

**ANNEX 3: Record of Enterprise Interview Survey
Automotive Assemblers and Automotive
Parts Supply Industries**

Automotive Parts Manufacturing (KZN)

Company code	No. of employees	Major products	Annual turnover (R million)	Market (%)	
				Domestic	Export
A-1	650	Air filter, Oil filter, Fuel filter	300	70	30
A-2	400	Accessories (bull bar, roll bar)	30	100	
A-3	200	Gear lock unit, Console, U-bolt, Metal parts for door unit		100	
A-4	25	Bonnet parts, Press mold, Plastic mold		100	
A-5	700	Chassis frame, Exhaust system, Fuel tank	276	95	Less than 5

Company code: A-1

Sector: Automotive parts manufacturing (in KZN)

(1) General

1) Ownership and other profiles

This is a leading manufacturer of automotive air filters, oil filters, and fuel filters destined to the aftermarkets. The company makes over 500 types of filters under licensing from Mann, a leading filter supplier in Germany. It has obtained ISO9001 certification and is engaged in OEM production for local automakers.

2) Recent business activity and trend

In response to demand growth, the company is expanding its automatic assembly line. Equipment is primarily imported from Germany and Switzerland.

a) Major products and production volume

- Automotive air filters, oil filters, and fuel filters

b) Year of establishment (start of production): 1949

c) Number of employees: Approx.650

d) Major market (export/domestic) and sales (value and unit): Export 30% and domestic 70%; and annual sales of R300 million

e) Alliance with foreign company (field and partner): Technical licensing agreement with the German company in 1981

(2) Production management and major problem

Assembly operation is labor intensive, using purpose-built machines, jigs and line conveyors. A large number of work-in-process was seen. Most workers have received little education and do not read or write English and it is difficult to teach them advanced work skills. As a result, the company is emphasizing automation and standardization of manual work. The factory has one automatic assembly line (not operated yet) and build an additional line alongside.

(3) Major characteristics of production process, technology and products, and major problems

Large filter cases are made of steel plate and medium-sized ones are aluminum made. Both filters are shaped in the stamping (deep drawing) process. Small cases are made of plastics (not known where they are made). Corrugation of filter paper is done in-house using a purpose-built machine. End plates are shaped by stamping. Presses are relatively new and operated with high efficiency. Most products are shipped to the aftermarkets, and some are sold under the company's own brand, with OEM products being delivered to automakers and engine suppliers.

(4) Procurement of components, parts and materials

Steel plates are purchased from ISCOR and vary in hardness, presenting a problem for deep drawing. Aluminum sheets are have been purchased from Hulett, but because of poor response, the company is switching to imports from Germany and Switzerland. Plastics resin is imported from Germany and molds from Japan. Coil springs and rubber ring packing are purchase from local suppliers, but the company complains about quality and production techniques.

(5) Sales activity and major problem

Domestic sales to the aftermarkets are made through distribution centers in Pinetown, Cape Town and Johannesburg. The company holds 80% of the LCV market, while it has not gained much share in the truck market.

(6) Use of government programs and support organizations, comment and expectation

The company has received SABS's technical assistance to obtain ISO9001 certification.

Company code: A-2

Sector: Automotive parts manufacturing (in KZN)

(1) General

1) Ownership and other profiles

Major products are bumpers and fuel tanks for large trucks, and bullbars, sidesteps and roll bars for small trucks. The company was originally a shipbuilder and became an automotive parts manufacturer using its expertise and experience sheet processing and welding. It grew rapidly in the past five years. Major customers are Toyota and MAN. The company ships 25% of its products for P&A.

It is a member of the benchmark club and is actively promoting "kaizen" team activities, with expectation for significant results.

2) Recent business activity and trend

a) Major products and production volume

- Automotive accessories (bullbars, roll bars, etc.)

b) Year of establishment (start of production): 1996

c) Number of employees: Approx.400

d) Major market (export/domestic) and sales (value and unit): Truck components and parts (OEM) to Toyota and MAN in South Africa; 25% to P&A; annual sales of R30 million in 2000

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

Quality indices are not very well due to small lot, flexible production requirements, and the company actively promotes "kaizen" activities. Team activities under participation of all employees contribute greatly to improvement of not only quality but productivity, cost and morale as well.

(3) Major characteristics of production process, technology and products, and major problems

The company has been growing rapidly in the automotive parts industry by taking advantage of its expertise in machining and welding of steel plates, which has been attained through the shipbuilding business.

(4) Procurement of components, parts and materials

Components and parts are mostly made in-house and some are exported.

(5) Sales activity and major problem

Sales have been steadily growing and are expected to grow further as its vigorous quality control activity takes effect.

(6) Use of government programs and support organizations, comment and expectation

The company wishes to receive support for supervisors to upgrade their production management skills. It receives consulting service on team activity, which is participated by all workers including women and managers.

Company code: A-3

Sector: Automotive parts manufacturing (in KZN)

(1) General

1) Ownership and other profiles

This is a parts manufacturer primarily focusing on press work, while offering a variety of processing operations, including injection molding, electroplating, electronic heat treatment, and automatic lathe machining. Major products are automotive parts, while safety boxes for hotels and building members are also made. The company is managed by six directors, of which two directors are also shareholders.

The company holds certification under SABS and ISO9001 and is also accredited by Toyota SA as a company that has achieved the 6S quality level.

2) Recent business activity and trend

a) Major products and production volume

- Gear lock units, consoles, U bolts, and door fittings

b) Year of establishment (start of production): 1953

c) Number of employees: Approx.200

d) Major market (export/domestic) and sales (value and unit): Mostly domestic sales, including Toyota SA

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

Production management is well practiced. A chart showing various indices is posted on the shop wall. Quality standards are documented in an electronic form and can be viewed on a PC screen. However, they are used by the inspection department for sample testing purposes; they should be posted in the press and injection molding shops as an effective tool for quality improvement.

(3) Major characteristics of production process, technology and products, and major problems

- Press work is operated manually using a single mold and no automation has been introduced, such as a sequential feed mold or transfer mold. However, the company has relatively high levels of machinery design and manufacturing

techniques as evidence from its ability to make hydraulic presses for U bolt forming.

- In the area of injection molding, the company has also relatively high levels of mold design and making techniques; it uses a hot runner mold for 100 units designed and made internally. However, it still relies on manual work for product removal and has not achieved high levels of quality and productivity awareness that are seen among manufacturers in industrialized countries.

(4) Procurement of components, parts and materials

Most stamping parts are subject to surface treatment in the later process, such as electroplating. Cold rolled steel plates used for stamping are purchased from local sources, while import materials account for minimal. As for plastics materials for injection molding, ABS and PS (nylon) are imported. Castings are mostly procured from suppliers in Johannesburg and machined parts from Durban. On the other hand, castings and molded parts used as gear lock units are imported from Japan, key cylinders from Taiwan, and some molds from Italy and Portugal.

(5) Sales activity and major problem

In addition to conventional automotive parts, the company develops new products (bonnet locks), while it is expanding to non-automotive parts businesses by developing safety boxes for hotels.

(6) Use of government programs and support organizations, comment and expectation

The company has strong demand for training of engineers and technicians, particularly an organization to provide training for basic and advanced skills in the fields of machining, stamping, injection molding, and die and mold design and making.

Company code: A-4

Sector: Automotive parts manufacturing (in KZN)

(1) General

1) Ownership and other profiles

The company earns one half of its revenues from design and manufacture of molds for stamping and plastics parts, and another half from stamping operations. It also makes plastics molding parts. Most of revenues from stamping parts come from hemming of bonnet inner plates, which are shipped to first-tier suppliers. As the company is basically a manufacturer specialized in die and mold design and making, there is little need for technical assistance in production management through the diagnostic program

2) Recent business activity and trend

Sales declined in 2000, but growth is expected in 2001.

a) Major products and production volume

Parts for automobile bonnet inner plates, molds for press work and plastic molding

b) Year of establishment (start of production): 1987

c) Number of employees: 25

d) Major market (export/domestic) and sales (value and unit): Automotive parts manufacturers in and outside the country

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

As mold design and manufacturing account for major portions of the company' work and press work primarily handles automobile bonnet inner plates, few production management is carried out. If technical assistance is to be provided for the company, therefore, it should start from the basics including 5S activities. As the quantity of production is not very large, however, our guidance will not likely produce significant results.

(3) Major characteristics of production process, technology and products, and major problems

Press work is carried out manually using a single mold and its technology level is not very high. However, the company has technology and equipment to design and manufacture a wide range of molds for press work and plastics molding. In particular, its large CNC machining center is capable of processing molds with clamping capacity up to 800 – 1,000 tons and is expected to contribute greatly to business expansion in the field of mold processing.

(4) Procurement of components, parts and materials

As inner plates of automobile bonnets are not required to meet strict quality requirements, including appearance, cold rolled steel plates are all purchased from local sources. Plastics materials for injection molding are mostly PP materials that are regenerated locally, while ABS made in Korea and PS made in India are also used. Special steel materials used to make molds for mold cavities and cores are imported from Germany and Sweden, and local steel materials are not used for manufacture of key components and parts.

(5) Sales activity and major problem

As for stamping of automobile bonnets, the company serves as a subcontractor for first-tier suppliers and delivers products immediately after completion as it does not provide a warehouse.

(6) Use of government programs and support organizations, comment and expectation

The company faces difficulty in securing middle-management people and wishes availability of technology and management education.

Company code: A-5

Sector: Automotive parts manufacturing (in KZN)

(1) General

1) Ownership and other profiles

The company is a parts production arm of Toyota South Africa and supplies 32% of total parts procurement by Toyota. Products are diverse in type, including exhaust systems, fuel tanks, seat frames, chassis frames, and suspensions. The plant is located adjacent to Toyota's assembly plant, across the road, and is operated in a highly efficient manner.

The company is active in advanced production management and quality control activities, including the JIT system and "kaizen" team activities. It is in fact one of model factories operated under assistance of a Japanese manufacturer.

2) Recent business activity and trend

To benefit from MIDP's incentive accompanying parts exports, the company plans to assemble catalyst containers.

a) Major products and production volume

- Chassis frames, exhaust systems and fuel tanks

b) Year of establishment (start of production): 1992

c) Number of employees: Approx. 700

d) Major market (export/domestic) and sales (value and unit): OEM parts are entirely supplied to local companies; P&A-destined parts are partially exported; total annual sales of R276 million in 2000

e) Alliance with foreign company (field and partner): Technical assistance from a Japanese company (exhaust system)

(2) Production management and major problem

The company maintains production management at a similar level to that of Japanese suppliers, despite of various disadvantages, e.g., due to a limitation in utilities supply, two-shift production is not possible, and the labor law prohibits a flexible work schedule including work on holidays.

- (3) Major characteristics of production process, technology and products, and major problems

While the company receives technical assistance of its Japanese partner, it modifies the welding robot process by itself.

- (4) Procurement of components, parts and materials

The major problem related to suppliers is poor quality, especially press parts, followed by cost and the lack of problem solving capability. Poor quality of press parts comes from three factors, namely inaccurate dimensions of molds, poor maintenance, and varying quality of materials.

- (5) Sales activity and major problem

While the company relies heavily on sales to Toyota SA, it has large supply capacity to serve other customers.

- (6) Use of government programs and support organizations, comment and expectation

The company expects support to improve production management skills of suppliers (problem solving capability in the areas of quality, production, cost and other factors).

