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DIAGNOSTIC / RESTRUCTURING STUDY

PZAE APATOR

A British Government Financed Project
executed by the
United Nations Industrial Development Organisation

Final Report

London · Warsaw, December 1991

CENTRAL EUROPE TRUST

CENTRAL EUROPE TRUST HAS EVALUATED PRODUCT PORTFOLIO RESTRUCTURING OPTIONS FOR APATOR

- The present document is the final report of the Unido Pilot Restructuring Prcject for Apator in Torun, Poland. (TF/POL/90/902). This assistance has been provided by the United Nations Industrial Development Organisation / Polish Agency for Industrial Development acting on behalf of the UK Know-How-Fund. UNIDO has subcontracted the professional services to Central Europe Trust (contract 91/112)

- Pomorskie Zaklady Aparatury Elektrycznej 'APATOR" is an enterprise which produces industrial electrical goods. The factory is to be found on the outskirts of Torun, a town with a population of approximately 200,000 people, located about 185 km north-west of Warsaw. With a workforce in excess of 1400 people, Apator is the second largest employer in the town and the enterprise's future prosperity is therefore very important to the local economy

- The project had two parallel objectives. Firstly, to provide the company with immediate advice to help the enterprise remain operational in the short term and secondly, to help the company management develop a better and more coherent strategic view of Apator's future. During the project the subcontractor (CET) had to:

    - Analyse the domestic and international markets for Apator's products in order to establish market potential and Apator's competitive position
    - Perform cost analysis in order to identify leading cost factors
    - Evaluate Apator's technological base
    - Evaluate Apator's management and staff structure
    - Analyse financial performance

- The aim of these evaluations and analyses was to make conclusions as to the options available to company and to make recommendations as to the most attractive options

THE PROJECT HAS BEEN CARRIED OUT OVER A FOUR MONTH PERIOD

- Initial visits to Apator to gather information for diagnostic. (June/ July 1991)
- Information gathering and analysis performed by the following Central Europe Trust staff:
    - M. Holubiec (Analyst)
    - P. Jablonski (Analyst)
    - A. Dyszynski (Project Manager)
    - J. Staniewski (Project Manager)

- Engineering and financial experts fielded:
    - S. Pieniazek (Industrial Engineer)
    - J. Koniecki (Financial Specialist)
    - W. Sliwinski (Electrical Engineer)
    - A. Kinast (Chartered Accountant)

- Market and industry research work at the Central Europe Trust London office (20/6/91 to 30/7/91) carried out by Julian Wolfson with input from Central Europe Trust industry experts E. Weyhausen and C. Jonscher
    - Preparation of questions to be used for international market/ industry analysis
    - Desk research from secondary sources
    - Interviews with industry experts
    - Preparation of slides summarising findings of market/ industry analysis

- Market and industry research on Polish electrotechnical sector by J. Kochaniak and P. Jablonski. (01/07/91 to 31/07/91)
- Preparation of interim report with initial conclusions and recommendations by A. Dyszynski, J. Staniewski, and P. Jablonski. (01/08/91 to 31/08/91)
- Presentation of interim report to Apator management by Andre Mierzwa and Adam Dyszynski. (31/08/91)
- Review of interim report with Apator management, the Agency for Industrial Development, and United Nations representatives. (13/09/91)
- Training sessions with Apator management carried out by Andre Mierzwa:
    - Marketing (7/09/91)
    - Product/ market selection (7/09/91)
    - Strategic options (23/10/91)

- Visit to Schneider SA by Andre Mierzwa (20/09/91)
- Preparation of cost/ profit centre outline and recommendations on management information systems by A. Kinast. (19/09/91 to 27/09/91)
- Fielding of expert:
    - D. Anstiss (Industry Expert) (1/10/91 to 4/10/91)

- Discussion of restructuring options with Apator management. (A. Rakowski and A. Dyszynski 2/10/91)
- Preparation of business plan, strategic options and final report by A. Dyszynski and J. Kochaniak. (16/09/91 to 22/10/91)

Introduction...

THE PROJECT WAS PERFORMED IN TWO PHASES - DIAGNOSTIC AND BUSINESS PLAN

- The first phase was a diagnostic of Apator which formed the basis for the second phase - a strategic business plan for the enterprise. The main steps within each of the two phases were as follows:

  - Collection of market and company information
  - Analysis of information gathered in order to develop a company diagnostic from which conclusions and recommendations could be drawn and presented in the interim report
  - Development and analysis together with company management of strategic options available to Apator
  - Final report

The objectives were to provide information and analysis on which basis the company would make decisions and also to train management in strategic thinking

- The diagnostic had five main elements:
  - Revenue / product mix analysis
  - Cost analysis
  - Asset utilisation
  - Management and staff structure
  - Financial analysis

The output from this element of the work was an evaluation of the competitive positioning of Apator. This evaluation was used to develop the basic assumptions behind the strategic business plan

- The strategic business plan was developed by carrying out strategic training sessions with the management team and by interviewing key individuals within the organisation. The key elements of the plan were as follows:
  - Corporate mission
  - Product/ market strategy for each major product group
  - Cooperation strategy
  - Company organisation and asset mix
  - Financial business plan

The aim of this plan was to clearly identify the options available to the enterprise, to outline the constraints which the company might face in pursuing the various options, and to develop key actions which the company needs to take in order to sustain competitive advantage

CENTRAL EUROPE TRUST HAS ASSEMBLED A MULTIDISCIPLINARY TEAM UNIQUELY SUITED TO THE TASK OF RESTRUCTURING PZAE APATOR

Team Members

Individual	Role	Man Months
Mr Mierzwa	Executive Coordinator / Warsaw	1.0
Mr Rakowski	Project Coordinator / Warsaw	0.5
Mr Staniewski	Project Manager / Warsaw	1.5
Mr Weyhausen	Industry Expert / London	1.0
Mr Jonscher	Industry Expert / London	1.0
Mr Sliwinski	Industry Expert / Warsaw	2.5
Mr Pieniazek	Industrial Engineer / London	1.0
Mr Anstiss	Industry Expert/ U.K.	0.5
Mr Kinast	Chartered Accountant / London	1.0
Mr Koniecki	Accountant / Warsaw	1.0
Mr Dyszynski	Project Manager / Warsaw	2.0
Mr Saarbach	Project Analyst / London	3.0
Mr Jablonski	Industry Analyst / Warsaw	3.0
Mr Holubiec	Industry Analyst / Warsaw	1.0
Mr Kochaniak	Industry Analyst / Warsaw	2.0

NUMEROUS INTERVIEWS WERE CARRIED OUT IN ORDER TO PREPARE THIS REPORT. INDIVIDUALS INTERVIEWED INCLUDE THE FOLLOWING

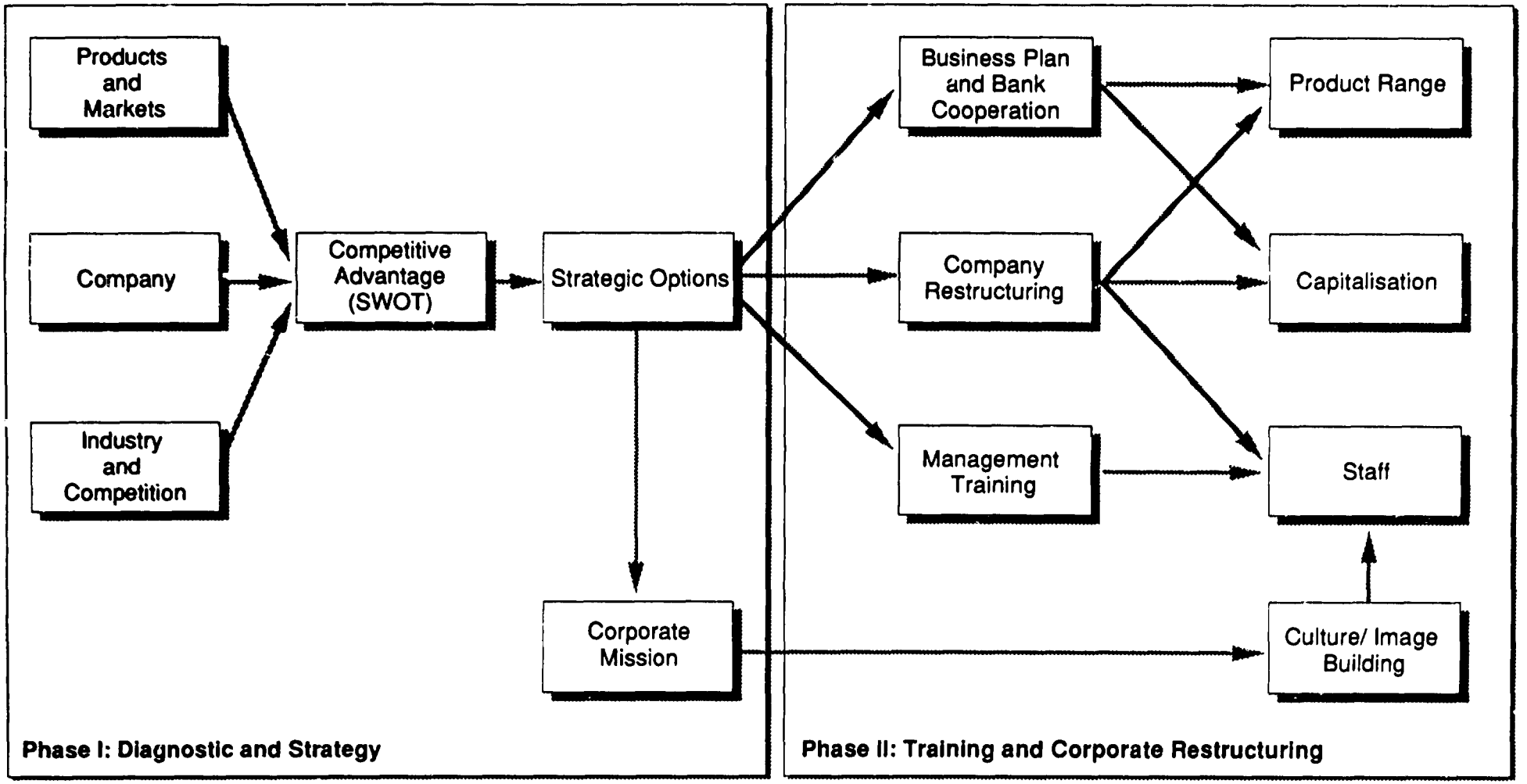
Interviews

Internal	
Mr Piotrowski	- Administration Director
Mr Marzyglinski	- Managing Director
Mr Olszewski	- Commercial Director
Mr Nowak	- Technical Director
Mr Cybulski	- Production Manager
Ms Karaszewska	- Chief Accountant
Mr Niedzwiecki	- Sales Manager
Mr Krajewski	- Purchasing Manager
Ms Olszewska	- Cost Accounting
Mr Tarczynski	- Purchasing

External	
Mr Malinowski	- ABB, Poland
Mr Lucas	- ABB, Product Manager
Mr Romanowski	- Siemens, Poland
Ms Happle	- Siemens, Marketing Manager
Mr Honssey	- British Coal
Dr Woodrow	- Mining Engineer
Mr Doolby	- "Electrical Review", Editor
Mr Gardener	- Industrial Market Research Ltd
Mr Klys	- Centrala Zaopatrzenia Gornictwa
Mr Tyszko	- Elektrim
Mr Grzybowski	- Elmet
Ms Wroblewska	- Elmet
Mr Tarczewski	- Zwar
Ms Wojciechowska	- GUS
Ms Dzierzek	- Izba Przemyslowo - Handlowa Inwestorow Zagranicznych
Mr Borton	- Leabank Office Systems
Ms Fontana	- Steelcase Straford Group
Ms Coule	- Triumph Business System
Representatives of	- Apena, Belos, Bester, Emit, Elta, Elester, EFA, Elektromontaz, Fanina, Mefta, Mera-Zap, Ozas, ZUT

Introduction...

CET HAS DEVELOPED A STEP BY STEP PRACTICAL APPROACH TO CORPORATE RESTRUCTURING IN POLAND, WHICH HAS BEEN DISCUSSED WITH THE MANAGEMENT OF APATOR



Introduction...

DURING THE MARKET AND INDUSTRY ANALYSIS CET FOLLOWED A CLEAR LOGICAL METHODOLOGY

Summary of Methodology : Industry and Markets

Fact Finding

- Interviews with Apator sales and marketing personnel
- Interviews with Polish industry experts
- Apator product literature
- Interviews with high level managers from Western competitors
- Desk research in CET London including:
  - Business libraries e.g. City Business Library
  - Search through computerised business information databases available to CET
  - Company accounts / brochures
- Research in CET Warsaw including:
  - Visits / calls to Central Statistical Office
  - Calls to competitors
  - Visits / calls to distributors and customers
  - Visits / calls to office furniture suppliers and customers
- Research in CET Katowice
  - Visits / calls to relevant enterprises
  - Visits / calls to local authorities

Analysis

- Definition of size; growth prospects, competition on world industrial electronics markets and implications for Apator
- Comparision of Apator organisation and sales patterns to those of major competitors to identify differences
- Analysis of trends in the world electrotechnical industry and development of implications for Apator
- Analysis of the structure of the Polish electrotechnical sector and identification of how likely trends in the environment and industry will affect Apator (Porter 5 forces)
- Comparison of Apator's products with those of competitors in order to asssess the technology gap and comparative prices
- Identification of how changes in the distribution system will affect Apator
- Comparison of market attractiveness for each major product in order to identify the products with most potential for the future
- Identification of current customer perceptions of Apator in order to develop base-line position
- Critical analysis of Apator promotional literature
- Identification of Polish industry sector with the best short term outlook for Apator's product offering

Company Diagnostic

- Input as necessary

Conclusions

- Apator's competitive positioning
  - Product
  - Markets
  - Technology
- Options for improvement of competitive position
- Further data gathering and analysis as necessary to check conclusions

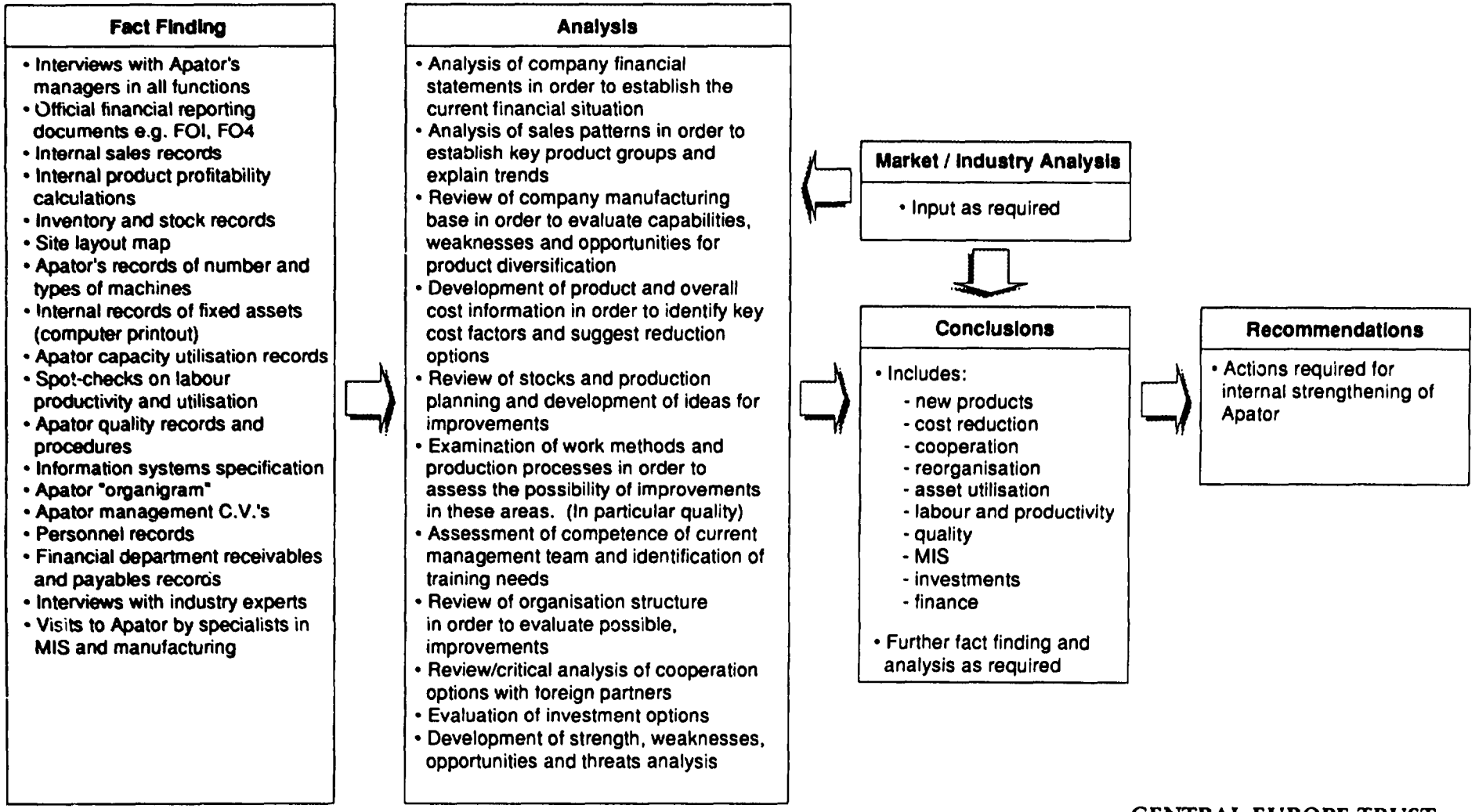
Recommendations

- Actions needed to improve competitive positioning
- Recommended options
- Assistance with implementation

Introduction...

