997, we need to satisfy our customers," Peter Halgas, Marketing Manager for Daewoo Motor Slovakia told the CEAR. "We feel it's our obligation."

The 17,000 square meter center will have multiple functions. For the public, it will be used for sales and service. Cars will be sold and serviced at the center, and spare parts will be available for purchase.

The facility will also serve Daewoo's Slovak dealer network as a wholesale car and spare parts center. A spare parts stock area will store parts bound for Daewoo's Slovak service centers. Storage space for some 300 cars will be available for vehicle inventory. And a new education center will provide training for dealers and dealer's

technicians.

Daewoo currently operates out of a rented facility in Piestany. Construction of the new center began in June of 1997 and operations are expected to begin in early May. "The spare parts stocking facility is already completely operational," said Halgas. By the end of April, Daewoo plans to move from its old facility in Piestany to the new center.

Piestany was chosen by Daewoo primarily because the previous Daewoo importer had established a stocking facility and bonded area in Piestany. "It was very useful to use these facilities, very convenient," said Halgas. "And for the dealers, it's more convenient than Bratislava. And the operational expenses are lower in Piestany, than, for example, in Bratislava."

Passenger cars find their way to Slovakia through the port of Koper in Slovenia, where they're loaded onto railwagons and then pulled into Piestany. "Due to legislative conditions that require payment of customs duties and VAT in advance, in the future it will be more advantageous for us to bring the cars from Koper according to needs," said

Halgas. "In accordance with the structure of sales preferences, we will keep some cars [in inventory in Piestany] and then we'll continuously resupply."

Daewoo Motor Slovakia is gearing up for the addition of new models to its current line-up that includes the Lanos, Nubira, and Leganza. The replacement for Daewoo's popular Tico model — the Matiz — will go on sale in Slovakia in August or September. Having taken over **Ssang Yong Motors** in January 1998, Daewoo is also preparing to start sales of Ssang Yong Motors models.

Daewoo Motor Slovakia will also begin selling light commercial vehicles from regional Daewoo operations, including the FSO and Lublin II models from Poland, and Daewoo Avia trucks from the Czech Republic.

Piestany, of course, is happy to have Daewoo as a neighbor. "The new Daewoo facility will make Piestany more attractive and will provide more employment opportunities," said Antonia Vitekova, Director of the Piestany mayor's office.

And last year, **Daewoo Group** Chairman Kim Woo-Choong donated SK 5 million to Piestany to develop social programs in the city. Most of the money has been earmarked for reconstructing and repairing churches and religious schools in Piestany ■

Polish Vehicle Market Segmentation (YTD March 1998)

Segment	YTD SALES (Units)		CHANGE (%)	MARKET SHARE (%)		SALES IN MARCH	
	1998	1997		1998	1997	1998	1997
1. Segment A	34,457	36,094	-4.54	25.06	27.63	13,794	12,010
2. Segment B	27,487	33,141	-17.06	19.99	25.37	11,276	11,035
3. Segment C	58,371	41,753	39.80	42.44	31.96	21,060	16,896
4. Segment C/D	14,290	17,458	-18.15	10.39	13.36	5,629	4,532
5. Segment D/E	1,733	635	172.91	1.26	0.49	806	262
6. Segment F	31	29	6.90	0.02	0.02	21	15
7. Segment S	298	586	0.00	0.00	0.00	142	195
8. Segment MPV	695	778	0.00	0.00	0.00	264	388
9. Segment 4WD	163	161	1.24	0.12	0.12	86	50
Total Passenger Cars	137,525	130,635	5.27	99.28	98.96	53,078	45,383
10. Light Comm. Segment	5,714	7,243	-21.11	46.21	55.07	2,261	2,671
11. Medium Comm. Segment	6,652	5,910	12.55	53.79	44.93	2,498	2,172
Total Commercial Vehicles	12,366	13,153	-5.98	100.00	100.00	4,759	4,843

Source: SAMAR s.c., Local Manufacturers and Official Importers, ACEA

CEAR™ Extra Data For Email Edition

This Data did not fit in the Print Edition, but it is made available to Email Subscribers

Sales Loss Leaders in Poland (YTD March 1998)

Passenger Cars			Light Commercial Vehicles			Medium Commercial Vehicles		
Make	Units	Change '98 v. '97	Make	Units	Change '98 v. '97	Make	Units	Change '98 v. '97
		Units			Units			Units
FSO - Polonez	5,938	-6281	Fiat Cinquecento Van	125	-1100	FSC - Zuk	55	-162
Fiat Cinquecento	9,902	-5383	FSO Polonez Truck	2,585	-594	Ford Transit	121	-125
PF 126	11,136	-2627	Citroen C15	712	-220	Fiat Ducato	54	-60
Daewoo Nexia	4,251	-2492	Ford Courier Van	66	-101	Citroen Jumper	33	-23
Fiat Uno	4,474	-2121	Fiat Uno Van	414	-93	Toyota Hiace	18	-14
Daewoo Espero	632	-2067	Peugeot Partner	166	-56	Renault Trafic	21	-5
Renault Megane	2,729	-1853	GM - Opel Combo	220	-52	Nissan Vanette	4	-5
Toyota Carina E	372	-1627	VW Caddy	83	-33			
Peugeot 406	831	-1492	Renault Express	15	-32			
Citroen AX	199	-1370	FSO Polonez Cargo	77	-27			

Source: SAMAR s.c., Local Manufacturers and Official Importers, ACEA

Slovenian Labor Market Indicators (1997)

LABOR FORCE	Number	Growth (%) ¹
•Paid Employment	651,225	0.2
—In Enterprises & Companies	593,086	-0.7
—By Self-Employed Persons	58,139	10.3
•Self-Employment	92,204	0.9
•Unemployment (registered)	125,188	4.5
•Registered Unemployment Rate (%)	14.4	-
•ILO Unemployment Rate (%) (Spring '97)	7.1	-
•Paid Employment By Sector of Activity	December 1997	Share (%)
—Agriculture	8,919	1.4
—Industry (includes construction)	290,524	44.7
—Services	350,248	53.9
WAGES & LABOR COST	Dec. 1997 (SIT)³	Growth %⁴
•Monthly Avg. Labor Cost Per Employee ²	209,543	9.8
—Manufacturing	175,047	9.7
•Average Hourly Labor Cost Per Employee	1,197	9.7
—Manufacturing	1,000	9.6
•Real Labor Cost Growth (%)	-	0.9%
—Manufacturing (%)	-	0.8
•Monthly Average Net Wage Per Employee	99,073	11.4
—Manufacturing	83,301	11.7
•Real Net Wage Growth (%)	-	2.4
—Manufacturing (%)	-	2.7

1) January-December 1997 compared to January-December 1996

2) Including employers and employees social contributions, additional labor costs (annual holiday bonus, meal reimbursement, traveling reimbursement) and payroll tax.

3) Avg. Slovenian Tolar Exchange Rate, December 1997: 1 US = 167.65 SIT

4) December 1997 compared to December 1996

Source: Chamber of Commerce & Industry of Slovenia