Metal Pressing (KZN)

Company code	No. of employees	Major products	Annual turnover (R million)	Market (%)	
				Domestic	Export
B-1	64	Metal pressing products/ components	5 to 10	100	
B-2	56	Metal pressing products/ components	10 to 20	100	
B-3	80	Metal pressing products/ components	10 to 20	100	
B-4	60	Metal pressing products/ components	10 to 20	100	

Company code: B-1

Sector: Metal pressing (in KZN)

(1) General

1) Ownership and other profiles

This is an SME specialized in production of small stamping parts (including small assemblies) for Toyota Group. The company is actively involved in product development, quality improvement, and improvement of production management techniques. Under technical assistance of Toyota, it produces good results in quality control and production management.

2) Recent business activity and trend

While business grows steadily, the company feels difficulty in meeting customer demand at the time of model change due to limited capacities of nearby die and mold manufacturers.

a) Major products and production volume

- Small stamping parts and a self-developed securing locking device

b) Year of establishment (start of production): 1989

c) Number of employees: 64

d) Major market (export/domestic) and sales (value and unit): Toyota Group companies operating in the country; annual sales of R9 million

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

To obtain ISO9002 certification, the company has been receiving technical guidance from a quality engineer sent by Toyota. As a result, it has improved product quality rapidly since two years ago and the percentage defective has dropped to 27PPM. The factory seems to enforce 3S practice well as evidenced by systematic storage of dies and molds as well as clean floor. On the other hand, the QC room is not well equipped for the company that makes dies and molds by itself. Product inventory is currently high at 4 weeks and the company plans to reduce it to 2 weeks.

(3) Major characteristics of production process, technology and products, and major

problems

The company owns stamping machines (the largest one - 250 tons) that are fairly old. Many of them are button operated and some are foot pedal operated. They are not equipped with safety devices. Most products are small automotive parts, which do not seem to demand a high level of accuracy. Yet, some parts need to be shaped in multiple stages and require high skill levels for the old machines (including die and mold design and manufacturing capabilities). In addition to stamping, the company carries out sub-assembly by welding as well as coating.

(4) Procurement of components, parts and materials

Steel sheets that are used as primary raw materials are purchased from ISCOR via the steel center. Their quality is generally acceptable. Steel materials for die making are imported from Germany.

(5) Sales activity and major problem

The production facility is operated at 60% of capacity and the company is facing price pressure from customers.

(6) Use of government programs and support organizations, comment and expectation

The company uses independent testing organizations including calibration of measuring instruments. It sends employees to UMAC's quality training courses. It feels difficulty in meeting financial requirements.

Company code: B-2

Sector: Metal pressing (in KZN)

(1) General

1) Ownership and other profiles

This is a press work shop that primarily processes automotive parts for Toyota SA and also handles parts for air-conditioners and household appliances. As for automotive parts, the company is a second-tier supplier to serve local automotive parts manufacturers that are first-tier suppliers of Toyota.

A major problem facing the company is the inability to make a capital investment plan because their customers (automotive parts manufacturers) do not reveal long-term production plans. The company is virtually managed by the owner in every aspect because it cannot hire a good manager or engineer due to its short history.

2) Recent business activity and trend

Sales remained flat between 2000 and 2001. In 2002, the company expects large orders on parts for a new Carola model.

a) Major products and production volume

- Parts for automotive mufflers and radiators, and air-conditioners

b) Year of establishment (start of production): 1998

c) Number of employees: 56

d) Major market (export/domestic) and sales (value and unit): As the second-tier supplier for local automotive parts manufacturers, the company reported annual sales of R18 million in FY2000 and the similar figure in 2001; serving the domestic market only, no export

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

No daily production record is posted on each press, so that workers do not have immediate access to a production schedule or record. Various production management indices are calculated and stored in a computer, but they are primarily used by managers and are not directly used to raise awareness of individual workers about productivity or quality. While the shop is relatively clean and well arranged, but improvement is

required in some areas, e.g., raw materials, work-in-process and final products or accepted and rejected products are not clearly separated or marked.

(3) Major characteristics of production process, technology and products, and major problems

- Most press work uses a single die, but the automated process using progressive die is also operated. Overall, the company maintains relatively high levels of press work and die making techniques. However, safety management is very poor because no safety or protective device is used for the single press work that uses mechanical clutch machines.
- The die, mold and tool room is equipped with relatively a new W-EDM and a machining center, and the CAD/CAM system is used for direct numerical control (DNC) machining. Thus, the company has relatively high levels of die and mold making technologies.

(4) Procurement of components, parts and materials

As press parts made by the company are used inside the automobile, cold rolled steel plates are procured from local sources. Special steel materials used to make dies and molds are imported from Germany, and local steel materials are not used for manufacture of key components and parts.

(5) Sales activity and major problem

The company is a typical second-tier supplier serving automotive parts manufacturers and does not have its own sales force or product development capability required to explore the markets on its own.

(6) Use of government programs and support organizations, comment and expectation

The company is particularly interest in human resource development and strongly hopes to train employees to skilled workers, engineers and managers.

Company code: B-3

Sector: Metal pressing (in KZN)

(1) General

1) Ownership and other profiles

Again, the company is a second-tier supplier specialized in press work and supplies parts for radiators and heaters to first-tier suppliers. Furthermore, the company forms a corporate group with other companies. While automotive parts account for 90% of its press jobs, the company also make parts for gas ranges made by other group companies. In addition to press work, it performs surface treatment including painting and epoxy coating, and turning operation using an automatic lathe.

2) Recent business activity and trend

Sales have steadily been growing since the company's foundation in 1995 and are expected to grow in 2002.

a) Major products and production volume

- Press parts for car radiators and heaters and gas ranges

b) Year of establishment (start of production): 1995

c) Number of employees: Approx.80

d) Major market (export/domestic) and sales (value and unit): As the second-tier supplier for local automotive parts manufacturers, it serves the domestic market only.

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

Various production management indices are calculated and stored in a computer and are checked by the factory manager. On the other hand, no work standard nor quality standard is posited in the shop floor. Overall production management is considered to be slightly below the intermediate level. In particular, quality control practice seems to have various problems, including frequent rework necessitated by defect. Fortunately, the factor manager is familiar with the Japanese "kaizen" and shop floor management methods as he previously worked for Toyota SA for 11 years, and technical guidance focusing on production management can lead to measurable improvement. In particular,

as the company is engaged in typical small-lot, large variety production, production management can be improved significantly if a just-in-time system optimized to the production style is introduced.

(3) Major characteristics of production process, technology and products, and major problems

- Press work is mostly carried out manually using a single mold and pressing technology used by the company is not very high. On the other hand, it has strong safety awareness as evidenced from the safety guard installed for old presses of mechanical clutch type.
- Observation of skeletons after blanking indicates wide bridges and carriers, suggesting a room for improvement in nesting to maximize efficiency and productivity.
- A large number of dies and molds are kept in stacks. They seem to be properly arranged and are in good condition.

(4) Procurement of components, parts and materials

As most parts processed by press work are subject to surface treatment in later stages, their materials (cold rolled steel plates) are purchased from local sources. For the same reason, most aluminum plates are locally procured, while a minimal amount of aluminum plates that have received special surface treatment is imported.

(5) Sales activity and major problem

In addition to automotive parts, the company makes and supplies parts for gas ranges to other group companies.

(6) Use of government programs and support organizations, comment and expectation

The company faces difficulty in recruiting or training skilled workers who can serve as field leaders. It therefore expects that outside organizations will provide adequate training to increase supply of such workers to the labor market.

Company code: B-4

Sector: Metal pressing (in KZN)

(1) General

1) Ownership and other profiles

The company was established in 1979 and is primarily engaged in press work, employing 60 workers.

It supplies approximately 80% of products to Toyota SA and received the "Supplier of the Year" award in 1998 and 1999. It obtained ISO9002 certification in 1994. It has a die making shop, a press shop, a welding shop, and a painting shop. A CAD/CAM system is used for the die design and making process, while MIG welding robots (CO2 gas shielding) are used.

It will become an excellent factory if some improvements are made in various production management aspects, including safety measures for press work, storage of dies and molds, and housekeeping.

2) Recent business activity and trend

The company paints air filter cases and plans to make them by deep drawing.

a) Major products and production volume

- Automotive press parts (brackets, etc.)

b) Year of establishment (start of production): 1979

c) Number of employees: 60

d) Major market (export/domestic) and sales (value and unit): All parts supplied to local assemblers (80% to Toyota); annual sales of R20 million in 2000

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

- No production plan nor work instruction is posted or kept in the shop floor.
- No production record data is not posted or kept in the shop floor.
- The factory is not properly cleaned and should establish a better housekeeping standard and practice.

(3) Major characteristics of production process, technology and products, and major

problems

- There are three die designers, who design simple dies using the CAD system. Complex designs are commissioned to a specialized company. In the die shop, eight workers are engaged in manufacture and maintenance of dies for internal use. It also makes dies for other companies on a contract basis. It has a standard set of production and testing equipment.
- Most presses are of old type and are operated without adequate safety measures. The shop is not cleaned well and products and tools are not properly stored.
- The welding shop is well equipped for sheet metal work.

(4) Procurement of components, parts and materials

- The company feels difficulty in procuring galvanized plates of 2mm thick or less.
- Steel materials are purchased from ISCOR, which charges higher prices for the local market than the export markets. In fact, they are expensive than products imported from Japan.
- Castings for press work are purchased from foundries in Port Elizabeth.
- Foundries in Durban are small in production capacity and are often behind delivery schedule, although they satisfy quality requirements.

(5) Sales activity and major problem

The company supplies 80% of products to Toyota.

(6) Use of government programs and support organizations, comment and expectation

- SA Society for Quality Good
- SA Bureau of Standard (SABS) Good
- NAACAM Excellent

Other Metalworking (KZN)

Company code	No. of employees	Major products	Annual turnover (R million)	Market (%)	
				Domestic	Export
C-1	54	Electroplating to head rest, Wheel nuts, Cable clam	5 to 10	100	
C-2	400	Gear locks, U-bolts, Spare wheel carrier	More than 100	1	99
C-3	80	Knuckles, Carriers for steering (machining only)	Less than 5	100	
C-4	100	Cast iron and steel parts, Bronze casting parts	10 to 20	100	
C-5	110	Window fittings, Builders hardware, Fishing spoons	10 to 20	100	
C-6	22	Shoe shanks, Seat adjusters for automotive	Less than 5	100	
C-7	170	Alternator, Starter for automotive, Door hinges	20 to 50	75 - 99	1 - 25
C-8	16	Lock components for car, Heat exchanger parts	Less than 5	100	
C-9	150	Door handles, Fire sprinklers, Automotive parts	20 to 50	70	30

Company code: C-1

Sector: Other metalworking (in KZN)

(1) General

1) Ownership and other profiles

The company operates a contract electroplating shop with annual sales of R5 – 10 million and employs 54 workers. It is managed by two persons. It is specialized in plating of products furnished by customers according to customers' specifications. The shop is capable of performing a variety of electroplating operations, including zinc, nickel, chromium, tin and copper. All plating materials (chemicals) are purchased from local sources, except for those for chrome plating, which are imported from Germany. Quality control practice includes the use of instruments to measure plating thickness to see if it is within an acceptable range. On the other hand, the company is not concerned with the 5S practice (cleaning and other housekeeping) despite the fact that the electroplating shop needs to be kept clean and tidy because it uses a variety of chemicals. The company is now adding a new process line to boost production capacity. While new equipment has been installed, the line is not operated yet.