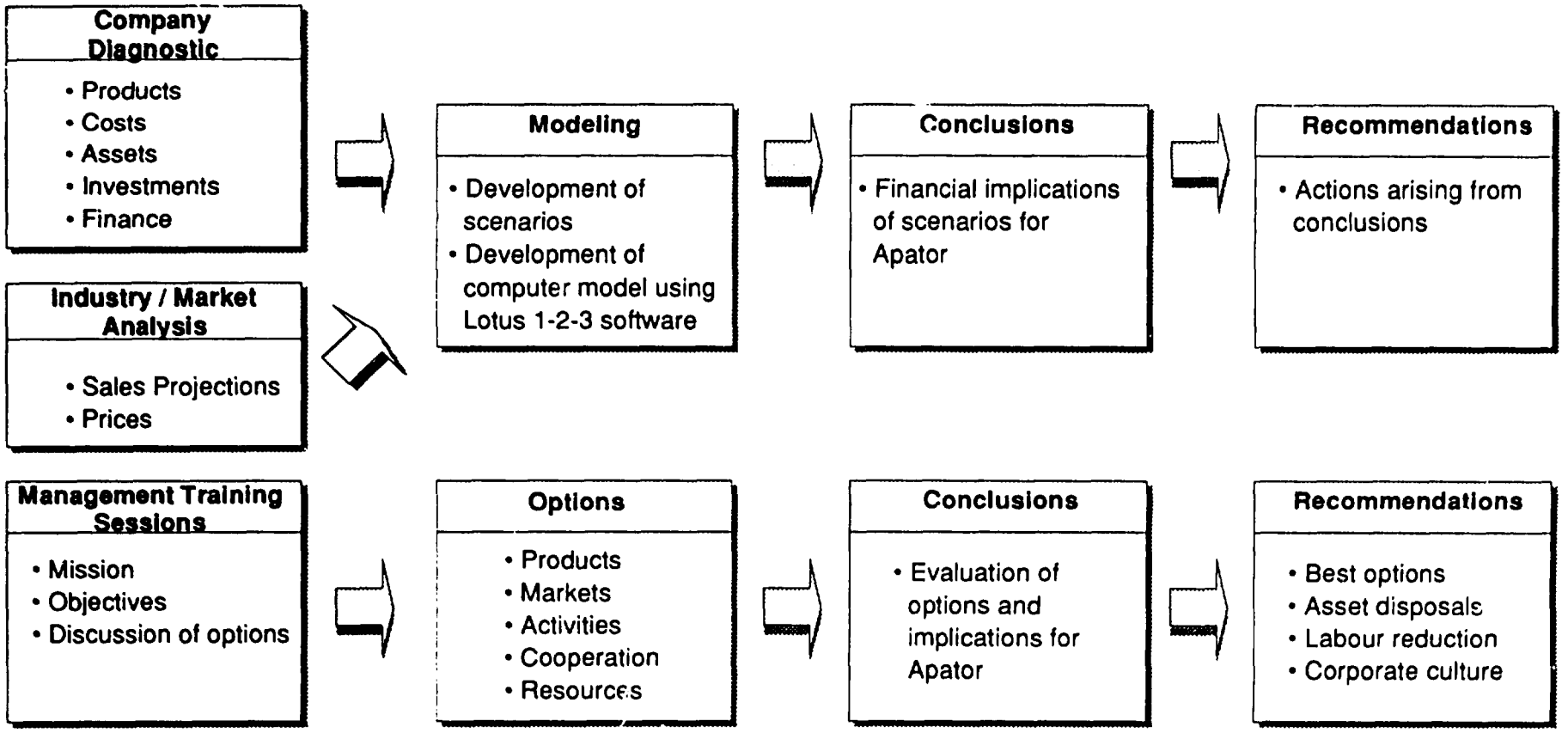
THE COMPANY DIAGNOSTIC METHODOLOGY ENCLUDED EXTENSIVE USE OF MANUFACTURING SPECIALISTS

Summary of Methodology : Company Diagnostic



THE BUISNESS PLANS WERE DEVELOPED IN CONJUNCTION WITH APATOR MANAGEMENT

Methodology : Business Plans



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Executive Summary...

APATOR AIMS TO BE A MEDIUM SIZED PRIVATE COMPANY PRODUCING UP TO DATE INDUSTRIAL ELECTRICAL AND ELECTRONIC GOODS FOR INTERNATIONAL MARKETS

- Apator's management have two parallel objectives
    - To update the technological level of Apator's product offering to world class levels.
    - To find new products to utilise surplus capacity in the short term in order to generate the cash required for investment in new product technology
- To date management have concentrated on the updating of existing product technology. If they do not switch their attention to finding sources of cash flow in the short term, there is a danger that plans for new products will not come to fruition
- The recent return of the Soviet market for transformer stations has alleviated the short-term cash position. This market is likely to remain unstable and could disappear again just as quickly as it returned
- Given that Apator management are reluctant to withdraw from any of their traditional markets, the following actions need to be taken:
    - Development of a clear strategy for each product which identifies:
        - markets to be served
        - product development strategy i.e. joint venture, cooperation, licensing, or in-house development
        - responsible individuals
    - Reorganisation of company structure to enable each product group
        - to move towards its strategic objectives
        - to obtain funding for its strategy
- The perception within Apator that the domestic and Soviet markets will return is dangerous. Apator need to take action to prepare to compete in markets outside traditional ones

THE LACK OF DECISIVENESS OF APATOR'S MANAGEMENT PARALYSES THE COMPANY'S PERFORMANCE AND LESSENS ITS ABILITY TO ADAPT TO MARKET CONDITIONS

- As any other Polish manufacturer, Apator do not recognise fully the need to sell. Apator's world consists of manufacturing and alliances in order to produce, not to market
- Apator do not apply cost of capital and return on investment reasoning, thus they are developing many new unsuccessful products and investment plans
- Apator's management do not take risks when making decisions and consequently do not pursue their plans
- Some members of the management do not show firm commitment

Executive Summary...

WITH THE POSSIBLE EXCEPTION OF SPECIALISED COAL EQUIPMENT, APATOR IS CURRENTLY VERY POORLY POSITIONED TO COMPETE IN THE GLOBALLY COMPETITIVE INDUSTRIAL ELECTRONIC GOODS MARKETS. CONSEQUENTLY APATOR MUST SERIOUSLY CONSIDER SWITCHING THEIR ASSETS TO THE PRODUCTION OF ALTERNATIVE PRODUCTS TO GENERATE CASH FLOW FOR INVESTMENT IN UPGRADING THEIR PRODUCT TECHNOLOGY.

Markets:

- Explosion proof mining equipment appears to be the most attractive sector for Apator in the longer term because of the relatively low levels of competition and high barriers to entry in this niche market
- Apator's other products are virtually technologically obsolete. Apator management are pursuing a range of options including licensing and in-house development in order to update their product range.
- The need throughout industry to automate in order to reduce costs and improve customer service levels means that the demand for industrial electronic equipment in Europe is likely to rise at 5% p.a. over the next 3 years. A similar pattern of growth is expected in Poland once economic recovery begins. It is unlikely, however, that markets in the Socialist block will return to pre- 1990 levels in the coming years.

Company:

- Apator's sales have been particularly badly affected by the economic problems of the Polish coal industry and the move to hard currency trade with the USSR. As yet, Apator management have not been able to find significant new sources of revenue
- Although Apator's diverse product range has helped them ride out the recession, they will either have to concentrate on a smaller number of products or split the company up into business units focused on discrete markets if they are to sustain competitive advantage in the future
- Apator is currently using only about one third of its production potential. With limited additional investment Apator could switch their assets to the production of new products which could help generate the money required for new product development

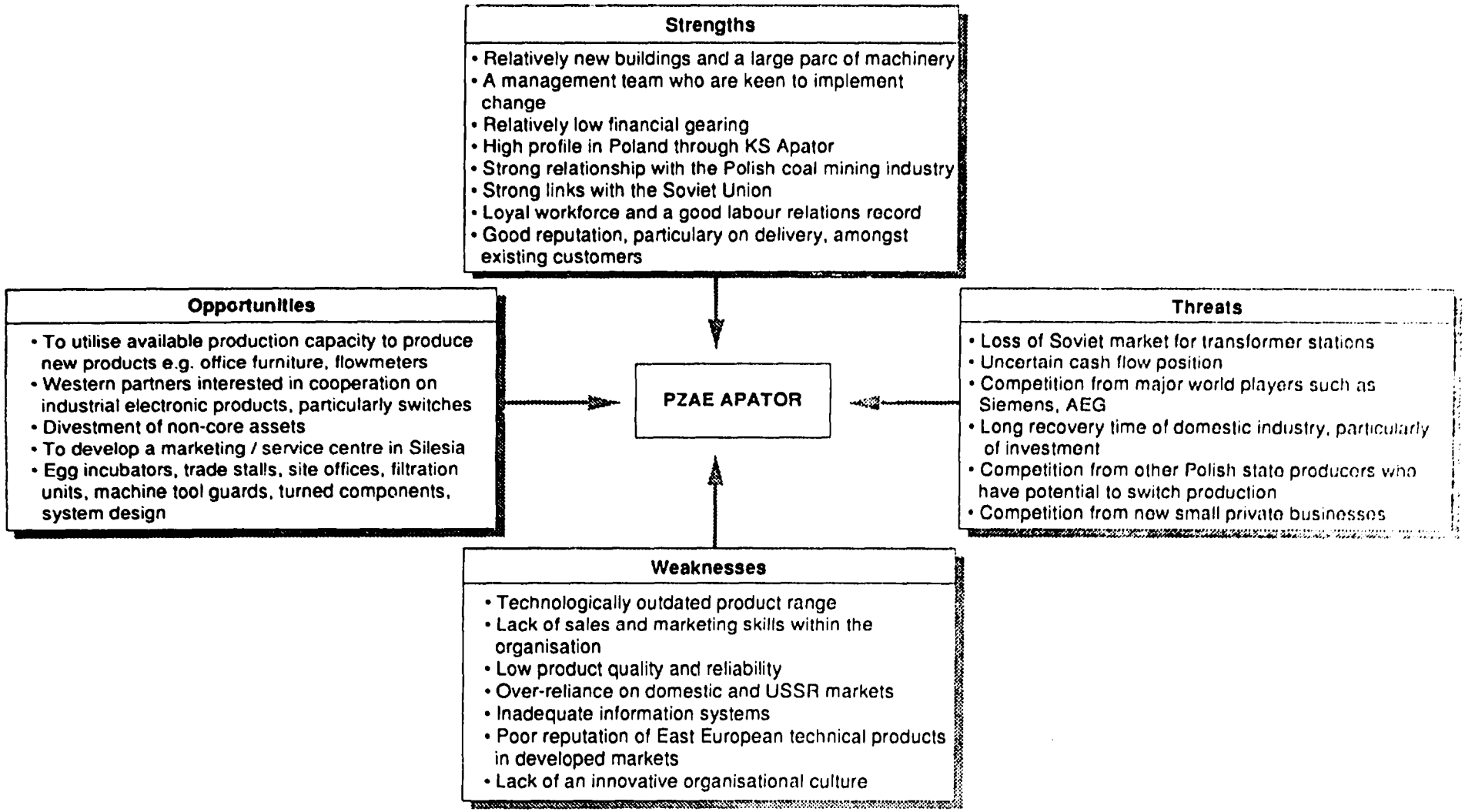
Industry:

- Because of the high expenditure required for product and process development, and the opportunities for international marketing, the industrial electrical and electronic goods sector is dominated by large multinational players such as Siemens and AEG
- The Polish industrial electrical and electronic good industry has traditionally been orientated to produce for the former "socialist" countries. Collapse of these old export markets for technologically dated products, over-capacity among domestic producers, and increasing imports will result in extremely high competition in the Polish industrial electrical/ electronic goods sector
- Niche players do have a place within the industry structure in:
  - Nationally protected sectors such as coal mining
  - Other specialised applications

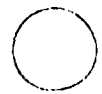
TO SUSTAIN LONG TERM COMPETITIVE ADVANTAGE, APATOR MUST TAKE ACTIVE MEASURES TO ADDRESS THE FOLLOWING ISSUES:

- Gaining closer links with markets and customers and developing the internal sales/marketing function
- Adapting cost structure, employment and asset base to business needs
- Selling off social and other non-core business assets
- Organisation and management
- Implementing quality control procedures in line with world class manufacturing standards
- Subcontracting production when outside suppliers are more cost effective than internal production
- Reducing levels of manufacturing integration and increasing manufacturing focus
- Strengthening competitive standing through partnership agreements, joint ventures with western producers, or through in-house development

BASED ON THE COMPANY DIAGNOSTIC, APATOR'S KEY STRENGTH IS A FLEXIBLE MACHINE PARC WHICH COULD BE USED TO MANUFACTURE A RANGE OF NEW PRODUCTS



CENTRAL EUROPE TRUST HAS IDENTIFIED SIX NEW PRODUCT OPTIONS WHICH COULD BE PRODUCED ON EXISTING MACHINERY OR COULD UTILISE EXISTING TECHNICAL EXPERTISE TO GENERATE ADDITIONAL CASH

Product	Comments	Value Added	Level of Competition	Fit with Apator
Cubicle Manufacture	Extend the cubicle manufacture to cover site offices for construction, security posts, consider modular construction to give a flexibility in size. Would absorb capacity in metal forming, welding and paint.			
Filtration Units	Considering the environmental position, filtration units to enhance the air quality in workplaces, offices, and sensitive areas where contamination is a problem. These can be forced air filter units which would involve Apator in incorporating switches, motors, controllers within the current range. The Polish government is making finance available for enterprises to buy such products next month			
Guards	Machine tool and press guards. With the Health and Safety at Work lobby gaining momentum in both the East and West there is potential to develop effective machine guards. These could be both manual or interfaced with the machine electrics or electronics			
Components	Turned components for the automotive industry, grease nipples, pin blanks, special fastenings. It could be argued that this market is oversubscribed. The reality is that price sensitivity is the key and currently labour and materials have the advantage in Poland.			
System Design	System design for processing plants i.e. sugar refining, petrochemicals, cement, paper.			
Office Furniture	The metal office furniture market in Poland is growing. Apator could enter it with minimal additional investment			

○ = Low ● = High

DECISIVE ACTION ON SHORT TERM GOALS WILL BE THE KEY TO APATOR'S LONG TERM SUCCESS

Short Term

- Keep control on cash flow
  - Institute cash planning
  - Careful planning of transformer station production
- Increase efforts to sell galvanising and machining services. Prepare capability list and circulate
- Train sales/ marketing personnel and give sales incentives. Introduce customer database
- Quickly set up branch office in Silesia
- Set up a high level task force to establish true product costs. In particular the marginal cost of each product
- Train personnel in total quality concepts
- Revise product literature written in English to standards required
- Evaluate new product opportunities such as site cubicles

Medium Term

- Bring newly licenced products on stream as quickly as possible
- Based on market research consider opening other branch offices in industrial areas
- Start production of basic office furniture i.e. cabinets, filing cabinets
- Build office furniture distribution network in major Polish cities
- Set up an organisation based on cost centres and profit centres centred around the main product groups
- Set up temporary profit centres in machinery and galvanising to motivate managers
- Focus technical efforts on upgrading mining equipment and bringing in new AC drive unit
- Introduce total quality programme. Purchase new painting facility to improve quality

Long Term

- Split company up into separate business units focussed on a limited product range e.g. low voltage switches or mining equipment
- Consider moving mining equipment operation to Silesia
- Extend office furniture range and consider automated production of office furniture
- Design and implement computer based management information systems

Executive Summary...