2) Recent business activity and trend

According to the company, production remains flat in recent years mainly because of insufficient production capacity. Sales are expected to increase if productivity is improved to boost production capacity.

a) Major products and production volume

- Electroplating of automotive parts, electrical wiring fixtures, screws, cooking equipment, hinges and safety fences

b) Year of establishment (start of production): 1981

c) Number of employees: 54

d) Major market (export/domestic) and sales (value and unit): Electroplating of metallic products furnished by customers on a contract basis; serving domestic customers only; annual sales of R5 – 10 million and remained flat in 2001 compared to 2000; installation of a new line is expected to increase production capacity and sales.

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

- 1) Green products are not stored separately from plated ones.
- 2) The 5S practice is not seen. For instance, packaging materials and other litters are left on the shop floor.
- 3) Work procedures and quality standards are not posted in the shop.
- 4) While a quality control test on plated products is performed, no standard is specified for control of the plating fluid.
- 5) A production schedule by product or a production record is not posted in the shop.

(3) Major characteristics of production process, technology and products, and major problems

Electroplating operation requires a number of machinery and equipment, including plating baths, conveyors and effluent treatment systems. It is also diverse in type, and the company handles zinc, nickel, chromium, tin and copper plating. Plating of small products such as screws can be plated without hangers, but larger ones must be suspended from a specially designed hanger to prevent deformation. For small volume production, steel wires are used to hold work pieces to save the cost for making hangers. In this case, additional work is required to fix work pieces with wires and productivity is adversely affected.

(4) Procurement of components, parts and materials

- Plating materials (chemicals) are all purchased from local sources, excepting those used for chromium plating, which are imported from Germany.
- As for other chemicals, 80% are locally procured and 20% are imported.

(5) Sales activity and major problem

The company does not meet customer demand fully due to an insufficient production capacity. However, it always meets delivery schedule. To operate the present line plus a new line to their full capacities, production management should be improved including the work method and layout. As a result, productivity will improve and sales will grow.

(6) Use of government programs and support organizations, comment and expectation

The company uses a chemical laboratory to conduct chemical tests and analyses and other laboratory to examine and analyze water quality. It wishes to borrow funds for investment but the interest rate is very high. Thus, it wishes lower-interest rate loans.

Company code: C-2

Sector: Other metalworking (in KZN)

(1) General

1) Ownership and other profiles

The company is the largest manufacturer of devices to prevent automobile thefts, which are supplied to automakers operating in South Africa. In addition, it makes body electronics, engine management systems and similar devices. It earns about one half of revenues from exports and has been awarded by the government. Most electronic parts are exported. The company purchases stamping and plastics parts from local sources. Development and fitting are carried out within the company.

2) Recent business activity and trend

a) Major products and production volume

- Automotive electronics (anti-theft devices and engine control systems)

b) Year of establishment (start of production): 1970

c) Number of employees: Approx.400

d) Major market (export/domestic) and sales (value and unit): All local automakers and exports; annual sales of R200 million in 2000

e) Alliance with foreign company (field and partner): Underway

(2) Production management and major problem

- Assembly areas are separated according to customers.
- Production of diverse parts in small lots, i.e., 280 items and 4,000 parts
- It supplies to Toyota on a JIT basis but the system does not work well.

(3) Major characteristics of production process, technology and products, and major problems

- It offers products developed by itself, which do not have competing products within the country.
- Highly competitive in the export markets
- The in-house production process consists of fitting and assembly.

(4) Procurement of components, parts and materials

Electronic parts are entirely imported.

(5) Sales activity and major problem

There is no significant problem related to sales activity.

(6) Use of government programs and support organizations, comment and expectation

The company does not use any public support program.

Company code: C-3

Sector: Other metalworking (in KZN)

(1) General

1) Ownership and other profiles

The company was established in 1980 by two cofounders. It employs 80 workers and is specialized in machining. It purchases ductile castings for automobiles (knuckles, compressor brackets, clutch housings, etc.) and ordinary castings (bearing housings and pump bases) and shape them into specific parts by means of machining. Also, it processes aluminum castings and extrusion materials to air intake pipes and joints. It makes jigs and inspection gauges.

It has obtained ISO9002 certification and has sufficient technical and quality control capabilities.

2) Recent business activity and trend

The company is unable to boost sales due to the small domestic market.

a) Major products and production volume

- Machining of automotive parts (knuckles, clutch housings, compressor brackets, etc.)

b) Year of establishment (start of production): 1980

c) Number of employees: Approx.80

d) Major market (export/domestic) and sales (value and unit): All parts are shipped to local companies (such as Toyota); annual sales of R5 million or less

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

- No production plan or work instruction is posted in the shop floor, and most work is conducted according to foremen's oral instructions. Also, no production schedule or record is posted.
- Casting materials are stored in pallets, which are stacked in the shop. In the product warehouse, many completed products are stacked. This indicates that the company does not aware the need for inventory control.
- The company has high levels of engineering technology and quality control

capability. If technical assistance is provided, the company will be able to improve production management significantly.

(3) Major characteristics of production process, technology and products, and major problems

- The company seems to have sufficient production equipment, including seven machining center and NC machines.
- It makes its own jigs and inspection gauges and workers inspect work pieces in process by using gauges.
- It holds ISO9002 certification and practice sufficient levels of quality control and calibration of measurement instruments.
- It has advanced measuring instruments, including 3D measuring instruments, profile projectors, and angle dividing devices, which are effectively used.

(4) Procurement of components, parts and materials

Casting materials purchased from foundries in Port Elizabeth, which meet requirements in terms of quality and delivery schedule. The percentage defective upon acceptance is around 3% and defective products are returned to manufacturers. There are foundries in Durban, which have small production capacities and cannot meet demand. Aluminum extrusion materials are procured from a major aluminum manufacturer. Aluminum die cast materials are purchased from local manufacturers without much problem.

(5) Sales activity and major problem

The company receives purchase orders from Toyota and other automakers.

(6) Use of government programs and support organizations, comment and expectation

The company receives consultation services on human relations (HR), safety and sanitary management, quality control, and IT.

Company code: C-4

Sector: Other metalworking (in KZN)

(1) General

1) Ownership and other profiles

The company was founded in 1915 and is a foundry manufacturer employing approximately 100 workers. It moved to the present location 10 years ago. It is exempted from corporate tax for five years because it creates employment opportunities for local residents.

It manufactures a large variety of products in small lots, including machine parts used at sugar mills, large valves for water supply systems, press mold materials, and propellers. The manager intends to focus on production of castings for the machinery industry other than automobiles, because the company can make these parts using its existing equipment, while production of automotive parts requires large investment on process automation.

2) Recent business activity and trend

As the present production capacity cannot meet increasing demand, the company plans to build a new shop in a vacant lot.

a) Major products and production volume

- Cast iron and steel products, nodular graphite cast iron products, non-ferrous castings: 100 tons/month

b) Year of establishment (start of production): 1915

c) Number of employees: Approx.100

d) Major market (export/domestic) and sales (value and unit): Domestic market only; machinery industry other than automobiles

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

- As the company receives purchase orders in excess of production capacity, it is often unable to meet delivery schedule.
- No work instruction or other information is posted and most work is conducted according to foremen's oral instructions.

- One foreman is assigned to each of three shops, woodworking, cast iron/steel foundry and non-ferrous foundry.
 - Sand is everywhere in the foundry. The shop floor is not cleaned and goods are placed or stored disorderly.
 - In the wood mold warehouse, a large number of wood molds are piled disorderly.
 - No production schedule or record is posted within the shop.
- (3) Major characteristics of production process, technology and products, and major problems
- The company has a wood mold shop that makes molds for large gate valves and other products. It also makes styrene foam and aluminum molds. In the warehouse, a large number of wood molds are stored without systematic arrangement and it seems to be difficult to find a particular mold.
 - It has four 1.5-ton high-frequency furnaces and one electric crucible furnace.
 - For cast iron, CO₂ casts and cores are used. For non-ferrous casting, green sand is used. (CO₂ casts are old, and although their cost is low, it is difficult to obtain good casting. It presumably takes considerable time for post treatment.)
 - As for testing equipment, the company has a cant-back, a sand tester and a hardness gauge. Apparently, the sand tester has not been used for a long period of time.
 - The internal percentage defective is in the range between 5% and 6%.
- (4) Procurement of components, parts and materials
- Cast iron and aluminum ingot are purchase from local sources, but cast iron is expensive.
 - CO₂ binders are imported.
 - As brass scraps are exported, their domestic price is relatively high.
- (5) Sales activity and major problem
- Some portions of brass metal bearings are imported to Malaysia via an agent.
 - Purchase order has been growing at a rate of 5-10%.
- (6) Use of government programs and support organizations, comment and expectation
- The company provides training under the assistance of MERSETA (Skills Development Fund) and workers' skills improve steadily.

Company code: C-5

Sector: Other metalworking (In KZN)

(1) General

1) Ownership and other profiles

It was founded in 1948 as a die cast manufacturer. It employs 110 workers and makes window fixtures, door and furniture handles, and hanger holders.

Production volume

- Die cast products: Bronze 12 tons/month; aluminum 2 tons/month; and zinc 12 tons/month
- Products using aluminum extruded materials: 15 tons/month
- Products using steel materials: 15 tons/month

The company seems to receive constant purchase orders. It also does Cu, Ni, Sn and Zn electroplating, followed by machine polishing. It has electrical discharge machines and CNC machine tools. Die cast molds are made internally.

2) Recent business activity and trend

a) Major products and production volume

- Small die cast products (door and fixture fittings)

b) Year of establishment (start of production): 1948

c) Number of employees: 110

d) Major market (export/domestic) and sales (value and unit): All products are supplied to local companies; annual sales of R10 – 20 million

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

- The shop is generally dirty and in disorder.
- No production schedule or record is posted within the shop.
- Production volume in each process, e.g., the number of castings completed, is not recorded. Only completed products are counted.

(3) Major characteristics of production process, technology and products, and major problems

- According to the company, the percentage defective is in the range between 3-4% for casting and 1-4% for processing. However, field observation suggests that it could be higher.
- As products are not functional parts, the company does not maintain equipment related to inspection and quality control.
- There is no documented work standard and work instruction is given by a foreman who makes judgment on the basis of experience.
- The owner of the company believes that no inspection and testing equipment or tools is required because of non-critical parts.

(4) Procurement of components, parts and materials

Zinc and aluminum ingots are imported from local sources, but their quality is generally poor and delivery is often delayed. Brass scraps are purchased in the local market and are melted for casting purposes.

(5) Sales activity and major problem

Sales have declined 5-10%. The company is unable to obtain information on new customers.

(6) Use of government programs and support organizations, comment and expectation

The company has no knowledge on support organizations and does not use their service.

Company code: C-6

Sector: Other metalworking (in KZN)

(1) General

1) Ownership and other profiles

The company was founded in 1984 and is specialized in heat and surface treatment, employing 22 workers. It operates three production lines: nitration treatment of shoe shanks (used for soles); oil quenching for heat treatment of small automotive parts (including seat adjusters, U-bolts and spring washers) and blades of law mowers; and E-coating for surface treatment of metal fittings, such as corners of wooden boxes.

The company originally made shoe shanks, and with decreased purchase orders, it diverted to heat treatment of metal fittings for seat belts and U-bolts. It has a plastics molding shop where nine injection molding machines are operated to make decorative beads at a rate of two tons per week. It makes heat treatment facilities by itself and has started production of plastics parts. Thus, the company expands business aggressively.