IN THE SHORT TERM APATOR MUST FOCUS ON MAXIMISING SALES AND PROFITABILITY OF EXISTING PRODUCTS IN ORDER TO COVER COSTS AND UTILISE CAPACITY

- Introduce incentives for sales persons and provide sales training. Ensure tight control of sales management over pricing decisions
- More proactive attitude to selling, for example:
    - Analyse list of current customers for low voltage switches and send product brochure to other enterprises of a similar nature but not on the list, possibly with a low price introductory offer
- Increase promotional efforts in selling subcontract services such as galvanising and machining in order to raise awareness among potential customers that such services are offered by Apator
    - Give clear responsibility and sales targets to one individual
    - Consider extending newspaper advertising
    - Analyse current customers for galvanising/ machining services and contact other enterprises of a similar nature
    - Given that Apator's galvanising plant is new, identify industries which require high quality galvanising and sell Apator's higher quality galvanising service at a higher price to reflect the additional value to the customer
- Quickly develop branch office in Silesia to protect against possible collapse of CZG and to develop presence in the area - the most industrialised in Poland
- Instigate a system of sales call reporting, giving salesmen a monthly target for "cold" calls (new private customers) and calls to existing customers. Use the reports from these visits and order documents as the basis for a marketing database
- Initially focus sales visits on the power, steel, and chemicals sectors in Poland
- Prepare a document outlining Apator's manufacturing capability and circulate to targetted companies in the U.K.
- Revise English product brochure
- Evaluate new product options which can be manufactured on existing equipment such as:
    - site offices/ cubicles
    - filtration units for environmental protection
    - machine tool and press guards
    - components for the automotive industry
    - system designs

Executive Summary...

IN THE MEDIUM TERM APATOR'S FOCUS MUST BE ON EXTENDING AND IMPLEMENTING THE DISTRIBUTION NETWORK AS WELL AS DEVELOPING NEW PRODUCTS

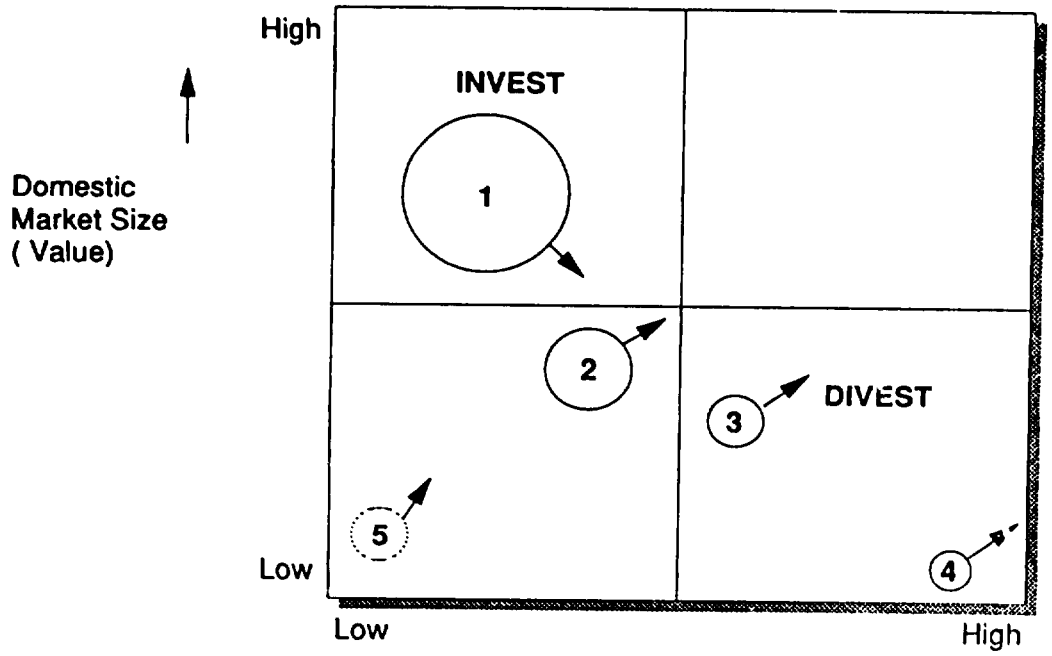
- Develop direct contacts with end users in the Soviet Union to protect against changes in the distribution system
- Develop new upgraded products in such a way as not to close off markets outside of traditional ones:
  - Avoid market restriction clauses in licensing agreements
  - Ensure products developed in-house meet international standards
- Develop after sales service organisation in Poland
  - Reduce response time to customer call outs
  - Implement a system which ensures that data regarding quality and failures gets back to product design and production
  - Take action to identify and remedy all quality problems
- Extend company representation to other industrial areas in Poland
- Develop a network of agents not only in traditional markets, but in developed markets as well if suitable products are developed. Motivate agents to sell Apator products by appropriate means. For example, by paying them on a commission only basis
- Build office furniture distribution network in major Polish cities. Extend office furniture supply to German market
- Prior to entering any foreign markets recruit and train personnel with the appropriate language skills. Technical personnel also need to be trained in languages as they will commonly be part of the sales team
- Focus technical efforts on upgrading mining equipment and bringing in new AC drive unit
- Evaluate potential of diversification into explosion/ flameproof equipment for the chemical industry

APATOR MUST IMPLEMENT SYSTEMS WHICH ENABLE THEM TO IDENTIFY AND TRACK TRUE PRODUCT COSTS

- Evaluate possibilities of subcontracting activiities which are currently performed in-house by Apator
  - Production of tools. Apator toolroom to focus on tool repair only
  - Transportation
  - Production of pallets
  - Plastic moulding
- Consider further manpower reductions particularly amongst indirect labour and administrative staff
- Shop around for supplies and extend supplier base
- Introduce quality improvement programme:
  - Bonus / penalty schemes to motivate operators in all manufacturing departments to maintain quality
  - Written instructions / boards to depict quality requirements
  - Quality control function is to be truly independent and should not instruct workers but should record / report bad workmanship to the appropriate authorities only
- Reduce energy costs
  - Consider switching electric drying to the night shift to take advantage of off-peak rates
  - Investigate economics of switching to municipal central heat
- Improve labour productivity
  - Redesign assembly workstations to make components more accessible to operators
  - Increase specialisation of labour in drive control assembly area
- Implement profit / cost centres

MINING EQUIPMENT IS APATOR'S MOST ATTRACTIVE PRODUCT GROUP AT PRESENT. EVEN IN THIS AREA, APATOR WILL COME UNDER INCREASING COMPETIVE PRESSURE AS THE MARKET DECLINES. THE GROWING OFFICE EQUIPMENT MARKET OFFERS AN INTERESTING IF SOMEWHAT RISKY OPPORTUNITY

CET Decision Matrix



→ **Medium Term Trend**

1 - Explosion-proof Mining Equipmment
2 - Low Voltage Switches
3 - Control / Distribution Cabinets
4 - Thyristor Drive Units
5 - Office Furniture

Circle diameters are proportional to potential Apator revenue

Source: CET Analysis

APATOR IS VIRTUALLY A SELF-CONTAINED ENTEPRISE. POTENTIAL EXISTS FOR SPINNING OFF OR SUBCONTRACTING MANY ACTIVITIES

- Apator has an extensive machine parc which has always been underutilised. Currently, Apator is using only approximately 30% of its production potential. Milling machines, lathes and presses have the most spare capacity

- Much of Apator's machinery is rather old (average age is ten years) and approaching full depreciation but is still suitable for basic manufacturing operations and will remain so for some years to come

- Although officially recorded quality faults are low, there are many hidden problems because of the lack of a quality culture

- Poor workstation design, lack of speciaslisation in assmebly, and lack of incentives mean that there is considerable scope for improving labour productivity

- The information systems used for production and inventory planninbg and control are not adequate. There is some computerisation, but systems require extensive manual updating of movements. Manual records are kept on 10 000 inventory items in parallel to the main computerised system. These systems do not allow Apator to adapt production to demand fluctuations and are are an important source of rigidity within the organisation

Executive Summary...

APATOR HAS A LARGE RANGE OF ACTIVITIES WHICH CAN BE CONSIDERED NON-CORE. APATOR SHOULD CONSIDER SPINNING OFF SOME OF THESE TO ENABLE MANAGEMENT TO CONCENTRATE ON THE CORE BUSINESS OF PRODUCING AND SELLING ELECTROTECHNICAL PRODUCTS

Department	Options	Recommended Option	Core Business Fit
Assembly	• Subcontract assembly sales • Close and buy in assembled circuit boards	• Investigate possible subcontracting activities otherwise continue as is	
Galvanising	• Increase subcontract galvanising sales • Close and purchase services from outside	• Make into a temporary profit centre. Consider spin-off longer term	
Sheet metal	• Subcontract cabinet manufacture • Buy in cabinets	• Increase subcontract activity. Utilise spare capacity through office furniture	
Tool room	• Subcontract tool manufacture sales • Repair tools only • Close tooling section	• Buy in new tools and carry out only tool repairs in - house. Consider hiring out to employees in longer term	
Machine shop	• Subcontract machining services • Close and buy in plastic parts	• Make into temporary profit centre and motivate to maximise sales	
Plastic injection	• Subcontract plastic moulding services • Close and buy in plastic parts	• Phase out plastic injection and purchase plastic components	
Transport	• Sell subcontract transport services • Close and use subcontract transport	• Make into temporary profit centre. Compare to external prices regularly	
Design	• Sell system design services • Do nothing	• Allocate individual responsible for developing business opportunities and motivate	
Carpentry	• Sell carpentry services externally • Close and use subcontract services • Hire out facilities to employees	• Consider hiring out to employees/ closing and buying in pallets	
Power house	• Continue to produce in-house • Buy power from network	• Regularly calculate relative energy costs and run powerhouse as necessary	

IN ORDER TO IMPROVE MANAGEMENT FOCUS AND TAKE ACCOUNT OF THE DIFFERENT MANUFACTURING STRATEGIES FOR THE VARIOUS PRODUCTS, APATOR SHOULD AIM TO REORGANISE INTO PRODUCT-BASED PROFIT CENTRES

- Implement profit centres around the following product groups:
  - Transformer stations/ office furniture
  - Explosion-proof equipment
  - Low voltage switches
  - Thyristor drives and control/ distribution cabinets
- Form clear management structures for the four product types
- Set up a system of management by objectives in order to give all members of management clear goals and efficiently distribute work
- Implement temporary profit centres in the following departments in order to motivate management of these departments:
  - Galvanising
  - Machine Shop/ Tool Room
  - Injection moulding
  - Transport
- Set up a department with a director at the head reporting to the managing director responsible for planning and implementing the restructurir g process
- Apator management should go away from site for a two day strategic planning session and clarify/ harmonise their vision of the company
- Communicate restructuring plans to the workers council
- Move responsibility for purchasing, currently in the marketing function to production

THE MAIN EMPHASIS IN THE AREA OF PRODUCTION MUST BE ON IMPROVING PRODUCT AND SERVICE QUALITY

- Implement total quality training programme. Include quality targets in managers objectives
- Paint finish needs to be a priority as presentation and safety considerations (smoke emission, flame-proofing) cannot be achieved. An early investment needs to be made into a powder painting plant
- No other major investment in plant and machinery. With the possible exception of some potential for semi automatic welding robotics and semi automatic robotic assembly support in the welding area, the range and standard of the production plant and machinery is perfectly adequate to meet the volume, range, and quality parameters for both existing, new and proposed markets
- In the short term, leave machinery located where it currently is. The machine and manufacturing grouping does lend itself to some flexibility. Flow line technology would be expensive and lead to further under-utilisation of plant and machinery
- To meet western standards and increase quality levels the sub-assembly/ assembly processes should be segregated to better effect especially with the necessary move to high technology components which are sensitive to degradation due to contamination. The flow of materials from individual components to sub-assemblies also needs to be improved
- Prioritise part management:
    - Categorise parts and subassemblies by monetary value of inventory turnover (High/ Medium/ Low)
    - Implement specific inventory control programme for each part category. Prioritise management attention on high and medium monetary stock value items. Ensure all critical parts receive proper attention
- Increase frequency of the Master Production Schedule. Establish task force and project leader to reduce current rigidities and system weaknesses

APATOR NEEDS TO DEVELOP A COHERENT PARTNERSHIP STRATEGY WHICH TAKES INTO ACCOUNT THE NEEDS OF EACH PRODUCT GROUP AND THE APATOR ORGANISATION AS A WHOLE

Product	Geographic Markets	Development Options	Potential Partners	Recommended Option	Rationale
Mining Equipment	Poland USSR Socialist Block Some European South Africa	• Licensing/Cooperation • In-house development	Siemens	• Attempt re-entry into markets previously served in Europe with up-dated products • in-house development of product modification and line extensions	• Apator will soon have a product which is technologically up to date • High level of expertise in this field in Apator • Many assets dedicated to these products
Transformer Stations	USSR Poland	• In-house development • Cooperation	Schneider	• Minimal development work • Explore possibilities of developing product for Polish market in-house • Explore cooperation possibilities with Schneider	• High competition likely soon • Western companies will have interest in entering USSR market with updated products
Low Voltage Switches	Poland Socialist Block Europe	• Licensing/Cooperation • Import for sale • In-house development	ABB Siemens Koncar EFEN	• Continue licensing efforts • Import switches for re-sale to make up the range where licences are unavailable • Traditional markets only possible	• In-house development possibilities limited due to lack of expertise • Ability to offer complete range • Low investment and risk • License agreements restrict Apator to traditional markets
Thyristor Drive Units	Poland Socialist Block Europe	• Licensing/Cooperation • In-house development • Import and modify	ABB Siemens	• Continue with in-house development of AC-controller • Import and modify standard units • Explore European market possibilities	• Licensing options likely to be limited • Adaptation of standards will enable to develop applications and focus in-house development
Control/ Distribution Cabinets	Poland	• Licensing/Cooperation • In-house development	None	• In-house development of a product with "siec" and modular rather than welded constructions • Consider withdrawal from market	• High competition from Elektromontaz • Secondary product range • Small revenue potential

Executive Summary...

APATOR HAS MANY OPTIONS FOR DEVELOPING ITS RANGE OF LOW VOLTAGE SWITCHES. HOWEVER, BY SIGNING LICENCE AGREEMENTS FOR TECHNOLOGICALLY UP TO DATE PRODUCTS WHICH RESTRICT APATOR TO THEIR TRADITIONAL MARKETS IN THE OLD SOCIALIST BLOCK, APATOR ARE CUTTING THEMSELVES OFF FROM POTENTIALLY STEADY SOURCES OF CASH FLOW IN ALTERNATIVE GEOGRAPHIC MARKETS

Potential Partners: Low Voltage Switches

Company	EBD (ABB)	EFEN	Stömberg Control (ABB)	Koncar
Country	Norway	West Germany	Finland	Yugoslavia
Legal Form	Joint Venture	Cooperation	Cooperation	Licence / Cooperation
Products:	Safety Switches	Switches	Switches / Contractors	Cam Switches
Comments:	• Joint venture between: Elektromontaz Wroclaw (7%) Apator (In assets) (30%) EBD (51%) Elektrim (12%) • A widening of Apator's range of switchgear • Business plan written for the venture	• Apator to supply metal component parts of the switches • EFEN to supply plastic components • Very high quality products	• Updated versions of switches currently made by Apator • Plastics bought in by Apator from Stömberg • Apator to produce metal components for own purposes and for Stömberg • Stömberg to provide training for Apator in assembly	• Extension of Apator's existing cam switch product range to new amperages • Plastics to be supplied by Koncar, Apator to make the metal elements and assemble • Licence to cost 3bn Zl
Markets:	• Venture plans to sell to the Polish market. Export markets including the USSR to be reached through Elektrim		• Apator restricted to selling in old "Socialist" block only	• The terms of the licence exclude Apator from selling in 8 major European markets
Current Status:	• Joint venture plans not likely to come to fruition. Licence agreement recently signed	Very early stages of negotiation	• Last phase of contract negotiation	• Negotiations suspended due to conflict in Yugoslavia

Executive Summary...

APATOR HAS SIGNED A CONTRACT WITH SIEMENS FOR A NEW GENERATION CONTROL UNIT FOR SALE TO THE MINING INDUSTRY. RISKS ASSOCIATED WITH THIS MOVE ARE SINGLE SOURCING OF KEY COMPONENTS FROM SIEMENS AND POSSIBLE DEVALUATION OF THE ZLOTY AGAINST THE DM IN THE NEAR FUTURE

Potential Partners : Drive Units/ Others

Company	Siemens	EBT	Stömberg Drive (ABB)
Country	West Germany	Norway	Finland
Legal Form	Licensing / Cooperation	Cooperation	Cooperation
Products:	Explosion-Proof Frequency Converter	Telephones	AC Drive Control Units
Comments:	• Apator to make the enclosures for Siemens who will put in their own electronic equipment Siemens to send electronic components for assembly in Torun in enclosures produced by Apator. These units will be sold by Apator on the Polish/ USSR markets • Cost of licence is 1.8bn Zl financed by a DM loan at 9% • Initial production run of 5 units made at Siemens during which Apator people will be trained in Germany • Units sold by Apator would be under the name Siemens - Apator • Apator expect that they will make up to 40 units a year. Approximately 20 empty enclosures for Siemens and 20 complete units for sale on the Polish/ USSR markets • No market restrictions on either Siemens / Apator	• Apator to assemble telephones from components sent by EBT • Sales to be mainly in Poland, but also possibly in the USSR through Elektrim • 3 months of training at EBT is planned for assemblers, technologist and designers from Apator • Initial order for 100 telephones only to test the market	• Very new proposal
Current Status:	• Contract signed. Production to begin at the end of 1991	• Waiting for approval from Polish Communications Ministry	• Opening phase of negotiations

IMMEDIATE TRAINING NEEDS ARE IN THE AREAS OF MARKETING, SALES, COSTING AND QUALITY

Marketing and Sales

Marketing
- Market research and analysis
- Segmentation
- Market Databases
- New product marketing

Sales
- Selling to industrial customers
- Negotiating skills

Production

Costing
- Variable/Fixed cost analysis
- Overhead absorption
- Make/Buy decisions
- Cost centres/profit centres
- Budgetting
- Variance Analysis

Quality
- Total quality training

CONTENTS

CENTRAL EUROPE TRUST

THIS CHAPTER PRESENTS...

- An overview and evaluation of the West European industrial electronic and electrical equipment industry and the key players operating in it

- An analysis of the current state of the Polish industrial electronic and electrical equipment industry and likely future developments

- An evaluation of the future potential of each of Apator's major product groups:
  - Transformer stations
  - Explosion-proof mining equipment
  - Low voltage switches
  - Thyristor drive units

- An analysis of the markets for industrial goods in Silesia, the most industrialised region of Poland

- The implications of the market and industry analysis outlined above for Apator.

World Markets...

DUE TO THE HIGH LEVELS OF EXPENDITURE REQUIRED FOR TECHNOLOGICAL PRODUCT AND PROCESS DEVELOPMENT, LOW VOLTAGE DRIVE CONTROLLERS IS A GLOBALLY COMPETITIVE SECTOR DOMINATED BY THE BIG NAMES FROM THE QUALITY ENGINEERING AND ELECTRICAL SECTORS...

Major Players: Low Voltage Drive Control Equipment

Company	Estimated Sales of Low Voltage Control Equipment * (£m)
Siemens	900
Telemecanique	800
Omron	700
ABB	700
Westinghouse	650
Allen Bradley	600
GE	500
Square D	500
Eaton	450
Mitsubishi	400
Fuji	400
AEG	300
Yaskawa	300
Toshiba	300
Klockner-Moeller	250
Sprecher & Schuh	180

* 1988 Sales

Source: Goulden Report

THE LOW VOLTAGE SWITCH MARKET IS DOMINATED BY MANY OF THE SAME MAJOR MULTI-NATIONAL COMPANIES

Major Players : Low Voltage Switches

Company Name	Country of Origin	Product Group			
		Case Circuit Breakers	Miniaturised Circuit Breakers	Contractors / Overload Relays	Switches / Motor Isolators
Siemens	Germany	●	●	●	●
ABB	Sweden	●		●	●
Dorman - Smith	Germany	●	●	●	
Federal Electric	USA	●	○		
Mitsubishi	Japan	●			
Toshiba	Japan	●			○
Merlin Gerin	France	●	○		
Telemecanique	France			○	○
Klockner - Moeller	Germany	●		○	○
Crabtree	UK		○	○	○
Square D	UK	○	○	○	○
Vickers	UK			○	○
Sprecher & Schuh	Germany			○	○
AEG	Germany	○		○	○

Source: Industrial Market Research Report/ CET Analysis

TYPICALLY, THESE LARGE FIRMS ARE ORGANISED INTO BUSINESS UNITS WHICH CONCENTRATE ON THE PRODUCTION OF A DISCRETE RANGE OF PRODUCTS FOR SPECIFIC MARKETS. IN THE MEDIUM TERM APATOR SHOULD STRIVE TO ADOPT A SIMILAR STRUCTURE

Merlin Gerin - Company Structure (France)

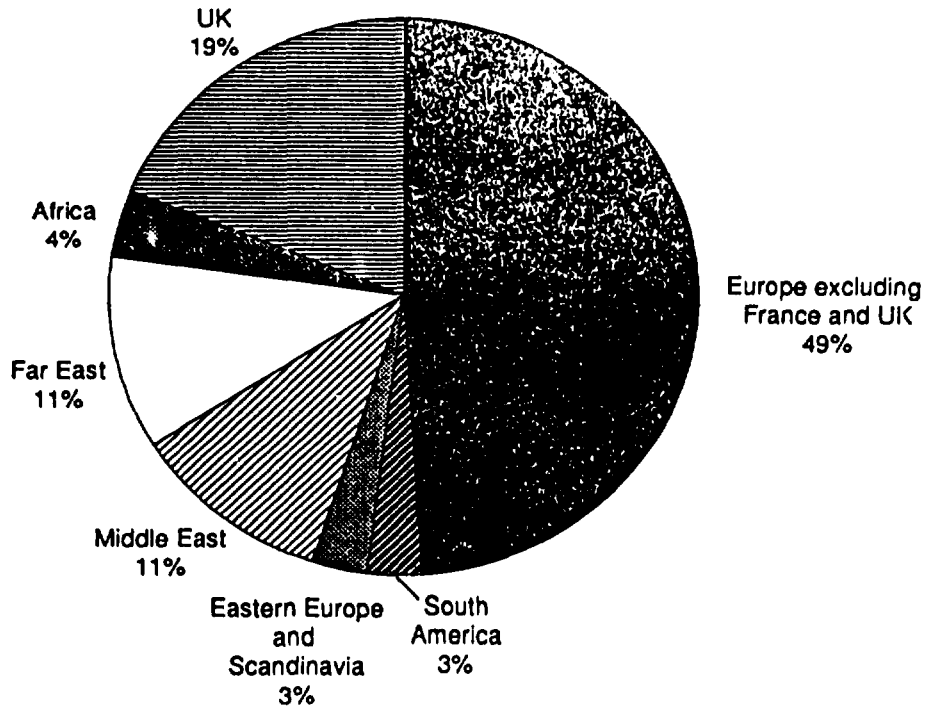
Subsidiary	Activity
April S.A.	Programmable logic controllers
Construction Electrique	Uninterruptible power supplies
Egic S.A.	High voltage disconnecting switches
France Transfo S.A.	Distribution transformers
Imunelec S.A.	Uninterruptible power supplies
Jeumont Schneider Transformateurs S.A.	High voltage transformers
Merlin Gerin Ales S.A.	Low voltage circuit breakers
Merlin Gerin Apes S.A.	Low voltage switchboards
Merlin Gerin Bretagne S.A.	Low voltage switchboards
Merlin Gerin Loire S.A.	High voltage switchboards
Prodipact S.A.	Low voltage circuit breakers
SAEM S.A.	Low and medium voltage transformer stations
Sarel S.A.	Low voltage enclosures
SFCME S.A.	Medium/ low voltage transformer stations
Societe Electrique d' Aubenas S.A.	Medium voltage circuit breakers
Varilec S.A.	Capacitors

Source: 1990 Company Accounts

DUE TO THE UNSTABLE NATURE OF MARKETS FOR INDUSTRIAL INVESTMENT GOODS, MOST FIRMS OPERATING IN THE SECTOR TRY TO COVER MANY EXPORT MARKETS IN ORDER TO MAINTAIN STEADY CASH FLOWS

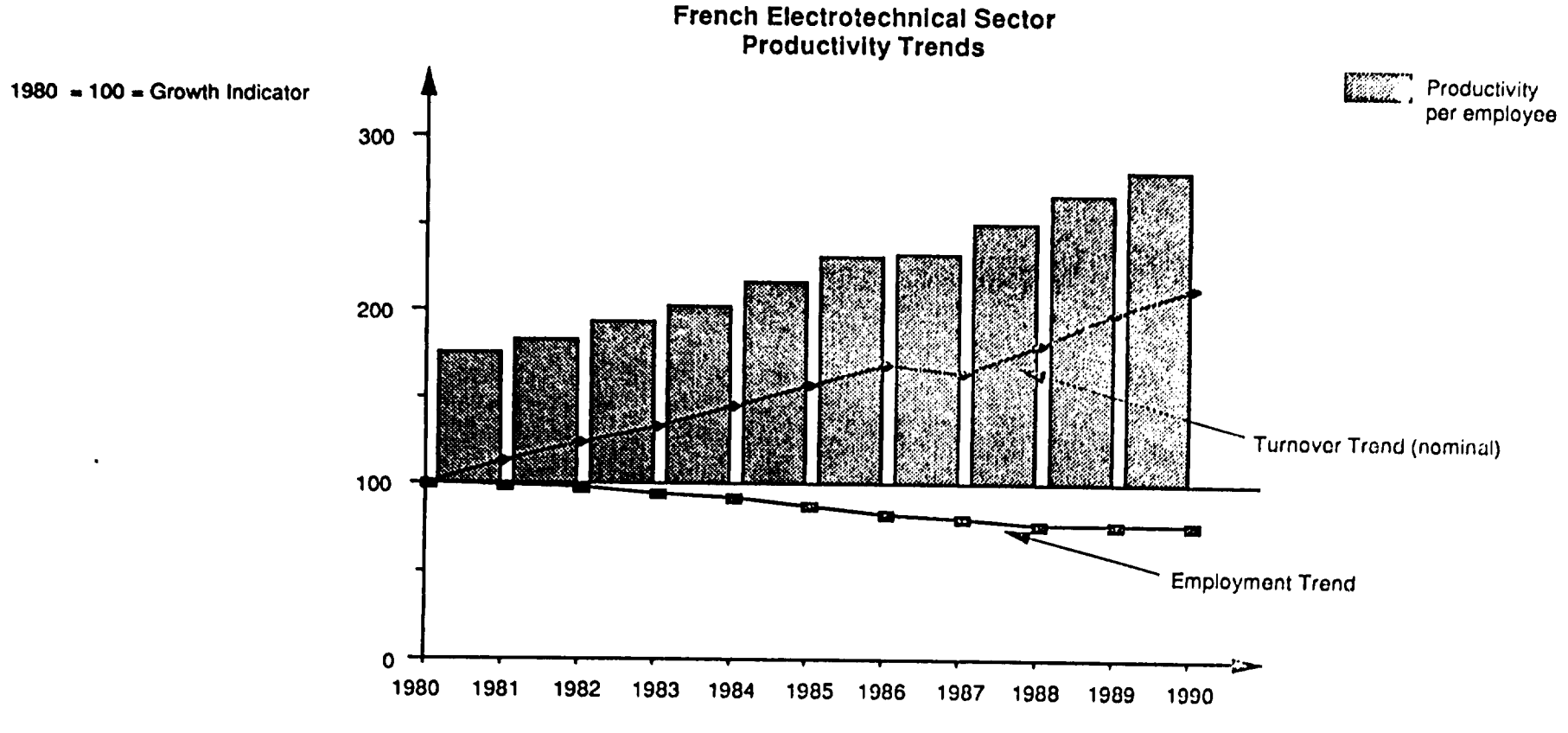
Geographic Structure of Export Sales

Merlin Gerin



Source: CET Analysis

DESPITE SUCCESSIVE YEARS OF GROWTH IN THE FRENCH ELECTROTECHNICAL SECTOR, THE NUMBER OF PEOPLE EMPLOYED HAS DROPPED. THIS ILLUSTRATES THE DRAMATIC IMPROVEMENTS MADE IN PRODUCTIVITY IN THE SECTOR OVER THE LAST DECADE

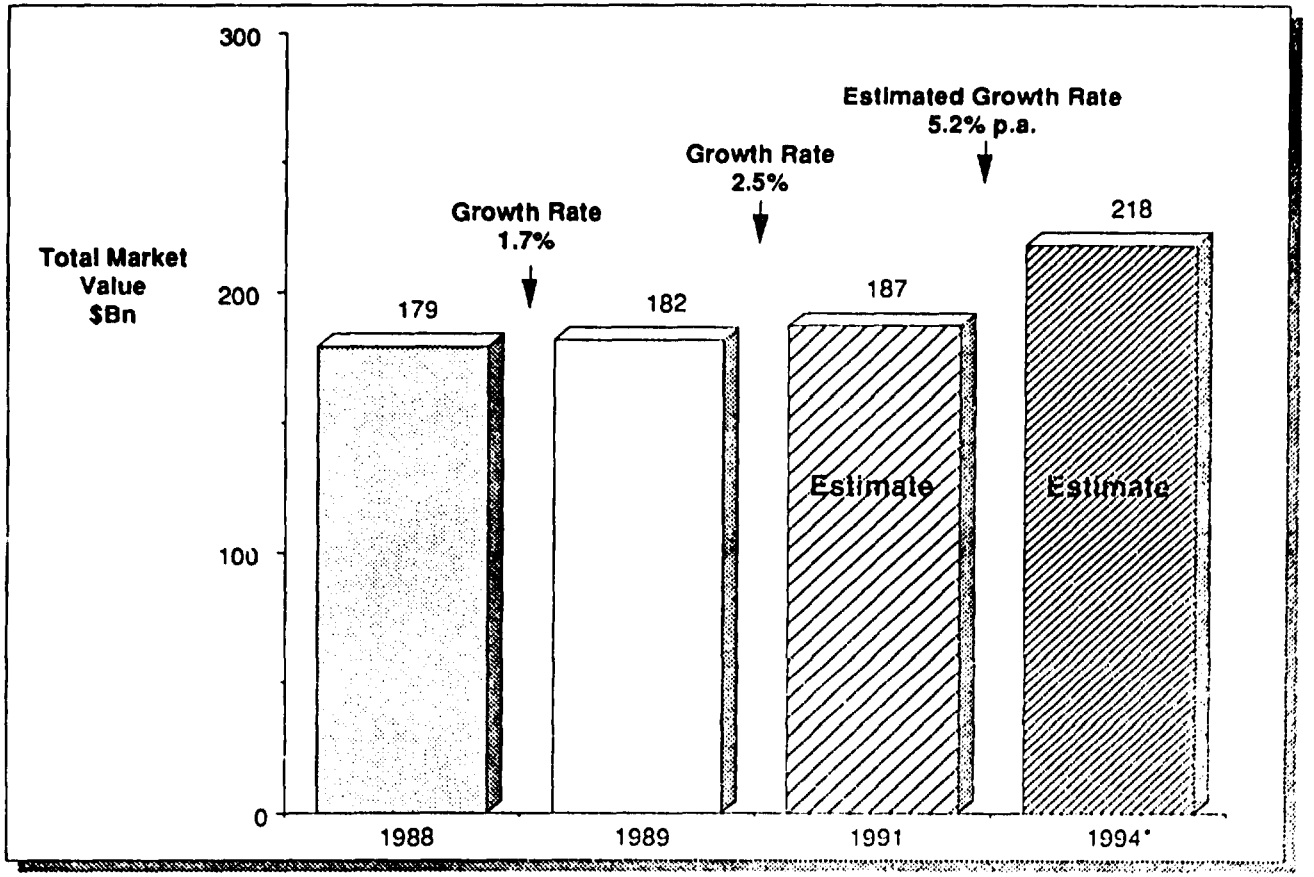


Source: CET Analysis

World Markets...