2) Recent business activity and trend

Seven years ago, the company made 1 million shoe shanks per month, which dropped to 250,000 due to increased imports of low-cost plastics products from China. It intends to increase production of automotive and other parts.

a) Major products and production volume

- Shoe shanks and plastics beads

b) Year of establishment (start of production): 1984

c) Number of employees: 22

d) Major market (export/domestic) and sales (value and unit): All products are supplied to the domestic market; annual sales of R5 million or less

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

- No work instruction or information is posted in the shop. The owner issues work instructions and supervises workers.
- The shop is not properly cleaned or systemically arranged.

(3) Major characteristics of production process, technology and products, and major problems

- Nitration treatment line: Usually, nitration is conducted to harden the surface. However, the company uses nitration for through hardening.
- Details of the E-coating process are not known. As the fluid in the bath is checked and adjusted weekly by a manufacturer of chemicals used, the company does not know chemical composition or other detailed information. After Parker treatment (phosphate coating), work pieces are placed in the bath containing the black liquid. Metal fittings for wood box corners and other simply designed parts are made.

(4) Procurement of components, parts and materials

- Steel materials procured from ISCOR are delivered behind schedule because exports are the highest priority.
- Plastics molding materials are imported from Korea.

(5) Sales activity and major problem

Sales of shoe shanks dropped to 25% of the peak level seven years ago and will likely continue to decline due to increased imports from China. The company wishes to make exportable products but has no market information.

(6) Use of government programs and support organizations, comment and expectation

As purchase orders of shoe shanks have decreased sharply, the company looks for export opportunities but it is difficult for a small company to obtain information. It is therefore desirable that the government will establish a trade center to promote exports as a national project.

Company code: C-7

Sector: Other metalworking (in KZN)

(1) General

1) Ownership and other profiles

The company was established in 1964 and has approximately 170 employees. It makes aluminum and zinc die cast products and performs electroplating and anodic treatment. In addition to self-made molds, it uses molds furnished by customers.

The company is a member of the benchmark club and posts various targets and records related to quality, speed, morale and other factors in the entrance hall and within the shop. Also, the shop is properly cleaned and kept in tidy as compared to other companies.

It is licensed as a die cast product exporter and exports 25% of automotive parts directly to Germany, Portugal and the U.K. For the domestic market, it supplies to Ford and BMW, but not Toyota. In addition to automotive parts, it makes various parts for refrigerators and other household appliances.

The company wishes to have the corporate diagnosis and technical guidance (technology and quality) under the program.

2) Recent business activity and trend

As demand for automotive parts grows rapidly, including exports, the company has sent old die casting machines to Germany for upgrading.

It wants to build a new factory within the present site, but it cannot borrow funds from its bank because of lack of understanding of technology.

a) Major products and production volume

- Aluminum and zinc die cast parts for automobiles and electrical products: 60 tons/month

b) Year of establishment (start of production): 1964

c) Number of employees: 170

d) Major market (export/domestic) and sales (value and unit): 25% of automotive parts are exported; other products (parts for consumer electronics) are all shipped to the domestic market

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

Detailed production management practices and methods, including production planning, are not known. An obvious problem are varying amounts of purchase orders: a large order often comes with a short delivery schedule.

The shop is properly cleaned and arranged, except for some locations (litters are left).

(3) Major characteristics of production process, technology and products, and major problems

- Two air-conditioned rooms keep 3D measuring instruments and are used for dimensional check on products and calibration of measuring instruments.
- A spectrometer is used for analysis of materials upon acceptance as well as products.
- The company has six 1.5-ton high-frequency furnaces and as much as 20 die casting machines of varying sizes.
- It obtained ISO9002 certification in January 2000. The shop is kept clean and tidy. A chart showing the percentage defective, the quantity of production and other data is posted within each shop.
- The overall percentage defective seems to be below 1%.
- The company wishes to automate the process but has no funds.
- It employs two engineers in charge of equipment and die and mold making.

(4) Procurement of components, parts and materials

There is no significant problem related to aluminum ingots and other materials.

(5) Sales activity and major problem

- Die cast products by material: Aluminum 50 tons/month; zinc 10 tons/month
- 25% of die cast automotive parts are exported to Germany, Poland and the U.K.
- Sales of automotive parts grow rapidly and further growth is expected.
- The company supplies parts to Ford and BMW, but not Toyota.

(6) Use of government programs and support organizations, comment and expectation

The company receives technical advice (benchmarking) from Natal University and thinks that it benefits much from it. As the bank does not have much interest in technology, it is difficult to borrow money for capital investment. While it feels the need for improvement of competitiveness by upgrading production equipment to improve quality and productivity, the difficulty in securing funds prevents it, like many other

companies, from timely investment that is the prerequisite to competitiveness.

Company code: C-8

Sector: Other metalworking (in KZN)

(1) General

1) Ownership and other profiles

This is a small company employing 16 workers and was established in 1952. It uses steel, brass or stainless steel bars (both round and square) to make small automotive parts for heat exchangers and locks, bushes for wiring, and accessories to pass shoe strings.

2) Recent business activity and trend

On the annual average, production volume remains stable in the recent few years, but there was significant annual fluctuation.

a) Major products and production volume

- Small automotive parts (those for heat exchangers and valves)

b) Year of establishment (start of production): 1952

c) Number of employees: 16

d) Major market (export/domestic) and sales (value and unit): All parts are supplied to local parts assemblers; orders vary greatly from year to year; annual sales of R5 million or less

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

As changeovers take approximately one hour, the company makes the same product in a large lot to exceed the order (especially if it is small) and keeps it as inventory until the next order is received. As a result, inventory tends to build up and may become waste due to design change. Proper inventory control should be introduced and production management needs to be improved

(3) Major characteristics of production process, technology and products, and major problems

As the company makes very small parts, process time seems to be relatively short. As each order ranges between 50 and 15,000 units, changeovers presumably take up a

relatively high percentage of process time. Measuring instruments are well maintained by an outside company on a contract basis.

(4) Procurement of components, parts and materials

- Steel and brass round bars are procured from local sources with good quality.
- Stainless steel, hexagonal materials are all imported.
- Their current prices are high.

(5) Sales activity and major problem

- The company receives orders from local companies (which furnish drawings) and process materials accordingly.
- Sales activity may be required but there is no information to identify potential customers.

(6) Use of government programs and support organizations, comment and expectation

The company has no knowledge on support organizations and does not use their service.

Company code: C-9

Sector: Other metalworking (in KZN)

(1) General

1) Ownership and other profiles

The company belongs to a corporate group consisting of three companies (total employment – 400). It was established in 1952 and is a die cast manufacturer employing 150 persons.

Major products are door handles (50% of total production), sprinklers for fire extinguishing (30%), and battery terminals (10%). Automotive parts account for only 4-5% and as much as 20 items (small parts) are manufactured. 30% of sprinklers are exported to the U.S. The company's battery terminals dominate the domestic market with an 80% share.

2) Recent business activity and trend

Under a joint venture with CSIR, the company installed a AS casting (Al squeeze casting) plant within its shop and is currently making prototype models for automotive engine mounts and air intake slot bodies. It plans to churn out 240,000 sets (25 tons) per month, of which 30,000 sets will be supplied to the domestic market, 30,000 to India and 180,000 to the EU.

a) Major products and production volume

- Small die cast castings: Aluminum 5 tons/month, brass 60 tons/month

b) Year of establishment (start of production): 1952

c) Number of employees: 150

d) Major market (export/domestic) and sales (value and unit): Battery terminals (10% of total production) account for 80% of the domestic market; 30% of sprinklers (30% of total production) are exported to the U.S.

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

- No work instruction or other information is posted and most work is conducted according to foremen's oral instructions.
- A container has no indication as to its content, including the number of products

that is kept in there.

- The shop is poorly maintained, i.e., lack of cleaning and systematic assortment and storage of materials, tools and products.
- The percentage defective is not monitored. The owner believes that defective products can be recycled and feel little incentive for yield improvement.

(3) Major characteristics of production process, technology and products, and major problems

- The company has a wide range of production equipment to meet diverse demand, including 10 die casting machines (160 – 400 ton), a 1-ton high-frequency furnace to melt brass, a channel furnace, a heat treatment furnace for aluminum castings, an annealing furnace, and a polishing machine for product finishing.
- Dies are made and repaired within the company. (The die shop has 15 workers.)
- A standard set of material inspection and testing equipment is available, including spectrometers, testing machines and hardness gauges.
- The shop is poorly ventilated and lit, with poor cleaning and disorderly assortment and storage.
- Product inspection is limited to final inspection and no in-process inspection is performed.
- In general, the company seems to have high levels of engineering technologies and skills, but it lacks production management know-how, which can be attained by learning 5S practice and other quality control techniques.

(4) Procurement of components, parts and materials

Aluminum ingots are procured locally, but their composition in the manufacturer's specification is different from that obtained from the analysis performed as part of acceptance inspection. As a result, acceptance inspection is mandated for each delivery.

(5) Sales activity and major problem

Battery terminals are shipped to other group company which assembles them into transformers.

Orders declined 10% this year and the company intends to start up the squeeze casting process as early as possible.

(6) Use of government programs and support organizations, comment and expectation

- The company receives technical assistance from CSIR and Natal University but is not satisfied with quality of advice.

- The company also receives financial support from DTI but is not satisfied.

Plastics Molding (KZN)

Company code	No. of employees	Major products	Annual turnover (R million)	Market (%)	
				Domestic	Export
D-1	50	Automotive wheel covers, Under bonnet, Interior parts	5 to 10	99	1
D-2	130	Tarpaulin, Automotive upholstery, Rear dash for station wagon	50 to 100	80	20
D-3	35	Sun visor, Flooring, Automotive parts	32	100	
D-4	35	Clock components, Meter box	5 to 10	100	
D-5	120	Car window winder, Dish-washer and fridge face panels	10 to 20	100	
D-6	40	Bottle sealing caps, Dish-washer, Automotive rotor	10 to 20	100	
D-7	20	Refrigerator parts, Alarm sensor	5 to 10	100	
D-8	100	Iron components, Kettles	10 to 20	20	80
D-9	28	Shoe soles, Fishing lures	Less than 5	100	

Company code: D-1

Sector: Plastic molding (in KZN)

(1) General

1) Ownership and other profiles

The company is an affiliate of a U.S. company. It operates 8 factories in South America, of which 3 are located in Durban and perform injection molding and surface coating services. Approximately 250 employees (as of 2000) worked at the three factories in Durban. The factory visited for the field survey employs approximately 50 workers and makes wheel covers (60% of total production), under bonnet (30%) and interior parts by injection molding.

2) Recent business activity and trend

a) Major products and production volume

- Wheel covers (60% of total production), under bonnet (30%) and interior parts

b) Year of establishment (start of production): 1999 (the factory visited); operation in South Africa was started in 1970

c) Number of employees: 50 (250 at the three factories in Durban)

d) Major market (export/domestic) and sales (value and unit): Most of injection molded parts shipped to the local OEM market, exports 1% or less

e) Alliance with foreign company (field and partner): A U.S. company

(2) Production management and major problem

There are a large number of problems in the area of production management. For instance, a monthly production schedule is written on a whiteboard, and if production is delayed due to a trouble, the schedule is automatically shifted accordingly without recording the rate of progress and comparison of the actual progress against the schedule. Thus no schedule management is made on the basis of target setting and monitoring. At present, the relatively small shop of 50 workers may be directly controlled by the manager. In the near future, however, it is obvious that efforts should be made to stimulate self-improvement efforts of individual workers.

(3) Major characteristics of production process, technology and products, and major problems

1) Production process

Most injection molding machines are old (more than 20 years) and are well maintained; they are properly cleaned and no oil leakage is seen. Necessary work instructions, including a table showing molding conditions, an inspection sheet and work procedures, are posted in the shop, and workers comply with them.

2) Production technology

Old dies are used to produce burs in most products and deburring is usually required. Dies are not repaired because customers do not bear the repair cost. Deburring can continue so far as the labor cost is low. As the labor cost goes up, however, the company will have to repair dies at its own cost. Overall, it is desirable to repair dies from the standpoint of quality assurance.

3) Major characteristics of products

Large molding products are mostly wheel covers, which can be produced in small lots and thus with little production loss. The coating of molded products is also done within the company. Thus the company is capable of finishing wheel covers in its own production process.

(4) Procurement of components, parts and materials

Plastics materials are mostly imported, while some rubber materials are procured from local sources.

(5) Sales activity and major problem

Annual sales in 2000 range between R5 – 10 million.

(6) Use of government programs and support organizations, comment and expectation

1) There is no product testing equipment in Durban and testing needs to be conducted in Johannesburg.

2) The company needs an official training system such as a worker training school.

Company code: D-2

Sector: Plastic molding (in KZN)

(1) General

1) Ownership and other profiles

The company is an affiliate of a German company. It was established in 1960 and acquired the factory in 1998.

2) Recent business activity and trend

a) Major products and production volume

- Plastics and coating products; waterproof cloth (45%), interior decoration (20%), shoes (10%) and automotive (25%)

b) Year of establishment (start of production): 1960

c) Number of employees: 130 (2000)

d) Major market (export/domestic) and sales (value and unit): Annual sales ranging between R50 – 100 million (2000)

e) Alliance with foreign company (field and partner): A Germany company

(2) Production management and major problem

As second-grade products (considered to be defective products in Japan) can be sold in the domestic market, the company is less concerned about keeping high levels of production technology and management. For instance, the blending proportion of the PVC paste is determined on the basis of viscosity only, product quality varies greatly. Also, coating and changeover are carried out with reliance on experience and intuitive judgment.

(3) Major characteristics of production process, technology and products, and major problems

As the company licenses technology from the parent in Germany, the production process and technology do not present much problems. Coating machines, made in Germany, are fairly old but are well maintained. PVC resin is imported and blended with a plasticizer or a colorant to make a PVC paste. The shop is properly cleaned and arranged.

(4) Procurement of components, parts and materials

Plastics materials are entirely imported, including PVC and polyester fiber.

(5) Sales activity and major problem

Products are mostly shipped to the local market (including second-grade products that have not passed the test). Less than 20% are exported.

Company code: D-3

Sector: Plastic molding (in KZN)

(1) General

1) Ownership and other profiles

The company is a wholly owned subsidiary of a French company, which is the world leading manufacturer of automobiles and parts, with annual sales of 9 billion Euro and 50,000 employees (4 factories operated in South France).

The factory in South Africa does not make plastics injection molding.

2) Recent business activity and trend

a) Major products and production volume

- Sun visors, flooring materials, and automotive parts

b) Number of employees: 35 (2000)

c) Major market (export/domestic) and sales (value and unit): Major customers – Toyota in Durban, Daimler/Chrysler in East London, Delta in Port Elizabeth, and BMW and Nissan in Pretoria

d) Alliance with foreign company (field and partner): A French company

(2) Production management and major problem

Key operations (vacuum molding → trimming → laminating → heat treatment) are carried out in designated locations to allow visual management and minimize a risk of trouble, while requiring transportation of goods in process. The company will be able to meet increasing demand, say double the present level, if automation is introduced and the shop layout and the transportation system are more rationalized.

(3) Major characteristics of production process, technology and products, and major problems

As most products are supplied to Toyota, the factory is operated in small-lot, large variety production according to Toyota's production, including volume and models. The flexible production system relies heavily on manual labor, however. A large vacuum molding machine imported from Germany is very old and slow to operate, with an inefficient heating mechanism. In fact, the machine's capacity governs the company's overall supply capability, which can meet the customer's demand. It is

required to comply with Toyota's quality standards. The current percentage defective is 40PPM, compared to 50PPM under Toyota's standard.

(4) Procurement of components, parts and materials

Plastics seats are purchased from Europe and KZN. Felt materials are procured from KZN.

(5) Sales activity and major problem

Annual sales totaled R32 million in 2000 but will drop to R10 million in 2001 due to transfer of some products to other companies. The company supplies most products to Toyota and some share to Ford.

Company code: D-4

Sector: Plastic molding (in KZN)

(1) General

1) Ownership and other profiles

The company molds parts for wall clocks using low production technology. Although it makes dies and molds, they are poor in accuracy due to use of old machines. At the present level of production technology, the company can only make frames and face plates of wall clocks, including molds. However, the owner does not realize the company's limitation in production technology.

2) Recent business activity and trend

a) Major products and production volume

- Parts for wall clocks (25%), tail lights, electrical parts, and fuse boxes

b) Year of establishment (start of production): 1978

c) Number of employees: 35

d) Major market (export/domestic) and sales (value and unit): All products are supplied to the domestic market; annual sales of R5 – 10 million

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

Due to the small organization, the factory manager personally memorizes production plan figures, molding conditions, and quality standards. He believes that the company has high production technology because it has not received customer complaints in the past two decades.

(3) Major characteristics of production process, technology and products, and major problems

The company owns ten molding machines, consisting of five machines made in Japan (70 – 200 tons) and five machines imported from Germany (50 – 100 tons). All of them are more than 30 years old and do not operate properly (including instruments) due to poor maintenance. They cannot be used for precision molding of industrial parts. Molding conditions are not documented and are determined by skilled workers on the basis of experience and intuitive judgment.

(4) Procurement of components, parts and materials

PA, ABS and PMMA are used as principal materials and are procured from local sources. Total consumption is in the range between 10 – 15 tons per month.

(5) Sales activity and major problem

- All products are shipped to the local market.
- No customer complaint has been received in the past two decades.
- The material cost accounts for 40% of the total production cost.
- Customers demand cost reduction.
- The variation in the local currency's value affects the company's sales.

Company code: D-5

Sector: Plastic molding (in KZN)

(1) General

1) Ownership and other profiles

The company belongs to a U.K. company group but is wholly owned by local capital. It supplies products to automakers in industrialized countries and has high levels of production technology and management. In fact, it can compete with Japanese suppliers.

2) Recent business activity and trend

a) Major products and production volume

- Plastics molding parts

b) Year of establishment (start of production): 1996 (Plastics business was started in 1984.)

c) Number of employees: 120

d) Major market (export/domestic) and sales (value and unit): Annual sales of R10 – 20 million

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

A molding condition table, an inspection chart and other data are posted for each molding machine, and molding operation is carried out accordingly. In addition, a defect chart showing defect data in money value is posted in each shop. There are posters bearing a slogan, "You have to pay for your defect," everywhere. Clearly, defect control is promoted as the company-wide efforts.

A training and education plan covering all employees is established and a training schedule is posted with actual records. Quality policy and manual are documented to show the company's commitment to quality assurance. The manual was compiled from those used by leading companies in Japan, Europe and the U.S. The company has testing equipment for every product. Overall, it maintains very high levels of production management.

(3) Major characteristics of production process, technology and products, and major problems

The company operates ten molding machines made in Japan (200 – 350 tons) and five machines made in Germany (100 – 175 tons). The Japanese machines were made in the 1980s and 1990s and are maintained in very clean and good conditions. The Germany machines are relatively new, made after 1995, and are of new design without tie bars. One Japanese molding machine is equipped with a gas injection device and makes thick handles for automotive parts. All the molding machines are also equipped with a mold temperature controller, rarely seen among plastics molding companies in the country.

In the material drying process, a few dryers are installed to supply hot air controlled at a temperature specified for each material. The post-molding process includes hot stamping, pad printing, screen printing, simple assembly, and inspection, which are all conducted by field workers.

(4) Procurement of components, parts and materials

PP and PE materials are purchased from local sources at a rate of 380 – 400 tons annually.

(5) Sales activity and major problem

OEM: Toyota, BMW and Volkswagen	40%
OEM: Parts for dish washers (domestic)	45%
Engineering plastics parts for access control (domestic)	15%

Company code: D-6

Sector: Plastic molding (in KZN)

(1) General

1) Ownership and other profiles

The company performs unmanned injection molding operation, rarely seen among plastics molding companies in the country. It is conducted by combining a hot runner and an automatic product dropper, not using a robot for product removal from the mold, and high product quality is achieved. Also, it has proprietary production know-how and has developed its own production techniques. The factory is specialized in injection molding and primarily produces bottle caps, together with electrical and automotive parts.

2) Recent business activity and trend

a) Major products and production volume

- Bottle caps (sealed caps for food and oil)

b) Year of establishment (start of production): 1980

c) Number of employees: 40

d) Major market (export/domestic) and sales (value and unit): Annual sales of R10 – 20 million

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

The factory makes eight caps for spice bottles in a single mold, which are automatically removed and inspected on a conveyor, followed by fitting a cover to each cap. It is extensively automated and ten machines are operated without an operator and an inspector checks each machine every hour to examine products and record the results.

(3) Major characteristics of production process, technology and products, and major problems

The company has twelve molding machines made in Japan (100 – 200 tons), major of which are relatively new models made in the 1990s. The shop is properly cleaned and well maintained. All the machines except two manual models are fully automated. An automatic remover is not used. Instead, a hot runner is used to let products drop

automatically from the mold.

(4) Procurement of components, parts and materials

- Annual consumption of materials – 600 tons
- PP and PE materials are procured from both local and foreign sources.
- PC and ABS resins are all imported.
- LLDPE is purchased locally.

(5) Sales activity and major problem

The company records annual sales of R10 – 20 million.

Company code: D-7

Sector: Plastic molding (in KZN)

(1) General

1) Ownership and other profiles

The company owns latest, expensive machines made in Japan but does not have high levels of production technology compatible with them. Once it attains advanced injection molding techniques, it will be able to become a competitive exporter.

2) Recent business activity and trend

a) Major products and production volume

- Plastics injection molded parts

b) Year of establishment (start of production): 1989

c) Number of employees: 20

d) Major market (export/domestic) and sales (value and unit): annual sales of R5 – 10 million

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

The company makes a variety of refrigerator parts and deliver them to Conlog. The customer is lenient about product quality and the company does not make serious efforts to improve it. Conlog exports refrigerators to neighboring countries but are not expected to introduce more strict quality standards unless it makes products that are competitive in industrialized countries. As a result, the company is satisfied with the current situation.

(3) Major characteristics of production process, technology and products, and major problems

The company has eight, latest injection molding machines made in Japan (170 – 220 tons) and ten German machines (25 – 40 tons). The Japanese machines are the latest models made between 1996 and 2000, but they produce many defects. Potentially, these machines can make molding of much higher precision. If production technology is improved, the company will be able to win orders from a variety of customers in diverse fields.

(4) Procurement of components, parts and materials

ABS, PE, PP and PA materials are procured from both local and foreign sources.