FOR THOSE WHO CAN COMPETE EFFECTIVELY IN THE INDUSTRIAL ELECTRICAL AND GOODS SECTOR, A MAJOR EUROPEAN MARKET OPPORTUNITY EXISTS BUT...

West European Industrial Electronic Equipment and Component Market (1988 - 94)
($ Bn)



* 1994 includes East Germany

Source: Yearbook of World Electronics Data (1991)

THE ABILITY TO DEAL WITH RAPIDLY CHANGING INNOVATIVE MARKETS IS ONE OF THE KEYS TO SUCCESS IN THE INDUSTRIAL ELECTRICAL AND ELECTRONIC SECTOR

Key Market Trends: Industrial Electrical and Electronic Goods

- Increased demand for electrical and electronic equipment from most sectors of industry driven by the need to automate and computerise in order to reduce costs and improve customer service levels
- Continuous technological innovation particularly in the area of miniaturisation through use of micro-electronic technology
- Increased levels of worldwide product marketing to enable lower cost volume production and rapid market expansion
- Increased penetration of European and US markets by Japanese and low cost Far Eastern producers
- A rapid increase in the demand for programmable controllers (PLC's) which has caused a decline in the demand for relays and timers
- An increase in demand for circuit breakers at the expense of traditional fuseboards due to:
  - Improved current breaking ability of circuit breakers
  - Ease of resetting
  - Lower costs of production as volumes have increased
  - Miniaturisation (MCB's)
- Increased customer sophistication. Customers now often have microprocessors and a software capability
- Growing acceptance of a single international standard based on the European block contractor and its derivatives for motor control components

Conclusions

- The world industrial electronic and electrical goods market is an attractive growing one

- The markets are dominated by large multinational corporations who are able to reap benefits from international marketing and sustain high levels of research and development spending. For example:
  - Siemens spent in excess of 10% of sales on research and development in 1990
  - Siemens have one catalogue for low voltage switches which covers Europe, USA and Canada

  Apator's strategies should focus on avoiding entering markets where they will compete head on with these players

- Firms in the sector strive for a wide geographic spread of markets to try and spread the risk arising from operating in traditionally unstable markets for investment goods

- Western markets for industrial electronic goods could provide Apator with a steady source of cash flow in the future if they can acquire the appropriate technology. However, as price is not the only factor in the purchase decision, even if Apator produce at low cost they will find it extremely difficult to compete in these markets unless they form linkages within western firms that have appropriate
  - distribution networks and contacts
  - after sales service

- Many of the larger firms in the world industry are increasingly moving to more technologically advanced products and are seeking to lower their cost base for lower technology products in the latter phase of the product life cycle. Apator's strong links with the Soviet Union and potential as a low cost producer could make them an attractive acquisition target for these larger firms

- Larger firms are commonly made up of many separate smaller businesses. These smaller businesses are often in effect niche players focussing on a discrete market and product range. In the medium term Apator should strive for such an organisational structure

Conclusions

- The world industry is characterised by continuous reduction of product costs. Apator need to adopt systems such as cost centres and pay incentives to force down their costs particularly as labour and materials costs rise and competition increases

- Niche players do exist especially in high technology applications and in specialised sectors such as flameproof switchgear for the mining industry
  - mining industries are often nationalised and biased in favour of buying from domestic suppliers
  - national markets are artificially protected by national approval bodies who approve equipment for use

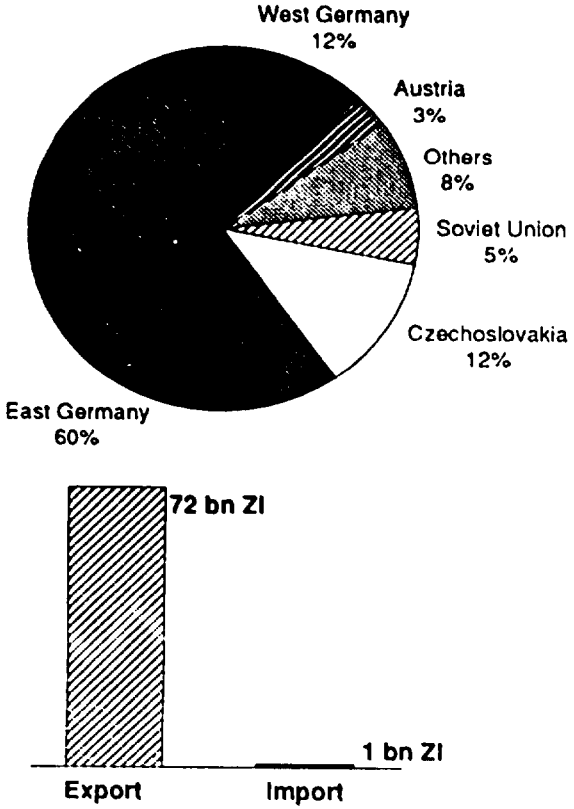
- The Polish industrial electrical and electronic goods sector has traditionally been orientated to produce for former "socialist" countries. Collapse of these export markets, overcapacity among domestic producers, and increasing imports of high technology products mean that this sector is likely to become extremely competitive in the future. However, there may be a place for Apator in this industry provided that they can find suitable products to generate the short term cash required to finance new product development

- The centralised trading organisations such as CZG which were responsible for distribution of some of Apator's goods are currently under financial pressure. Apator should take action to ensure that they are protected from the possible collapse of such organisations

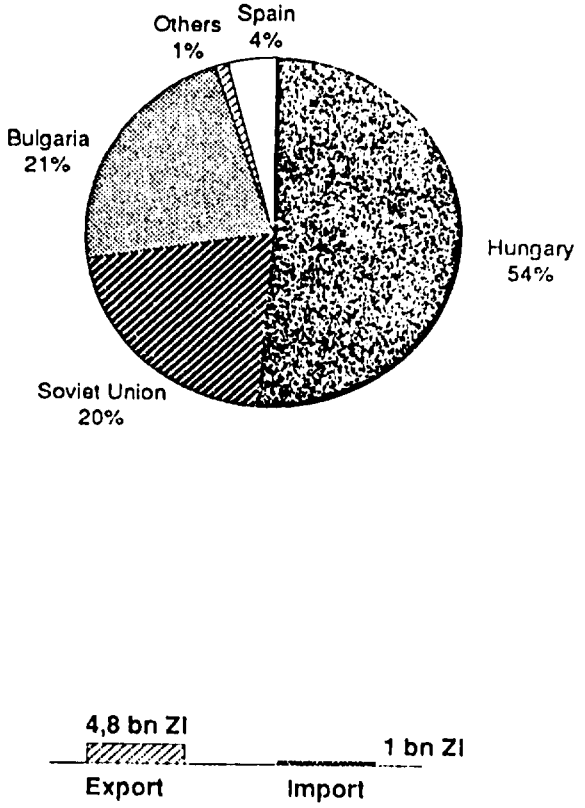
TRADITIONALLY THE MAJORITY OF POLISH INDUSTRIAL ELECTRICAL/ ELECTRONIC EXPORTS WERE TO FORMER SOCIALIST COUNTRIES. PROBLEMS WITH HARD CURRENCY TRANSACTIONS AND THE LACK OF COMPETITIVE PRESSURE WITHIN POLISH INDUSTRY KEPT IMPORTS AT A NON-SIGNIFICANT LEVEL

Poland's Industrial Electrical and Electronic Sector Imports/ Exports: 1990

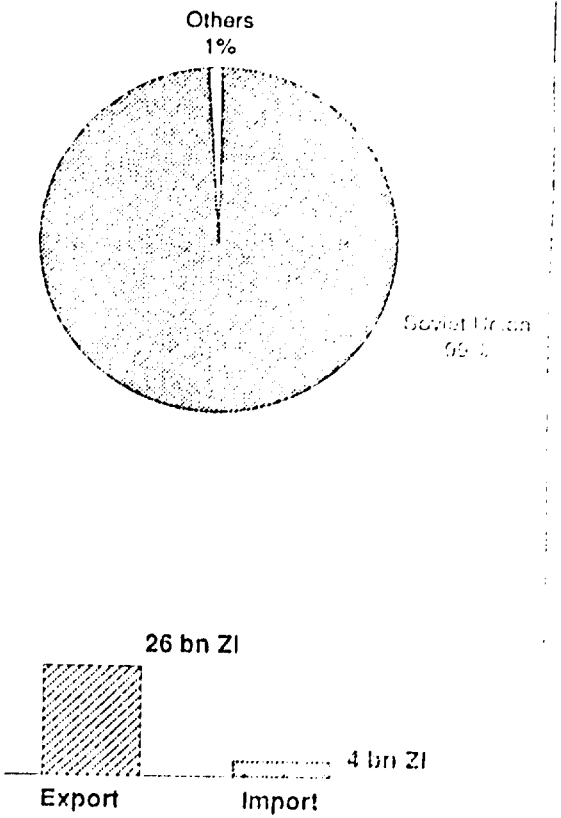
Polish Exports in 1990 of Drive Control Equipment
(including thyristor dirve units)



Polish Exports in 1990 of Low Voltage Switches



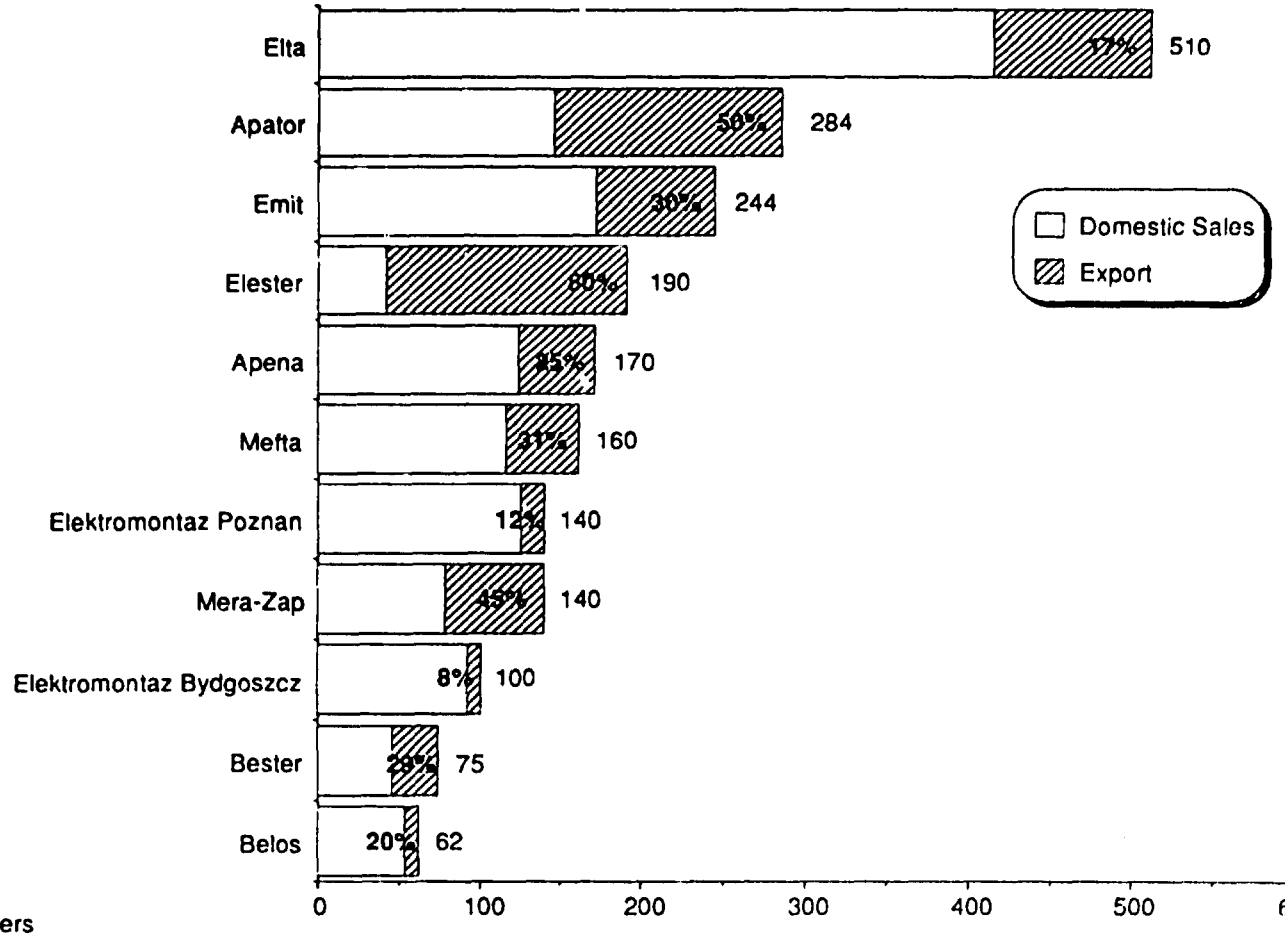
Polish Exports in 1990 of Control and Distribution Cabinets