(5) Sales activity and major problem

Refrigerator parts are supplied to Conlog and other local manufacturers, and electrical parts to Whirlpool and other local assemblers.

Company code: D-8

Sector: Plastic molding (in KZN)

(1) General

1) Ownership and other profiles

The company has a number of problems related to production management. In the shop, large quantities of raw materials and semi-finished products are piled up as inventories. For instance, the company makes main bodies of electric water heaters, which are piled up disorderly, and ship them upon order by picking them up from the inventory (which has dirt and smear). Clearly, its production plan is not coordinated with actual production or material inventory. Molding machines are old and poorly maintained. The shop requires organized housekeeping.

2) Recent business activity and trend

a) Major products and production volume

- Parts for electrical water heaters and irons, and automotive parts

b) Number of employees: Approx.100

c) Major market (export/domestic) and sales (value and unit): Annual sales of R10 – 20 million

d) Alliance with foreign company (field and partner): None

(2) Production management and major problem

The company keeps a large amount of plastics materials in inventory, together with excessive product inventory. They are dirty with dust, indicating the lack of proper inventory maintenance. They include many defects and quality control is poor. Despite the poor product quality, the company is satisfied because of customers' acceptance.

(3) Major characteristics of production process, technology and products, and major problems

The company has 28 injection molding machines varying in size from 22 tons to 300 tons. Large machines were made in Taiwan or Germany, and small ones Korea or Taiwan. All the machines are old and poorly maintained with oil leaks. As observed in the shop, changeovers took a long period of time due to poor work arrangement.

Many products had black spots, which cannot be eliminated unless shop floor management is improved significantly, including proper maintenance of the molding machines.

(4) Procurement of components, parts and materials

ABS, PP and PE resin materials are used at a rate of 80 tons per month and are procured from both local and foreign sources (Korea, Taiwan, Europe, etc.).

(5) Sales activity and major problem

Iron parts (bodies, covers and water tanks) are exported to the U.S., Europe and Australia. Electrical water heaters are mostly sold to the domestic market and are partially imported to the U.K.

Company code: D-9

Sector: Plastic molding (In KZN)

(1) General

1) Ownership and other profiles

The company makes shoe soles, shanks, high heels, and similar parts by using a variety of aluminum molds. However, molding machines made in Italy are very old and cannot produce high injection pressure required for molding of automotive and electrical parts. (shoe parts are made by cast molding that does not require high injection pressure) It also owns 10-station molding machines and makes foamed PVC sandals. It has potential to develop marketable foam or thick products if new applications are found.

2) Recent business activity and trend

a) Major products and production volume

- Shoe parts, lures, and handles of window wipers

b) Year of establishment (start of production): 1963 (production of shoe parts was started in 1996)

c) Number of employees: 28

d) Major market (export/domestic) and sales (value and unit): Annual sales of R5 million or less

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

It coats molded shoe parts using a paint or vacuum metallizing. Defects are all recycled. The owner works in the shop but cannot control everything. As a result, production is poorly managed.

(3) Major characteristics of production process, technology and products, and major problems

The company has ten small injection molding machines made in Italy, two 10-station injection molding machines (handling 10 molds by rotation; requiring long hours for cooling due to thick products), and one 8-station molding machines.

Molds are also made of aluminum and are recycled as they are not required. Because

of low injection pressure, aluminum molds can be used.

(4) Procurement of components, parts and materials

HIPS, ABS, PP, PU, PC and EVA resin materials are consumed at a rate of 15 tons per month. They are imported from Singapore, Korea, Spain, Japan and other countries.

(5) Sales activity and major problem

- The company sells all products to the local market.
- Demand declines.
- The material costs are on the rise.

Automotive Parts Manufacturing (out of KZN)

Company code	No. of employees	Major products	Annual turnover (R million)	Market (%)	
				Domestic	Export
E-1	7,500	Steel wheels, Seat frames, CV joints, Castings and forgings		100	
E-2	50	Small plastics parts for automobiles (wheel covers and badges)	10 to 12	100	
E-3	350	Suspension-related stampings parts, Clutch/brake assemblies, Catalytic converter parts	170	100	
E-4	300	Front and rear axle assemblies		100	
E-5	265	Brackets, Cross members, Dashboard inners, Front end assembly exhaust systems, Catalytic converter casings	20 to 50	100	
E-6	150	Catalytic converters, Exhaust systems, Oil suction tube assemblies, Fuel fillers		100	
E-7	280	Clutch	More than 100	98	2
E-8	418	Rear axle assemblies for LCVs		95	5
E-9	1,100	Batteries for motor vehicles and industrial applications		100	
E-10	250	Automotive interior decoration products (interior trims, carpets, sun visors and polyurethane foam)	50 to 100	100	
E-11	730	Alternators, Starters, Small motors			
E-12	520	Shock absorbers		67	33
E-13	197	Seat assembly and manufacture of seat covers			
E-14	360	Harness cables, Automotive lamps, Horns, and Plastics parts		99	1
E-15	1,500	Resin bumpers, Locker panels, Radiator grills	360	80	20

Company code: E-1

Sector: Automotive parts manufacturing (out of KZN)

(1) General

1) Ownership and other profiles

This is the largest automotive parts manufacturer in the country, which has more than 20 subsidiaries and employs 7,500 people. It makes, among other things, CV joints, seat frames, steering gears, windows regulators, and a variety of castings and forgings. Thus, the company serves as first-tier, second-tier and third-tier suppliers.

2) Recent business activity and trend

The company was established in 1994 as a joint venture with a foreign company. It supplies seats to Volkswagen on a JIT basis. It has introduced a seat adjuster mechanism technology from a German company and will cease production of seat frames of old design in 2003. Window regulators are produced under joint venture with other foreign manufacturer. It continues rationalization efforts to improve export competitiveness as domestic automakers are increasingly export oriented.

a) Major products and production volume

- Steel wheels, seat frames, CV joints, castings and forgings

b) Year of establishment (start of production): 1963

c) Number of employees: Approx. 7,500 (including 900 in the automobile department)

d) Major market (export/domestic) and sales (value and unit): Domestic market

e) Alliance with foreign company (field and partner): Joint venture (equity participation) and technical assistance

(2) Production management and major problem

There is no significant problem related to production management.

(3) Major characteristics of production process, technology and products, and major problems

There is no significant problem related to production process, technology and products.

(4) Procurement of components, parts and materials

Steel materials (sheets, tubes, billets – materials for casting) are purchased from ISCOR, and pig iron (electric furnace) from Richards Bay. Springs and small stamped parts are procured from suppliers, while seat mechanisms are imported.

(5) Sales activity and major problem

There is no significant problem related to sales activity.

Company code: E-2

Sector: Automotive parts manufacturing (out of KZN)

(1) General

1) *Ownership and other profiles*

The company is owned by a South American of German decent, who immigrated from Argentina and started die and mold making business. It started plastic injection molding for Sheaffer ball-point pen cases and expand operation to automotive parts. It is positioned as a second-tier supplier. As for die and mold, it is currently doing maintenance only, but it can meet customer demand flexibly as it has production technology. As a result, the company has high growth potential in the future.

2) Recent business activity and trend

a) Major products and production volume

- Small plastics parts for automobiles (wheel covers and badges)

b) Year of establishment (start of production): 1987

c) Number of employees: Approx.50

d) Major market (export/domestic) and sales (value and unit):

- The company enjoys growth of purchase orders from automotive parts manufacturers; OEM and REM markets for assemblers (e.g., Delta Motor, Toyota, Isuzu and Volkswagen), and first-tier suppliers (Federal Mogul, Tiger Wheel, and P.S.W.); domestic sales only; annual sales ranging between Rd 10 million – 12 million.

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

The company attempts to reduce product inventories from current two weeks to one week. The percent defective (PPM) of shipped products is zero and the internal rate is 0.14%. It uses approximately 300 molds for small lot, flexible production, and it takes 1 – 1.5 hours for changeover. Clearly, the company should introduce a system for quick mold change.

(3) Major characteristics of production process, technology and products, and major problems

The principal production process is injection molding of plastics products. Products requiring metallic luster (wheel covers and badges) are sent to an adjacent electroplating shop for chemical plating. The company also processes customer-furnished parts, such as plastics covering of seat belt metal fitments using an injection molding machine and the coating and printing of aluminum wheel insert fitments.

(4) Procurement of components, parts and materials

The company operates 17 injection molding machines with capacity ranging from 20 tons to 200 tons, including those made in Japan. The overall operating rate is around 80% and the company intends to purchase a new machine when the operating rate exceeds 85%. There is no financial problem for such purchase. Among molding materials, resin pellets are imported from Germany.

(5) Sales activity and major problem

There is a good prospect for domestic sales due to strong demand. As for exports, the company takes no action because it does not know where to contact.

Company code: E-3

Sector: Automotive parts manufacturing (out of KZN)

(1) General

1) Ownership and other profiles

The company is owned by a South African of Italian origin. It has aggressively been adapting itself to the changes in demand structure, while relying on conventional stamping parts production technology. It has introduced coating equipment and tries to provide value added service by offering the ability to produce assemblies. Stamping is almost entirely done within the company (99%). It acts as both first-tier and second-tier suppliers. It primarily serves the OE market.

2) Recent business activity and trend

In response to growing demand for catalytic converters (for exports), the company has recently established a subsidy, Aluminox, which is specialized in production of stamping parts. At the same time, it expands business beyond its traditional field to clutch/brake assemblies, hand brake assemblies, and door hinges.

a) Major products and production volume

- Suspension-related stampings parts, clutch/brake assemblies, and catalytic converter parts

b) Year of establishment (start of production): 1974

c) Number of employees: Approx.350

d) Major market (export/domestic) and sales (value and unit): Mainly serving the OE market for assemblers (e.g., Honda, Nissan, Toyota, Volkswagen, BMW, Fiat and Ford) and first-tier suppliers; and annual sales of Rd 170 million

e) Alliance with foreign company (field and partner): Receiving technical assistance from a Japanese manufacturer with regard to production of door hinges

(2) Production management and major problem

The company has obtained quality certifications for various standards, e.g., ISO9002, QS9000 and VDA61 and has received the supplier of the year award from an assembler. Thus, it is considered to have achieved a sufficient quality level. From customers, the company is required to achieve the percent defective on delivery at 200PPM for catalytic

converters and 50PPM for other parts. The operating rate of the catalytic converter line is high at 80% (two shift), while that of the welding robot line is 40%. At present, the company produces approximately 300 types of parts and components.

(3) Major characteristics of production process, technology and products, and major problems

Main products are suspension-related stamping parts (approx.1,000 types) and welded subassemblies. Production is characterized by small lot and diverse types. Welding robots are used. Stamping machines include the five-stage type. As the stage is moved manually, not automated, to present a safety problem. On the other hand, catalytic converter casings are made in relatively large quantities. The stamping operation is automated from the feeding of stainless hoops to stamping, using progressive dies.

(4) Procurement of components, parts and materials

Principal materials are steel sheets (ordinary steel) and stainless steel hoops, which are purchased from local manufacturers via the steel center. On the other hand, brake boosters and clutch master cylinders, which must meet strict quality requirements for the hydraulic system, are imported from Italy. Dies are mostly purchased from local sources, excepting progressive dies that are imported from Italy.

(5) Sales activity and major problem

The company serves as a first-tier supplier to deliver products directly to assemblers and also as a second-tier supplier serving other first-tier suppliers.