Source: Glowny Urzad Statystyczny

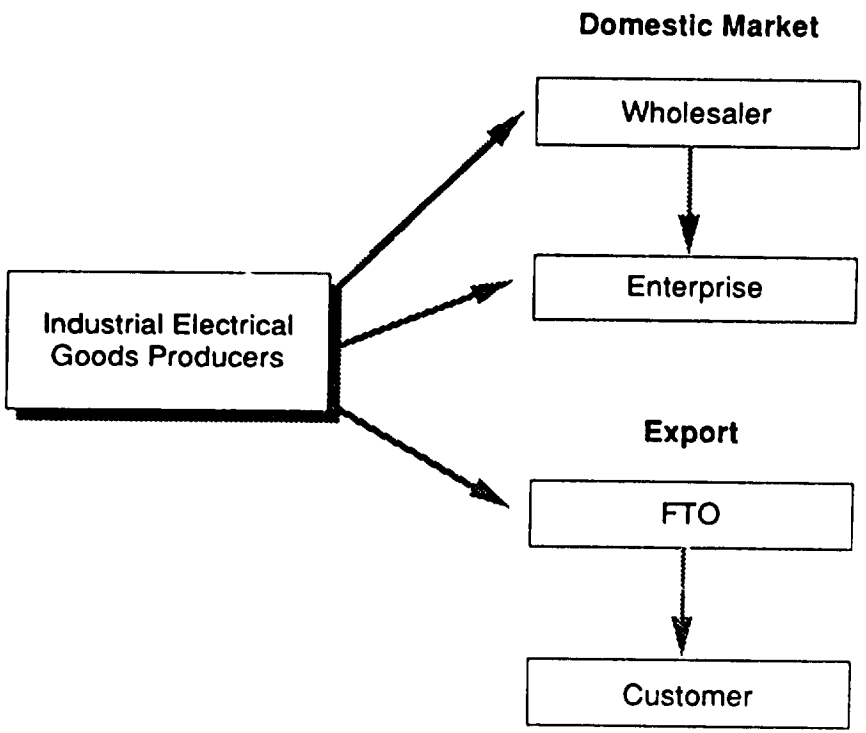
TO DATE THERE HAS BEEN LITTLE COMPETITION BETWEEN POLISH ENTERPRISES IN THE INDUSTRIAL ELECTRICAL/ ELECTRONIC GOODS SECTOR WITH EACH ENTERPRISE HAVING AN EFFECTIVE MONOPOLY OVER A GIVEN PRODUCT RANGE. THIS SITUATION IS LIKELY TO CHANGE AS INDUSTRY OVERCAPACITY FORCES THESE ENTERPRISES, WHICH ALL HAVE SIMILAR PRODUCTION CAPABILITIES, TO ENTER EACH OTHER'S MARKETS

Polish Industrial Electrical/ Electronic Goods Sector : 1990 Sales of Major Enterprises
(Zl bn)



Source: CET Interviewers

THE RESPONSE OF THE DISTRIBUTION SYSTEM FOR INDUSTRIAL ELECTRICAL GOODS TO THE INTRODUCTION OF THE MARKET ECONOMY HAS BEEN SLOW. SALES CONTINUE TO BE TO CAPTIVE CUSTOMERS USUALLY THROUGH STATE OWNED WHOLESALERS



Comments

- State owned wholesalers are under financial pressure and are occasionally being bypassed
- Little incentive for private distirbutors of Polish goods at present due to lack of demand from Polish industry
- Trend towards more direct sales particularly to smaller customers
- Competition is emerging from small private firms serving small niche markets

- Passive attitude of FTO's towards new foreign markets
- State owned FTO's on the way to being privatised

Factories finding difficulties in exporting directly due to lack of sales contacts and outdated nature of product offering

Source: CET Analysis

APATOR LIKE MOST OTHER POLISH PRODUCERS BUY COMPONENTS MOSTLY FROM POLISH SUPPLIERS, EVEN THOUGH THEY OFFER PRODUCTS OF LOWER QUALITY. THE USE OF IMPORTED COMPONENTS WOULD HAVE A LARGE IMPACT ON APATOR'S COSTS AND PRICES

Apator: Supply Structure

Materials	Main Suppliers	% By Value of Total Supplies	Comments
FERROUS METALLURGY	Huta Sendzimira (sheets) Huta Stalowa Wola (rods) Huta Katowice (profiles)	15	Polish steel mills offer goods at 90% of world prices. Import would significantly delay production considering time of delivery
NON FERROUS METALLURGY	Walcownia Labedy (copper sheets and belts) Huta Konin (aluminium sheets) Kety, Chechowice (Aluminium rods)	6	Supply comes from Polish market only. Suppliers of particular materials are monopolists
MOULDING COMPOUNDS AND PAINTS	Pionki (Melamina) Zaklady Azotowe Tarnow Huta Szkla Krosno (Polystyrene) Fabryka Farb we Wloclawku (Paints)	7	Polish producers only, except for Ampol which is imported through FTO Ciech
ELECTRICAL AND ELECTRONIC COMPONENTS	ELESTER FAEL, EFA EES - Romania (Transformers) EBD - Norway, KABEL - Krakow (Cables) POLAM - (lamps) LUPEL, PAFAL - measurement equipment CEMI, TELPOD, UNIZET, STOITS- Austria (transitors, printed boards, chips)	60	There is limited competition between suppliers who tend to specialise in supplying a small range of components There is import of electronics due to low quality of Polish production
SPARE PARTS FOR MACHINES	Machine producers, and various intermediaries	9	Most imported goods are machine spare parts
OTHERS	KWK-PIAST (Fuels) Porcelain producers	3	———

Source: Apator Purchasing Department

THE POLISH PRODUCERS OF INDUSTRIAL ELECTRICAL AND ELECTRONIC GOODS WITH THEIR OUT OF DATE FACILITIES AND TECHNOLOGICALLY DATED PRODUCTS HAVE NOT ATTRACTED MUCH DIRECT FOREIGN INVESTMENT TO DATE. WESTERN COMPANIES ARE ENTERING THE MARKET THROUGH AGENTS OR BY SETTING UP REPRESENTATIVE OFFICES. HOWEVER APATORS STRONG LINKS WITH THE SOVIET UNION COULD MAKE THEM ATTRACTIVE TO A FOREIGN INVESTOR

Foreign Investment Activity in Poland: Industrial Electrical/ Electronic Sector

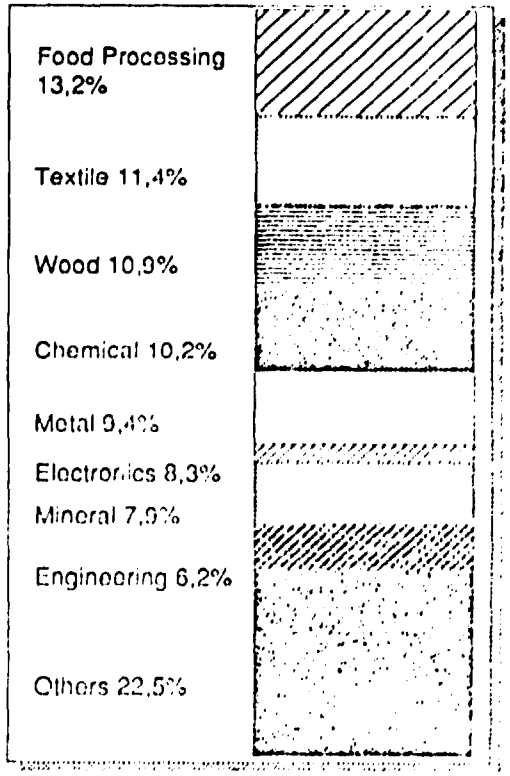
Foreign Companies with Established Representative Offices Or Agents in Poland

- ABB
- AEG
- Siemens
- Westinghouse
- Beckman
- General Electric
- Alfa Laval
- Bosch
- Beloit
- Philips
- Indramat

Direct Foreign Investments in the Polish Industrial Electrical and Electronics Sector to Date

- ABB - Zamech (Turbines)
- ABB - Dolmel (Engines)
- Siemens - Telkom Zwut (Telecommunication Exchanges)
- Beloit - Fampa (Printing machines)
- Philips - Polam (Lighting Equipment)

Foreign Direct Investment: Breakdown by Industry Sector



Source: CET Analysis

COMPETITION IN THE POLISH INDUSTRIAL ELECTRICAL AND ELECTRONIC SECTOR IS LIKELY TO BECOME INTENSE AS THE LARGE NUMBER OF EXISTING DOMESTIC PRODUCERS FIGHT FOR THE MARKET WITH IMPORTERS AND NEW SMALL BUSINESSES

Analysis of the Industrial Electrical and Electronic Goods Sector in Poland

Barriers to Entry

- Polski Komitet Normalizacyjny is bringing Polish standards into line with IEC, ISO, "Euronorms"
- Old restrictions by developed countries on the export of high technology products are being removed
- Tariff barriers on electronic products are not significant, imports are therefore likely to grow significantly

Suppliers

- Breakdown in traditional "monopoly" supply structure with greater competition between domestic component suppliers
- Increased requirements for higher quality and reliability leading to increased imports of western components
- Distribution will become a key to success as assemblers start to require short lead time deliveries
- Polish component suppliers will be forced to lower their costs as buyers start to shop around more

Competition

- Increased competition between existing domestic producers many of whom have similar production capabilities e.g. Elektromontaz, Apena
- Increased entry of foreign manufacturers to take advantage of low cost labour and to position themselves for future market growth e.g. ABB
- Increased competition from small private businesses with low overheads for non standard (specialised products) and in niche markets
- Competition on the basis of price will force assemblers to:
  - Focus on standardised products
  - Run at the lowest possible inventory levels
  - Buy components at cheaply as possible

Buyers

- Market forces will gradually push buyers towards valuing quality and reliability over price which will cause them to switch from traditional suppliers
- Engineering contractors will play an increasing role in the purchase of industrial goods on large projects increasing the incidence of competitive tendering
- Buyers will require shorter delivery lead times to meet project schedules
- Markets are likely to grow as needs for increased industrial efficiency stimulate demand for electronic and electrical products

Source: CET Analysis

Markets... Transformer Stations...

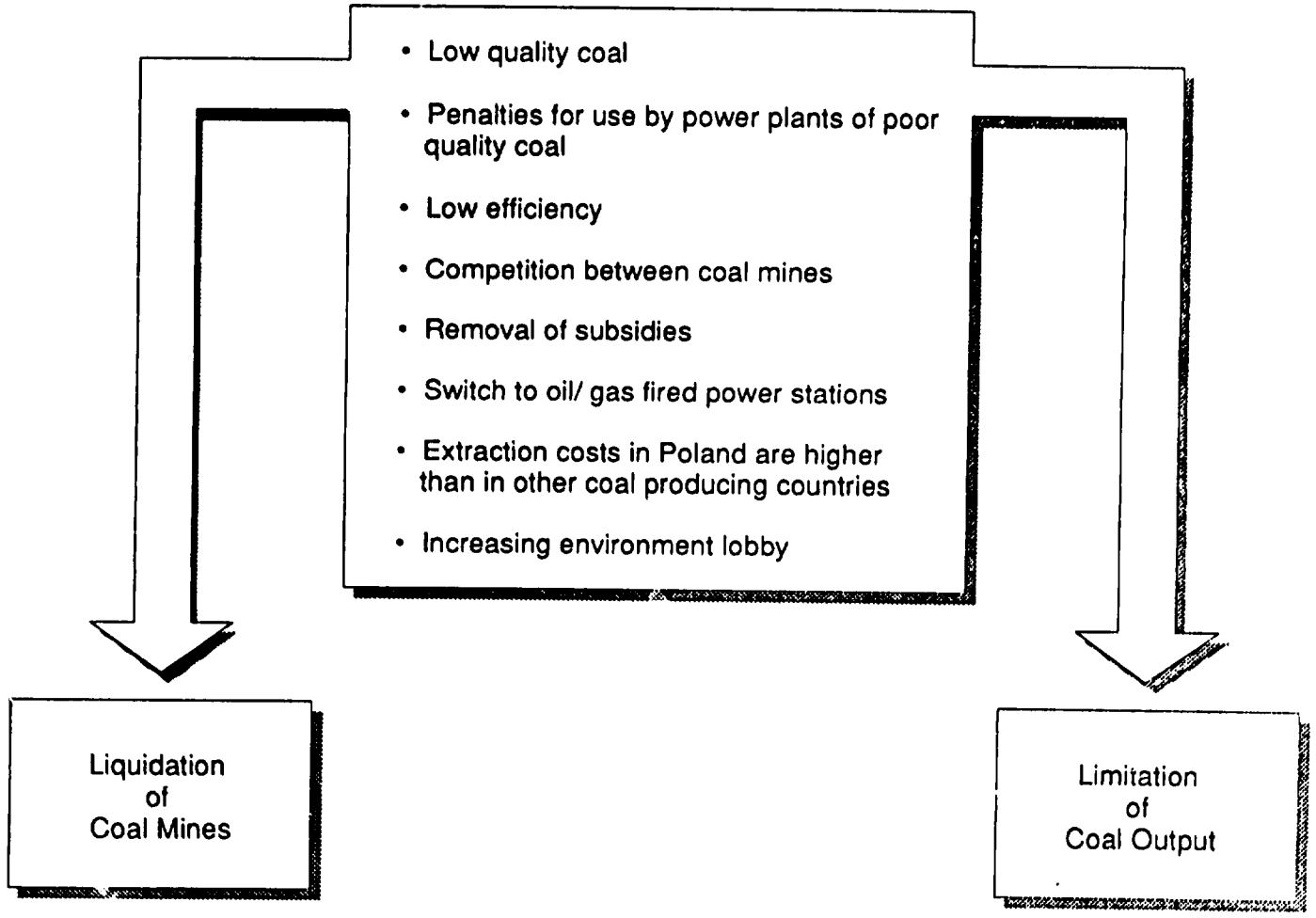
ALTHOUGH DEMAND IN THE USSR FOR TRANSFORMER STATIONS IS LIKELY TO REMAIN, THE MARKET IS GENERALLY UNATTRACTIVE IN THE MEDIUM TERM BECAUSE OF THE SPECIFICITY OF PRODUCT AND THE LIKELIHOOD THAT USSR PRODUCERS WILL ENTER THE MARKET

Market Attractiveness: Transformer Stations

Market Issue / Trend	Implication for Apator	Market Attractiveness
• Main source of demand for transformer stations is from the Soviet oil industry. Although a lot depends on the world oil price, the USSR is likely to maintain crude production because it can be sold for hard currency	• A strong demand is likely to remain for transformer stations in the USSR	H
• Estimated market size is 100bn Zl per annum	• Large potential source of revenue for Apator	H
• Transformer stations are a very simple product. The value added by Apator is low	• High margins are unlikely to be maintained and now producers, especially in the USSR, are likely to enter	L
• Orders are for large volumes on a contract basis • USSR's problems with finding financial resources for imports are likely to continue	• Large financing costs for Apator caused by stock holding requirements and uncertainty of payment	L
• Product is specific to the USSR	• No possibility to sell the product in other markets	L
• Distribution channels are likely to change and be blocked as the relationship between the USSR Federal / Republic levels evolves	• Very uncertain cash flows likely to continue • Apator need to read to changes in distribution channels if they wish to continue the trade with the USSR	L H
	Overall Market Attractiveness	Low

Source: CET Analysis

A 25% DROP IN POLISH COAL OUTPUT (TO 134 TONNES A YEAR) IS PREDICTED WITHIN TEN YEARS



Source: CET Analysis

DESPITE THE EXPECTED DECLINE IN DEMAND, EXPLOSION-PROOF MINING EQUIPMENT SHOULD PROVE TO BE AN ATTRACTIVE NICHE MARKET FOR APATOR PROVIDED THAT THE APPROPRIATE IMPROVEMENTS CAN BE MADE TO THEIR PRODUCT RANGE

Market Attractiveness: Explosion-Proof Mining Equipment

Market Issue / Trend	Implication for Apator	Market Attractiveness
• 25% drop expected in Polish coal output over the next ten years • Mines under increasing economic pressure as subsidies are removed	• Reduction in demand for Apator's equipment as output declines and mines repair/ reuse old equipment • Mines will demand more generous financing terms	
• Estimated market size is 200 bn Zl per annum. Products are specialised	• Large potentially profitable niche market for Apator	
• Demand patterns tend to be quite steady	• Steady source of cash flow for Apator	
• Functionality and ruggedness rather than high technology and aesthetic appearance are key customer buying criteria	• Technological standard of Apator's product is not so important • Apator need to focus on improving functionality of their products	
• New mines likely to want complete mining machinery/ electrical systems	• Machinery producers likely to shop around for electrical systems	
• CZG under increasing financial pressure and is occasionally being by passed	• Apator will need to develop a closer more direct relationship with Polish coalmines	
• As Apator's input costs increase, the price differential between their products and western ones will decrease	• Large threat from foreign competitors especially AEG and Siemens	
• Coal mining is a nationalised industry in many countries and is therefore protected by imports	• Penetration of export markets difficult • Some possible protection for Apator in Poland	
	Overall Market Attractiveness	Medium