Company code: E-4

Sector: Automotive parts manufacturing (out of KZN)

(1) General

1) Ownership and other profiles

The company was established only in 1998 and offers a uniquely new production service; to purchase parts and components from first-tier and/or second-tier suppliers and assembly them into modules, which are delivered to assemblers on a JIT basis.

2) Recent business activity and trend

a) Major products and production volume

- Front axle assembles (220 sets/day) and rear axle assembles (220 sets/day)

b) Year of establishment (start of production): 1998

c) Number of employees: Approx.300

d) Major market (export/domestic) and sales (value and unit):

- Front and rear axle assembles are all supplied to BMW. The company has 25 customers. Modulation of assemblies is actively promoted by German automakers (BMW and Volkswagen).

e) Alliance with foreign company (field and partner): German capital (100%)

(2) Production management and major problem

The company uses 7-8 stamping parts suppliers in the metal bonding sector, of which 5 require technical assistance. They do not have the JIT supply capability and make delivery two weeks in advance.

(3) Major characteristics of production process, technology and products, and major problems

Parts and components purchased from first-tier and second-tier suppliers are assembled in an automated line to modules (front and repair axle assembles), which are supplied to BMW operating in the same district on a JIT basis.

(4) Procurement of components, parts and materials

Major parts are purchased from large local first-tier suppliers (foreign affiliated). At present, locally procured parts accounts for nearly one half the material cost (accounting for 85% of the total production cost, while the locally procured parts represent 30%). The company intends to procure all the parts from local sources.

(5) Sales activity and major problem

The company has established a new sales system, under which parts and components purchased from first-tier and second-tier suppliers are assembled to modules (front and repair axle assemblies), which are then supplied to a single customer (BMW) on a JIT basis.

Company code: E-5

Sector: Automotive parts manufacturing (out of KZN)

(1) General

1) Ownership and other profiles

This is a typical family owned company managed by family members of Italian-decent South African (brothers and their children). The company is specialized in stamping operation using approximately 3,000 types of dies. It serves as a first-tier supplier as well as a second-tier supplier.

2) Recent business activity and trend

The company is expanding production capacity in response to growing demand for catalytic converter parts, exhaust system front end assemblies, and other parts and components.

a) Major products and production volume

- Brackets, cross members, dashboard inners, front end assembly exhaust systems, and catalytic converter casings

b) Year of establishment (start of production): 1970

c) Number of employees: 265

d) Major market (export/domestic) and sales (value and unit): Primarily serving the OEM market for assemblers (e.g., Ford, Daimler Chrysler and Toyota); annual sales ranging between Rd 20 million and 50 million.

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

While the company has obtained certifications under QS9000, VDA6 and Ford's Q1, its production management is relatively old. It is now required to improve quality as it is demanded by customers to reduce the percentage defective on delivery from present 3,000PPM to 500PPM next year.

- (3) Major characteristics of production process, technology and products, and major problems

The company operates approximately 100 presses (40 – 800 tons) for stamping of relatively thick parts. In addition, subassemblies such as cross members are made by welding. Many presses are of old type (pedal switch operated) and present a safety problem. Stamping dies are made within the company.

- (4) Procurement of components, parts and materials

Steel materials are purchased from the steel center and some of them are cut within the company. Cast iron materials for die making are purchase from foundries in Port Elizabeth, while wood models used for copy milling of dies are made by outside shops.

- (5) Sales activity and major problem

There is no significant problem related to sales activity.

Company code: E-6

Sector: Automotive parts manufacturing (out of KZN)

(1) General

1) Ownership and other profiles

The company is specialized in bending and assembly of mild steel and stainless steel tubes and has relatively high levels of production technology in the field. It is now transforming its product lines in response to the increasing export drives by the automobile and automotive parts industries in the country, i.e., value added and volume products (20,000 – 30,000 units per lot) that can be made by the company tubing technology and equipment.

2) Recent business activity and trend

As the first-tier supplier business serving local assemblers is not highly profitable and does not have much prospect for growth, the company is focusing on the second-tier supplier business, i.e., production of oil suction tube assemblies, catalytic converters, and exhaust systems, which are usually large lots and exported.

a) Major products and production volume

- Catalytic converters, exhaust systems, oil suction tube assemblies, and fuel fillers

b) Year of establishment (start of production): 1982

c) Number of employees: Approx.150

d) Major market (export/domestic) and sales (value and unit):

The local OEM market (as first-tier supplier) and indirect exports (second-tier)

e) Alliance with foreign company (field and partner): None

(2) Production management and major problem

The main production process is tube bending that is done using CNC bending machines. Dimensional checks are done by a laser probe for accurate data input. The company has obtained ISO9002, QS9000 and VDA6 certifications.

- (3) Major characteristics of production process, technology and products, and major problems

The company operates pipe & tube bending, stamping, welding, brazing, heat treatment and painting processes. Using expertise in tubing operation, the company makes seat frames, instrument panel reinforcement, oil suction tubes/fuel fillers, and impact beams (door reinforcement).

- (4) Procurement of components, parts and materials

As stainless steel and mild steel tubes are not seamless, they can have cracks during the expanded processing.

- (5) Sales activity and major problem

There is no significant problem related to sales activity.

Company code: E-7

Sector: Automotive parts manufacturing (out of KZN)

(1) General

1) Ownership and other profiles

This is a wholly owned subsidiary of a German clutch manufacturer. The parent company has a total of 6,200 employees (of which 750 employees are engaged in R&D) and establishes production bases, in the form of subsidiary, in countries where automobile production is carried out. The company seems to serve as a production and sales base for the entire African market.

2) Recent business activity and trend

a) Major products and production volume

- Labor productivity has significantly improved from 375,000 sets by 318 workers to 691,000 sets by 230 workers, indicating the company efforts to raise international competitiveness as the automobile industry in South Africa expands abroad.

b) Year of establishment (start of production): 1963

c) Number of employees: Approx.280

d) Major market (export/domestic) and sales (value and unit): Primarily serving the domestic OE market (98% of total sales) for Daimler Chrysler, Delta, Ford, Nissan and Toyota; annual sales of over Rd 100 million

e) Alliance with foreign company (field and partner): 100% foreign capital (Germany)

(2) Production management and major problem

The company has obtained quality assurance from Ford, Toyota, Volkswagen, Nissan and Delta.

(3) Major characteristics of production process, technology and products, and major problems

Clutch facing materials are made internally by blending and pressure molding grass fiber and resin binder. Machining and finishing of cast iron materials are also carried out within the company. Press parts are either made internally or imported. The company also has heat treatment and nickel plating processes. Also, welding and assembly operations are carried out within the company. These processes are mostly

labor intensive.

(4) Procurement of components, parts and materials

90% of glass fiber and bonding resin (facing materials) are imported. 50% of sheet materials are also imported. Materials that require stress relief annealing after stamping are imported. Springs are imported from Brazil and forgings from Germany. Casting materials made in the country show a high percentage defective (2-15%), compared to less than 1% for those made in Europe and Brazil.

(5) Sales activity and major problem

The operating rate hovers low at 50%. It is difficult for the company to increase exports as the group companies have production bases in major automobile producing countries. Sales growth must rely on indirect exports by supplying parts for CBUs to be exported from the country.

Company code: E-8

Sector: Automotive parts manufacturing (out of KZN)

(1) General

1) Ownership and other profiles

The company belongs to a U.S. company and make rear driving axel assemblies for light commercial vehicles (LCVs: 1-ton pickups made by Toyota, Nissan, Isuzu, Ford and Mazda). The company is specialized in machining, heat treatment and assembly of castings, forgings, stamping parts, steel pipes, and other materials to complete the assemblies. Parts and components used by the company are mostly localized.

2) Recent business activity and trend

a) Major products and production volume

- Rear axle assemblies for LCVs

b) Year of establishment (start of production): 1966

c) Number of employees: 418

d) Major market (export/domestic) and sales (value and unit): 90,000 axles per year (95% to the domestic market and 5% to exports); the reduction of import tariff rates on CBUs and CKDs influences LCV sales (major consumer of rear axle assemblies).

e) Alliance with foreign company (field and partner): 100% foreign capital (U.S.)

(2) Production management and major problem

The company has obtained a number of certifications, including ISO9001, ISO14001, VDA6A, QS9000, Ford's Q1, Toyota's 6S, and Nissan's A.

(3) Major characteristics of production process, technology and products, and major problems

Major parts, including forgings (such as gear blanks, shafts and brackets) and ductile castings (e.g., deflector carriers and cases), are purchased from local sources and are machined and heat treated at the company's shop. Also die casting parts, stamping parts and steel pipes are all procured locally. They are assembled and coated within the company.

(4) Procurement of components, parts and materials

Production equipment and measuring instruments are all imported, while materials including castings, forgings and steel pipes are locally procured.

(5) Sales activity and major problem

There is no significant problem related to sales activity.

Company code: E-9

Sector: Automotive parts manufacturing (out of KZN)

(1) General

1) Ownership and other profiles

The company is a battery manufacturer under Metair Group. It uses production technology for lead electrode meshes licensed from a German company and makes casting using a wheel type mold under a U.S. patent. Polyethylene separators for electrical insulation are imported. The production process is fully mechanized and the major processes are automated to require little personal skills. Quality control and design departments have full-time engineers to ensure high product quality.

2) Recent business activity and trend

a) Major products and production volume

- Batteries for motor vehicles and industrial applications

b) Year of establishment (start of production): 1975

c) Number of employees: Approx. 1,100 (550 in the automobile department)

d) Major market (export/domestic) and sales (value and unit): The automotive OE market 5-6%, non-automotive OE 34-35%, and aftermarkets 60%. As Daimler Chrysler emphasizes exports of the Benz C (W203) line, the company expects sales growth of batteries for it.

e) Alliance with foreign company (field and partner): 100% local, under Metair group (technical licensing with a German company)

(2) Production management and major problem

The company has obtained certifications under VDA6, ISO9001 and QS9000, as well as various assemblers. It receives an audit according to any of these standards, at least once each month. As the production process involves a risk of lead gas generation, workers wear gas masks. The company introduced small group activities three years ago and promotes "kaizen" activities.

(3) Major characteristics of production process, technology and products, and major problems

Negative electrodes are made in the continuous casting process using the patented wheel type mold. Positive electrodes are made in pair intermittently. The negative and positive electrodes are then filled with oxidized lead putty and are combined alternately with plastics separators. The assembly is finally inserted to the case and terminals are formed by casting. Finally sulfuric acid is poured into the case, which is sealed. The company has largely automated the above production processes. Polypropylene cases are made by injection molding within the company (at a different shop).

(4) Procurement of components, parts and materials

Pure lead is imported from a smelter in Australia, and polyethylene separators are also imported. Small plastics parts are supplied from local sources. Injection molding is mostly carried out in-house and small portions are subcontracted. However, local tool rooms do not have skilled workers except for a few.

(5) Sales activity and major problem

Batteries are sold to the aftermarkets (60% of total sales). Lead alloys used for electrodes and plastics cases are recycled systematically. The automotive OE market accounts for only 5-6% of total sales, while non-automotive OE customers (power plants and computers (reserve power)) hold a 34-35% share.

Company code: E-10

Sector: Automotive parts manufacturing (out of KZN)

(1) General

1) Ownership and other profiles

The company is owned by a second generation German immigrant and has won German assemblers as major customers. It also has Germany companies as partners for technical licensing and joint ventures and procures major equipment, key components and materials, dies and molds from Germany. It primarily serves as a first-tier supplier, while small portions of production is carried out for second-tier supplier products.