Source: CET Analysis

APATOR'S SWITCHES ARE BASED ON TECHNOLOGY WHICH IS APPROXIMATELY 20 YEARS OLD. THE LOWER PRICES OF APATOR'S SWITCHES REFLECT THE BENEFIT AND TECHNOLOGY GAP BETWEEN APATOR'S PRODUCTS AND THOSE OF PRODUCERS FROM DEVELOPED COUNTRIES

Product Comparison Siemens/ Apator Low Voltage Switches

Switch Parameters					Switch Features				
Manufacturer	**Switch Type**	**Model No.**	**Voltage (V)**	**Current Rating (A)**	**Durability (Cycles)**	**Dimensions (mm)**	**Mass (Kg)**	**Price (Zlmn)**	**Additional Siemens Features**
Apator	AC Contactor	S - 200 - 2	< 500	200	$5x10^6$	255 x 225 x 235	9.6	0.6	• Lower start-up power • Lower power when closed • More additional switching functions
Siemens	AC Contactor	3TF53 - 44 - 0A	< 1000	210	$10x10^6$	158 x 185 x 180	5.0	6.0*	
Apator	Hand Switch	LUKA - 40 - 13	< 500	40	100,000	162 x 100 x 135	1.8	0.1	• Additional relays
Siemens	Hand Switch	3LC4707 - 1AA03	< 750	40	500,000	102 x 90 x 114	0.69	0.7*	• Siemens IP54 Apator IP43
Apator	Star-Delta Switch	LUKA - 40 - 23	< 500	40	100,000	162 x 100 x 135	2.0	0.1	• Additional relays
Siemens	Star-Delta Switch	3LB 4707 - 3FA03	< 750	40	500,000	142 x 90 x 114	-	1.2*	• Siemens IP54 Apator IP43

Benefits of Buying a Siemens Switch

- Siemens switches are more durable. Replacement costs are therefore lower
- Siemens AC Contractors have lower power requirements reducing wear of downstream circuitry
- Siemens switches are smaller and lighter than Apator's and therefore:
  - are aesthetically more pleasing
  - take up less space in control/ switchrooms
- Siemens switches have more add-on functions which can reduce the need for additional circuitry

* 1 Dm = 6,100 Dm

Source: CET Analysis

Markets... Low Voltage Switches...

ALTHOUGH THE MARKET FOR SWITCHES IS LIKELY TO GROW IN THE MEDIUM TERM, IT IS RELATIVELY SMALL AND LIKELY TO BE COMPETITIVE AS OTHER POLISH ENTERPRISES AND IMPORTS ENTER

Market Attractiveness: Low Voltage Switches

Market Issue / Trend	Implication for Apator	Market Attractiveness
• Very wide customer base throughout all sectors of Polish industry	• Demand has held up best during the recession and is likely to rise fastest on economic recovery	
• Estimated future Apator sales are approximately 27bn Zl per annum	• Relatively small market for standard products implying low margins	
• Many Polish enterprises capable of competing with Apator e.g. Elester, Elta	• Competition is likely to erode profit margins	
• Demand patterns from month to month are very steady. Small purchases mean that cash payment is common and credit is not an important criteria for most customers	• Good potential source of cash flow for Apator	
• Apator's product technology is 20 years out of date	• Very limited export potential of Apator's current product range	
• Customers in Poland are soon likely to place more value on product quality, reliability and aesthetics and pay less attention to price • Entry barriers posed by transport costs, tariffs, and technical standards are low	• High threat from imported switchgear • Costs associated with modernising product range are high	
	Overall Market Attractiveness	Low

Source: CET Analysis

THE TECHNOLOGY GAP IS GREATEST IN THE AREA OF DRIVE CONTROL UNITS, WHERE WESTERN PRODUCTS HAVE MICRO-PROCESSOR CONTROL SO THAT THEY CAN INTERFACE WITH OTHER COMPUTERS. ACCESS TO TECHNOLOGY IN THIS AREA IS VERY RESTRICTED AND APATOR WILL THEREFORE FACE IMMENSE PROBLEMS IN BRIDGING THIS TECHNOLOGY GAP

Product Comparison : Apator / AEG Drive Control Units

Company	Apator	AEG
Product	DC Drive Unit	DC Drive Unit
Model	DMM 0090	380 / 100E
Supply Voltage	3 x 380 V	3 x 380 V
Frequency Range	50 Hz	48 - 62 Hz
Output Voltage	440 V	460 V
Output Current	90 A	100 A
Mass	25 kg	11 kg
Dimensions (mm)	345 x 430 x 260	270 x 340 x 275
Control Technology	Analogue	Micro processor
Price (Zl mn)	6	35

Company	Apator	AEG
Product	Modular AC Drive Unit	Modular AC Drive Unit
Model	AMF 0003	Microverter D2,5/380
Supply Voltage	3 x 380 V	3 x 380 V
Frequency Range	50 Hz	48 - 62 Hz
Power atShaft	1.1 KW	1.35 KW
Output Current	3 A	3.8 A
Control Range	1 : 25	1 : 100
Mass	35 kg	4.1 kg
Dimensions (mm)	485 x 445 x 360	165 x 305 x 190
Power Technology	Thyristor	Transistor
Control Technology	Analogue	Microprocessor
Price (Zl mn)	14	20

Benefits of Buying an AEG Unit

- AEG brand name gives customer comfort/ service backup
- Higher quality / reliability
  - No need to test
  - Less production downtime
  - Lower servicing costs
- Higher control range and output power enabling more accurate and flexible control of machinery
- Western units work over a larger frequency range making them less susceptible to fluctuations
- Western units are microporcessor controlled enabling integration with other computers

Source: CET Analysis

Markets... Thyristor Drive Units...

APATOR DOES NOT CURRENTLY HAVE THE TECHNOLOGY OR RESOURCES FOR SUSTAINED COMPETITIVENESS IN THE ELECTRIC DRIVE UNIT MARKET

Market Issue / Trends	Implication for Apator	Market Attractiveness
• Market forces and budgeting pressures will force firms to use more electrically driven equipment and to increase efficiency of existing equipment driven by electrical motors	• Growing market for motor control devices. Particularly for appliances that can be retro fitted to existing AC drives	
• Apator's expected revenue is 28 Zl bn per annum	• Small potential market for Apator	
• Apator's product technology is 10 - 15 years behind Western standards	• Large expenditure and effort will be required to update product range with limited chance of success	
• Technological innovation is a critical success factor in this area. Siemens spend approximately 10% of sales on Research and Development	• Apator will have to continue to spend heavily on product development and introduce an "innovation culture" in the organisation to keep up with technology	
• Foreign importers are already entering the market	• Increased competition from high quality Western products	
• Low quality of East European components, particularly microchips	• Polish manufacturers will need to use imported components driving up their costs and will be competing against low cost Far Eastern producers	
• Increased entry from small firms operating in niche markets as well as competition from existing Polish producers e.g. Apena	• Loss of certain segments of the market to producers focused on small customer groups	
	Overall Market Attractiveness	Very Low

Source: CET Analysis

Customers...

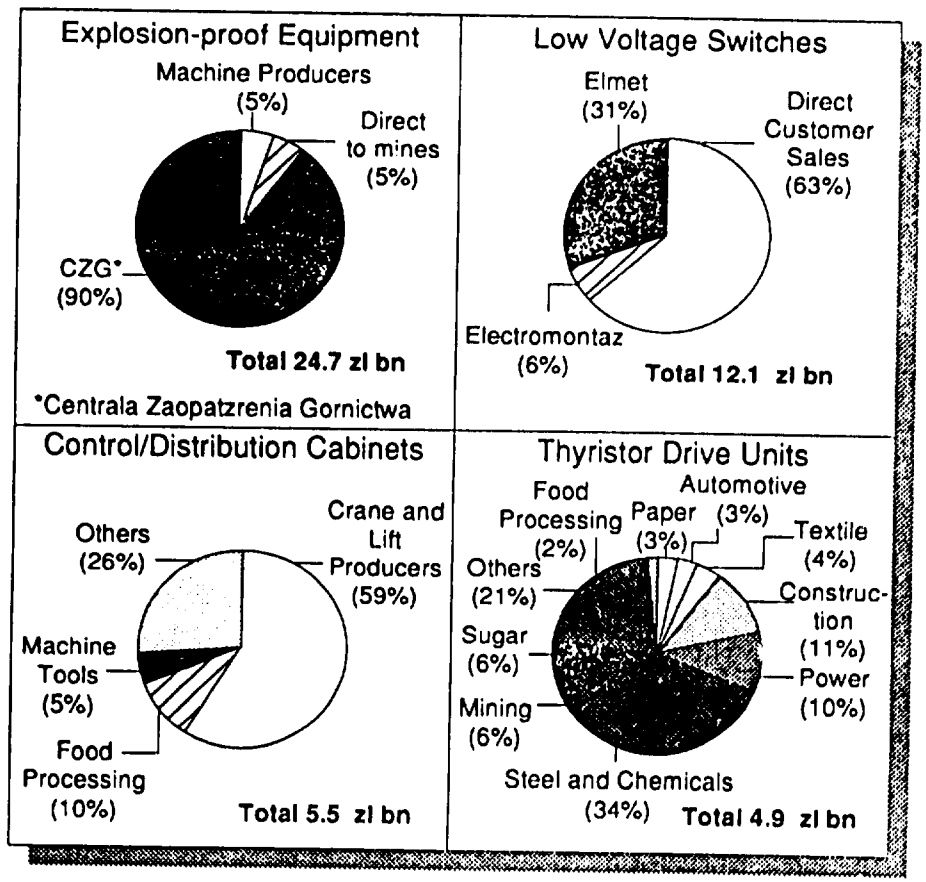
APATOR PRODUCTS HAVE A VERY GOOD OPINION AMONGST THEIR EXISTING CUSTOMERS AND IT IS UNLIKELY THAT FOREIGN COMPETITORS WILL ENTER THE MARKET VERY RAPIDLY

Customers Opinion

- "Apator's quality is higher than average among Polish producers"
- "If the quality of Apators products remains, it is unlikely we will change suppliers"
- "Foreign electrotechnical goods are hard to obtain and expensive"
- " We will not switch to foreign products even if the quality is higher"
- "Apator have a reputation for on time delivery"

ALTHOUGH THE VAST MAJORITY BY VALUE OF APATOR'S DOMESTIC SALES GO TO THE MINING INDUSTRY, THE ENTERPRISE HAS LINKS WITH MOST SECTORS OF INDUSTRY

Apator 1991 Domestic Sales
(ZL bn)



Source: Apator Sales Department/CET Analysis

Customers...

IN ORDER TO ASSESS THE DOMESTIC MARKETS WITH MOST POTENTIAL FOR APATOR, CET PERFORMED A MARKET STUDY IN SLASK - THE MOST INDUSTRIALISED PART OF POLAND

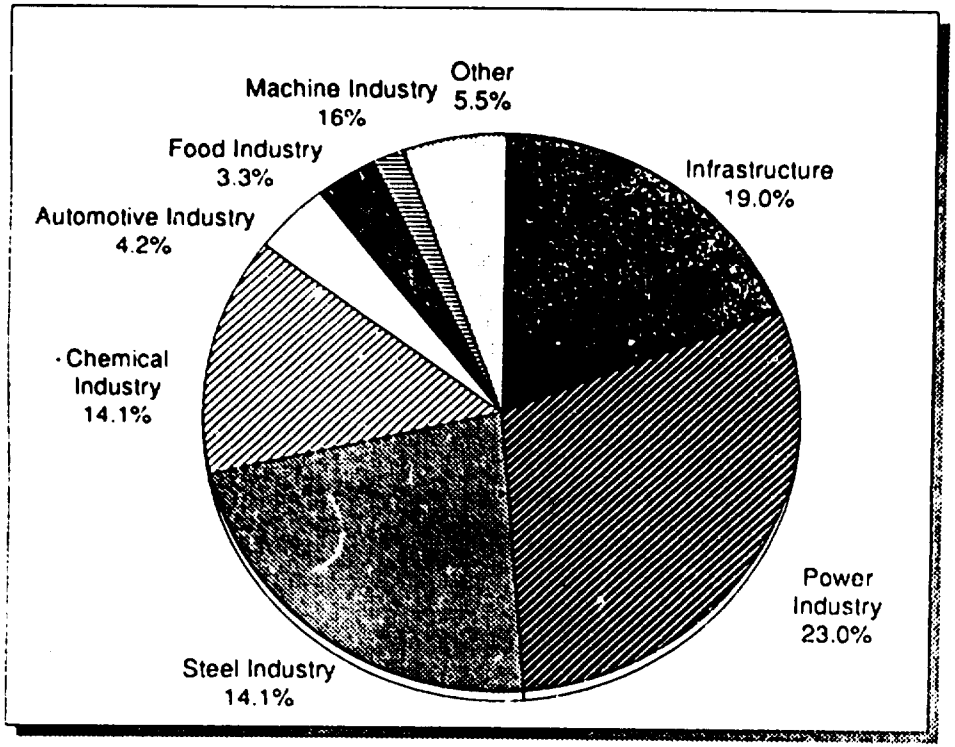
Interviewed/ Questioned

Enterprises	Public Authorities	Others
• 134 firms	• Katowice - Public Development Dept.	• GUS
• 7 branches of industry	• Czestochowa - Economic Development Dept.	• Economic Academy in Katowice
• 5 Wojewoda regions	• Bielsko Biala - Economic Developement Policy Dept.	
	• Opole - Economic Development Dept.	