2) Recent business activity and trend

The company established a joint venture with a German company, which is starting up production of acoustic panels for Benz (W203) for exports.

a) Major products and production volume

- Automotive interior decoration products (interior trims, carpets, sun visors and polyurethane foam)

b) Year of establishment (start of production): 1957

c) Number of employees: Approx.250 (automobile department)

d) Major market (export/domestic) and sales (value and unit): No direct export; primarily serving the local market (Ford, Mazda, Daimler Chrysler, Volkswagen, BMW and Delta); annual sales of Rd 50 million – 100 million

e) Alliance with foreign company (field and partner): Technical licensing with German companies, including floor carpets, center armrests, and headrests

(2) Production management and major problem

The company has obtained certification under QS9000 and VDA6.1.

(3) Major characteristics of production process, technology and products, and major problems

The major production processes include press molding, vacuum molding, and polyurethane foam molding. Injection molded and extruded parts are all purchased from

outside sources. Molding conditions, including pressure and curing time, are all standardized.

(4) Procurement of components, parts and materials

Major production equipment is largely imported from Germany and Japan. Special fiber boards, extruded parts, and carpets are mainly purchased from Germany. Other plastics parts, leather products, stamping parts wire, springs are purchased from around 50 suppliers. Large molds for press molding are imported from Germany and small ones are made within the company.

(5) Sales activity and major problem

The company primarily serves the OE market for German assembly manufacturers. It does not export its products, which are not suitable for direct exports due to product characteristics.

Company code: E-11

Sector: Automotive parts manufacturing (out of KZN)

(1) General

1) Ownership and other profiles

This is a wholly owned subsidiary of a German company and is operated as one of its overseas factories. Products are made under the same design and brand as those adopted by the parent company. The company enjoys strong sales growth and expects sales to double in the next four years. It serves a wide range of markets, including all automakers operating in South Africa, those in Germany (BMW, Daimler Chrysler and Volkswagen), and aftermarkets. It uses as much as 60 suppliers, with the amount of purchase totaling Rd 54 million, which is expected to grow in the future.

2) Recent business activity and trend

The company purchases Rd 270 million worth of materials and parts, of which local procurement accounts for 20%. In the next four years, it plans to increase the purchase of aluminum die casting products from Rd 7 million to Rd 32 million.

a) Major products and production volume

- Alternators (630,000 units), starters (370,000 units), and small motors (860,000 units)

b) Year of establishment (start of production): 1976

c) Number of employees: Approx. 730

d) Major market (export/domestic) and sales (value and unit): Serving all the automakers operating in South Africa, those in Germany (BMW, Daimler Chrysler and Volkswagen), and aftermarkets.

e) Alliance with foreign company (field and partner): 100% foreign capital (Germany)

(2) Production management and major problem

Operations are very similar to those at the parent's plant. Most production lines are operated in two shifts, and some in three shifts. Quality has been improving steadily. The percentage defective was 71PPM in 2000, 56PPM in 2001, and a target level being set at 25PPM.

- (3) Major characteristics of production process, technology and products, and major problems

Products have the same design as those made by the parent company. The company in South Africa is responsible for a specific range of products planned by the head office.

- (4) Procurement of components, parts and materials

The company has the following tools to support quality improvement of suppliers:

- 1) Periodical workshops;
- 2) Solution promotion plan for the worst 30 problems
- 3) Follow-up program; and
- 4) Supplier quality audit.

- (5) Sales activity and major problem

There is no significant problem related to sales activity.

Company code: E-12

Sector: Automotive parts manufacturing (out of KZN)

(1) General

1) Ownership and other profiles

This is a joint venture (foreign capital 75% and local 25%) that makes and supplies shock absorbers to all automakers operating in the country but BMW. However, the domestic OE market accounts for 34% of total sales, exports 33% and 33% aftermarkets. The company has successfully been conducting team activities for quality improvement since 2000.

2) Recent business activity and trend

The company has been expanding business through technological alliance with two Japanese companies.

a) Major products and production volume

- Shock absorbers

b) Year of establishment (start of production): 1967

c) Number of employees: Approx.520

d) Major market (export/domestic) and sales (value and unit): All local automakers except for BMW 34%, aftermarkets 33% and exports 33%

e) Alliance with foreign company (field and partner): Both equity participation and technical assistance

(2) Production management and major problem

The assemble line is of single feed type, as seen in Japan. The rejection rate of purchased parts is very high (10,000PPM or higher) and delivery lots are very large. There are problems related to the acceptance inspection system. The company has been conducting quality improvement activities under the management support since 2000. Interestingly, 1K (Kaizen) teams and 3K (Kaikaku) teams are organized for the purpose. A Kaizen room has been established to introduce team activities and results. The company claims that productivity has rose 20% due to these team activities.

- (3) Major characteristics of production process, technology and products, and major problems

Tools and dies are not made within the company, and only maintenance is carried out.

- (4) Procurement of components, parts and materials

Defects are frequently seen among piston rod materials and small stamping products. The percentage defective exceeds 10,000PPM for some products (due to sampling lot management). Small suppliers are all family operated and do not have sufficient testing equipment, and workers are not well trained.

- (5) Sales activity and major problem

The OE market accounts for only 34% of total sales, while other markets (aftermarket and export) hold a combined share of 66%. (sales are stable due to the low percentage of the OE market).

Company code: E-13

Sector: Automotive parts manufacturing (out of KZN)

(1) General

1) Ownership and other profiles

This is a joint venture established by a U.S. company (60%) and a local company (40%). It operates factories in Port Elizabeth, East London and Pretoria and supplies seats and auxiliary products to Volkswagen, Daimler Chrysler, Ford, and Nissan. It receives delivery of leather seat covers from a second-tier supplier (which also exports them) on a JIT basis (1 – 4 times per day). It adopts a sequential supply system that is adjusted to production plans of assemblers- a similar system to those used by European subsidiaries.

2) Recent business activity and trend

a) Major products and production volume

- Seat assembly and manufacture of seat covers

b) Year of establishment (start of production): 1994

c) Number of employees: 197 (Uitenhage plant)

d) Major market (export/domestic) and sales (value and unit): Seat assembly for local assemblers (Volkswagen, Daimler Chrysler, Ford and Nissan); and leather seat covers for export markets

e) Alliance with foreign company (field and partner): 60% foreign capital (U.S.)

(2) Production management and major problem

The factory in Port Elizabeth is located adjacent to Volkswagen's assembly plant and is operated in coordination with the assembler's production plan, called the sequential supply system. It is engaged in assembly operation only and purchases all the parts from outside sources. Suppliers are required to deliver 1 – 4 times per day, depending on parts. (The sequential supply system is used at the East London factory, and probably at the Pretoria facility.)

(3) Major characteristics of production process, technology and products, and major problems

A work instruction sheet (computer printout) is used for assembly on a conveyor line according to specifications. (The joint work system between the assembler and the first-tier supplier is advanced than that in Japan.)

(4) Procurement of components, parts and materials

- The company operates a supplier evaluation system that rates a wide range of items in the areas of management, leadership and performance and uses indices for monitoring of improvement and guidance.
- The company operates a supply problem solving system to facilitate solution according to the predefined level of problem severity.
- Locally procured seat fabrics have many quality problems.
- Parts imported from Europe are sent by a European subsidiary that procures and sends a required set of parts according to the production schedule. (Serving as a supplier of modular assemblies that procures parts from multinational sources.)

(5) Sales activity and major problem

There is no significant problem related to sales activity.

Company code: E-14

Sector: Automotive parts manufacturing (out of KZN)

(1) General

1) Ownership and other profiles

A local company that primarily makes lamps and related products under technical assistance from two Japanese companies. It supplies to major OE manufacturers (Toyota, Volkswagen, Daimler Chrysler, Ford, Delta and BMW) and also serves as a second-tier supplier delivering cables to a wire harness manufacturer. Sales to aftermarkets (P&A; including indirect sales through OEMs) account for 50% of total sales and are stable.

2) Recent business activity and trend

The company plans to introduce latest technology from a Japanese company to make head lamps for new models. It intends to upgrade plastics production technology by capitalizing on the introduced lump production technology.

a) Major products and production volume

- Harness cables, automotive lamps, horns, and plastics parts

b) Year of establishment (start of production): 1967

c) Number of employees: Approx.360

d) Major market (export/domestic) and sales (value and unit): OE 29%, export OE 1%, aftermarkets 50%, and others 20%; customers include Toyota, Volkswagen, Daimler Chrysler, Ford, Delta and BMW

e) Alliance with foreign company (field and partner): Technical assistance (a Japanese company)

(2) Production management and major problem

A green area has been established for team-based quality improvement activities. (Although notices are posted in the green area, activities do not appear to be fully energized.) The company makes as much as 179 types of head lamps and is engaged in typical flexible production characterized by small lot.

- (3) Major characteristics of production process, technology and products, and major problems

The company has the entire production process on its own. Many female workers appear in the line. Production techniques and skills are learned through technical assistance.

- (4) Procurement of components, parts and materials

Die casting plastics parts have relatively good quality, but small stamping parts are not good. Education and training in the following areas is required. (The company realizes the need for such training but does not conduct it.)

- 1) Process training including team activities;
- 2) Problem solving methodology; and
- 3) Skills

- (5) Sales breakdown and problems

Domestic OE market	29%
Export OE market	1%
Domestic aftermarket	23%
P&A (genuine parts)	28%
Non-automotive	19%

Company code: E-15

Sector: Automotive parts manufacturing (out of KZN)

(1) General

1) Ownership and other profiles

This is a wholly owned subsidiary of a foreign company. It is a large enterprise specialized in production of plastics parts and has production facilities near assembly plants in Pretoria, Durban, Port Elizabeth and East London. It was established in 2000 by acquiring a local company. The company is primarily engaged in resin bumper fabrication and coating (OE) and boosts exports.

2) Recent business activity and trend

The company has built two lines to manufacture coated resin parts for export (assemblers in Germany). It plans to ship 150,000 units in 2001 and 130,000 units in 2002.

a) Major products and production volume

- Resin bumpers, locker panels, and radiator grills

b) Year of establishment (start of production): 2000

c) Number of employees: 375 (1,500 throughout the country)

d) Major market (export/domestic) and sales (value and unit): Monthly sales of Rd 30 million

e) Alliance with foreign company (field and partner): 100% foreign capital

(2) Production management and major problem

Resin bumpers are supplied to assemblers in the sequential supply system (every two hours upon the assembler's instruction). Molding operation is carried out in three shifts and coating in two shifts, 12 hours per day and 4 days per week.

(3) Major characteristics of production process, technology and products, and major problems

The company operates three large injection molding machines to make resin bumpers and plans to add one machine. Coasting is carried out by robots and no worker is seen in the booth. Quality improvement activities (including team activities) are underway.

(4) Procurement of components, parts and materials

80% of suppliers are German companies. They are selected according to instruction of assemblers.

(5) Sales activity and major problem

Sales to the OE market account for 80% of total sales and the share will go down to 60% in 2002 due to export growth.

Automotive Assembler (out of KZN)

Company code	No. of employees	Major products	Annual turnover (R million)	Market (%)	
				Domestic	Export
F-1		Automobile assembling, Engine assembling			
F-2		Automobile assembling, Automotive parts assembling			
F-3		Automobile assembling, Automotive parts assembling			
F-4		Automobile assembling, Automotive parts assembling	8,450		