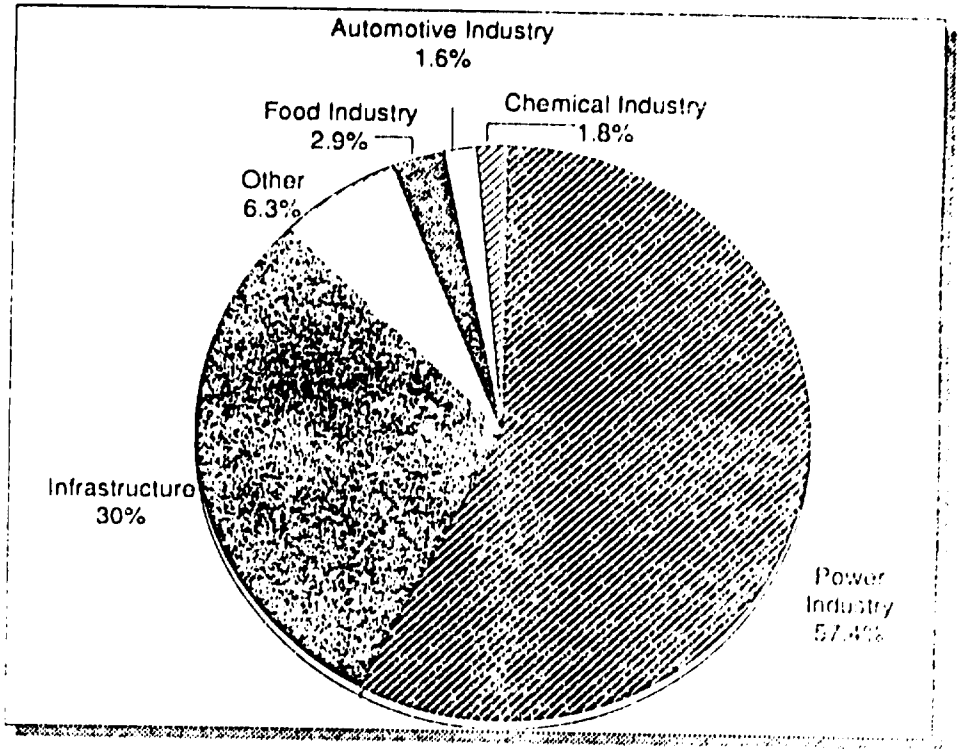
AN ANALYSIS OF THE ORDER POSITION OF ELECTRICAL CONTRACTORS IN THE REGION SHOWS THAT INFRASTRUCTURE PROJECTS AND PROJECTS IN THE POWER SECTOR HOLD THE MOST SHORT TERM POTENTIAL

Electrical Contractors: Order Positon 1991

Completed Contracts (%)



Firm Orders (%)

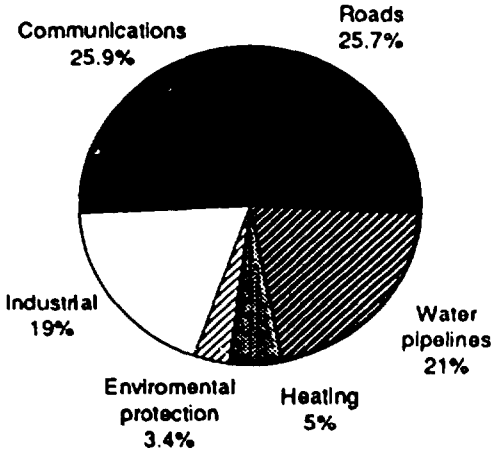


Source: CET Market Survey

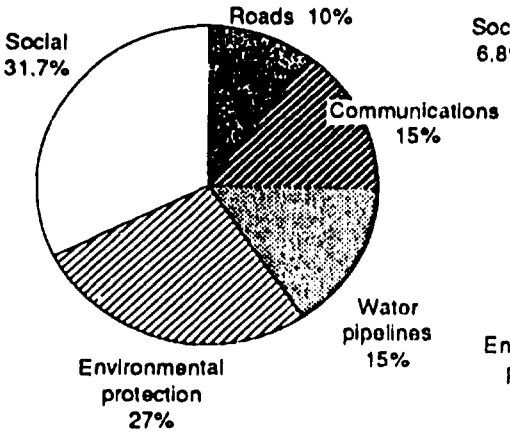
AMONG INFRASTRUCTURE PROJECTS, WORK IN THE ENVIRONMENTAL PROTECTION AREA HAS THE MOST POTENTIAL OVER THE NEXT FEW YEARS

Infrastructure Investments: Breakdown (%)

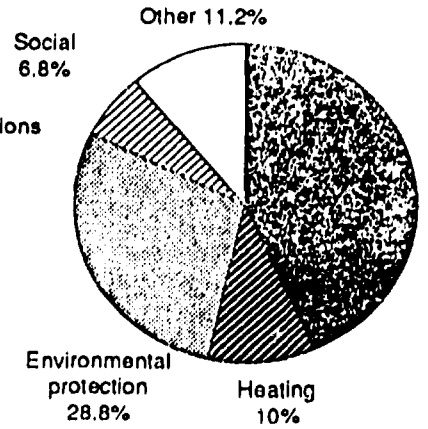
Katowice



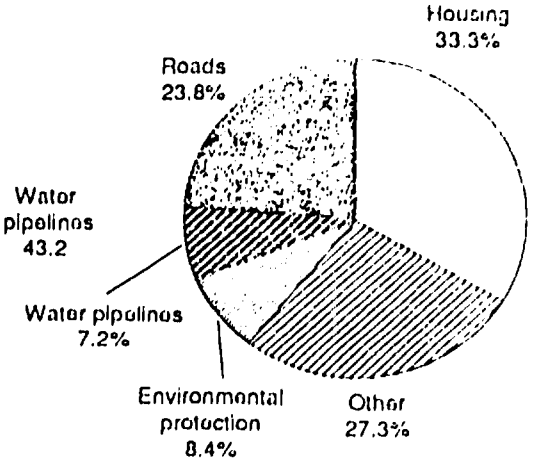
Bielsko-Biała



Częstochowa



Opole

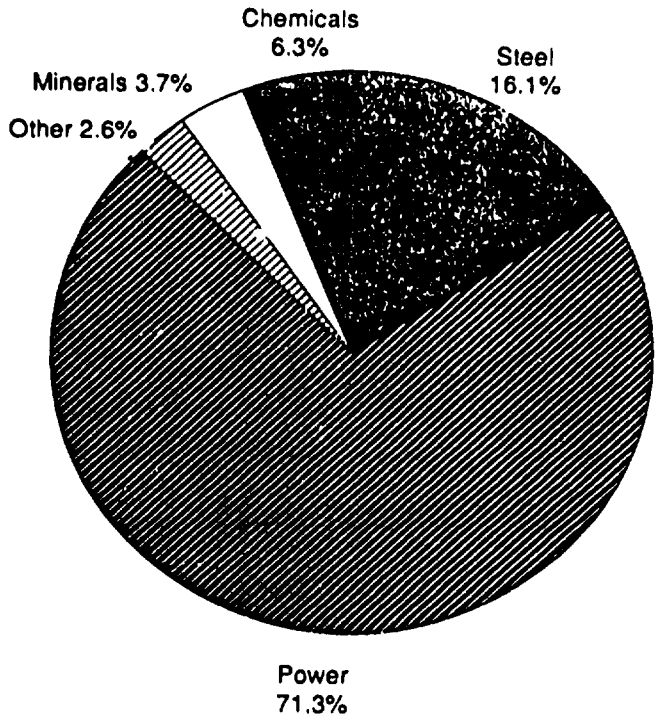


Source: CET Market Survey

Customers...

INTERVIEWS WITH 134 FIRMS IN THE REGION SHOW THAT THE LARGEST POTENTIAL INDUSTRIAL MARKETS ARE POWER AND STEEL

Market Capacity: Investment Goods
(zł bn)



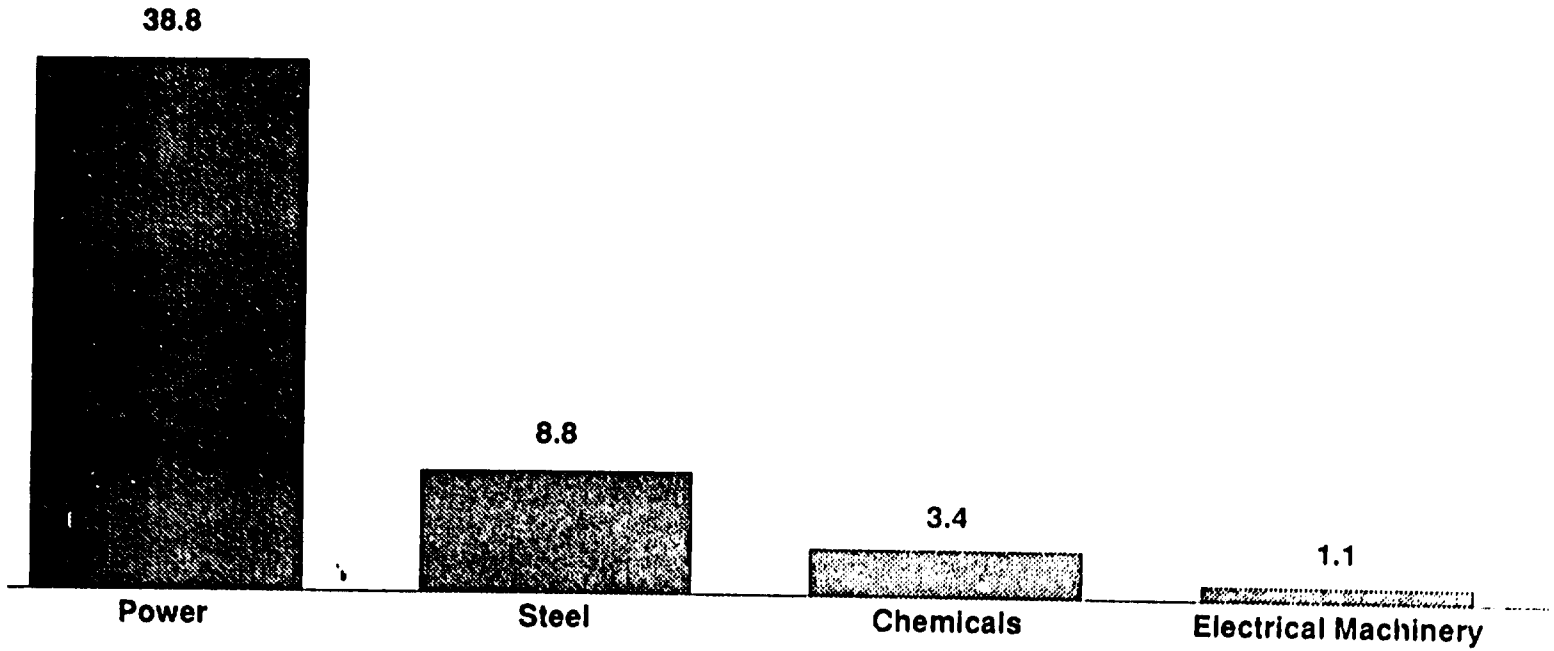
Potential Market Capacity
54,3 bln zł

Source: CET Market Survey

Customers...

THE BIGGEST INVESTORS IN THE NEAR FUTURE ARE LIKELY TO BE THE POWER, STEEL AND CHEMICALS SECTOR

Potential Market Capacities: Investment Goods
(zl bln)



Source: CET Market Survey

Conclusions

- Transformer stations are currently Apator's most profitable product range. However, problems with obtaining payment from the USSR, and the low value-added nature of the product means that the market is not attractive to Apator in the longer term. In the short-term if the recent improvement in the Soviet market continues it could be a useful source of cash flow

- Explosion-proof equipment for the coal mining industry appears to be the most attractive sector for Apator in the longer term because:
  - Barriers to entry are relatively high
  - Competition in this niche market for a specialised product is likely to remain relatively low

  There is, however, a significant threat from foreign competitors entering the market by offering extremely generous credit terms to financially pressurised coal mines, as occurred recently in the case of the Staszic mine and Walestown - a U.K. equipment supplier

- If Apator are to bridge the technology gap in the relatively small and competitive low voltage switch and drive control unit markets, they will need to make an enormous financial and technical investment. Further investment in innovation would then be required in order to keep up with technological developments, particularly in the field of drive control units

- Domestic industrial customers currently have a good opinion of Apator's products which are considerably cheaper than "western" ones and are unlikely to switch immediately to alternative products. This gives Apator a "window of opportunity" to improve their product offering and drive down costs

- The analysis of likely investment expenditure in Silesia shows that the power, steel, and chemicals industries will be the biggest investors in the coming few years. Apator should therefore focus their marketing efforts in the region on these three sectors

CONTENTS

CENTRAL EUROPE TRUST

CET'S STANDARD APPROACH TO THE COMPANY DIAGNOSTIC INCLUDES SEEKING ANSWERS TO THE FOLLOWING QUESTIONS:

Revenue

- Does the company rely too heavily on one product or to the contrary?
- Does the company depend on too iew customers?
- Is the company's method of distribution effective?

Cost

- What are the major elements of the company's cost structure?
- How well does the company control its costs?
- How big are the company's overheads and what steps are being taken to reduce them?

Production and Assets

- Which of the company's assets are well utilised and which are not?
- Which product groups account for most fixed assets?
- Are there any assets which could be sold or used as collateral for raising finance?

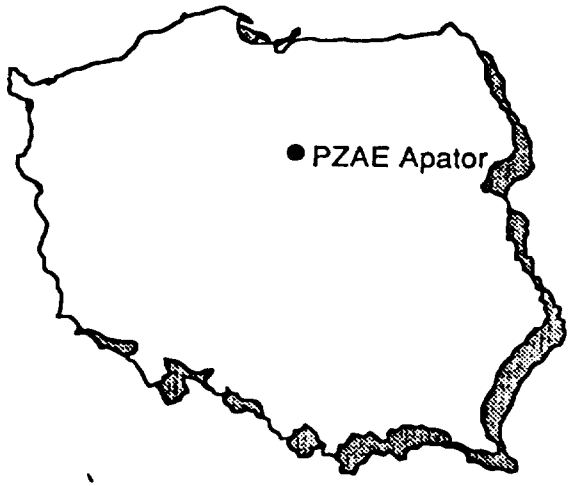
Staff and Management

- How is the company organised and is it's structure appropriate?
- What are the capabilities of the company's management?
- What are the company's human resource strengths and weaknesses?

Financial

- What is the company's level of debt? Is it too high?
- What is the current liquidity position and what can be done to improve it?
- How well does the company control stocks and inventory?

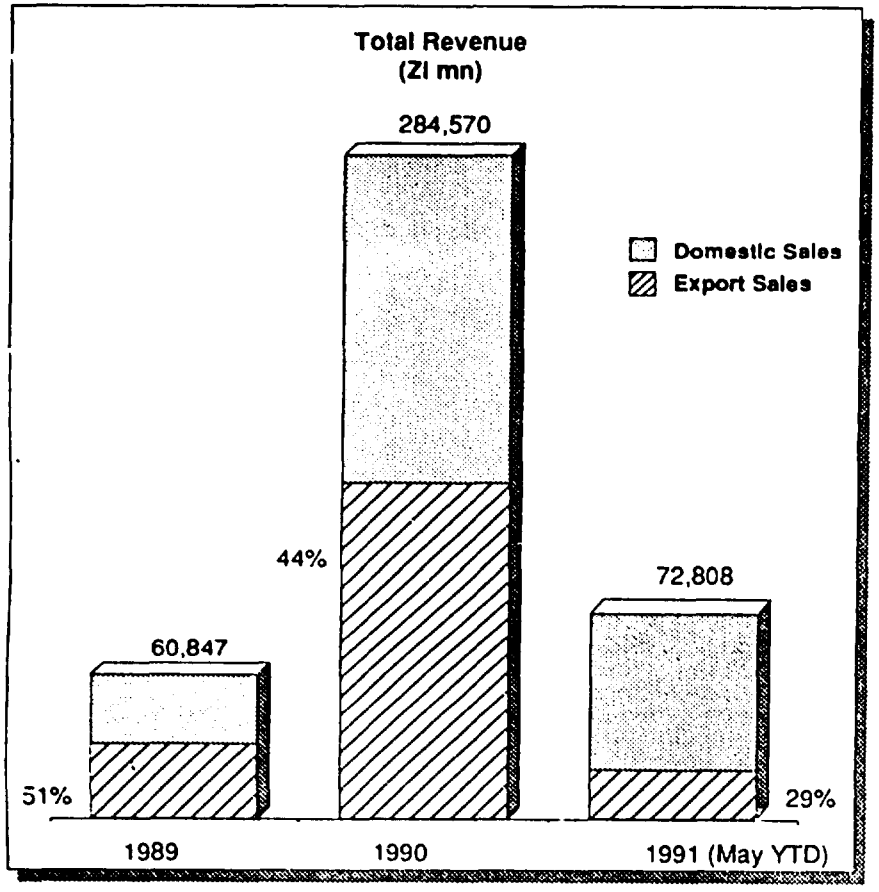
APATOR IS ONE OF THE BIGGEST INDUSTRIAL ELECTRICAL EQUIPMENT PRODUCERS IN POLAND



- Pomorskie Zaklady Aparatury Elektrycznej "APATOR" was founded in 1949
- Sales in 1990 were Zl 284 bn = $29.8 mn
- The company manufactures products in four main groups
  - Explosion-proof equipment for mining
  - Power electronic devices
  - Control-distribution equipment
  - Low voltage switchgear
- The company employs over 1600 people and is one of the major employers in the Torun area

RECESSION IN THE POLISH ECONOMY AND THE SWITCH TO HARD CURRENCY TRADE WITH THE USSR HAVE HAD A DRAMATIC EFFECT ON APATOR'S SALES IN 1991

Apator Sales : 1989 - 1991
(Zl mn)



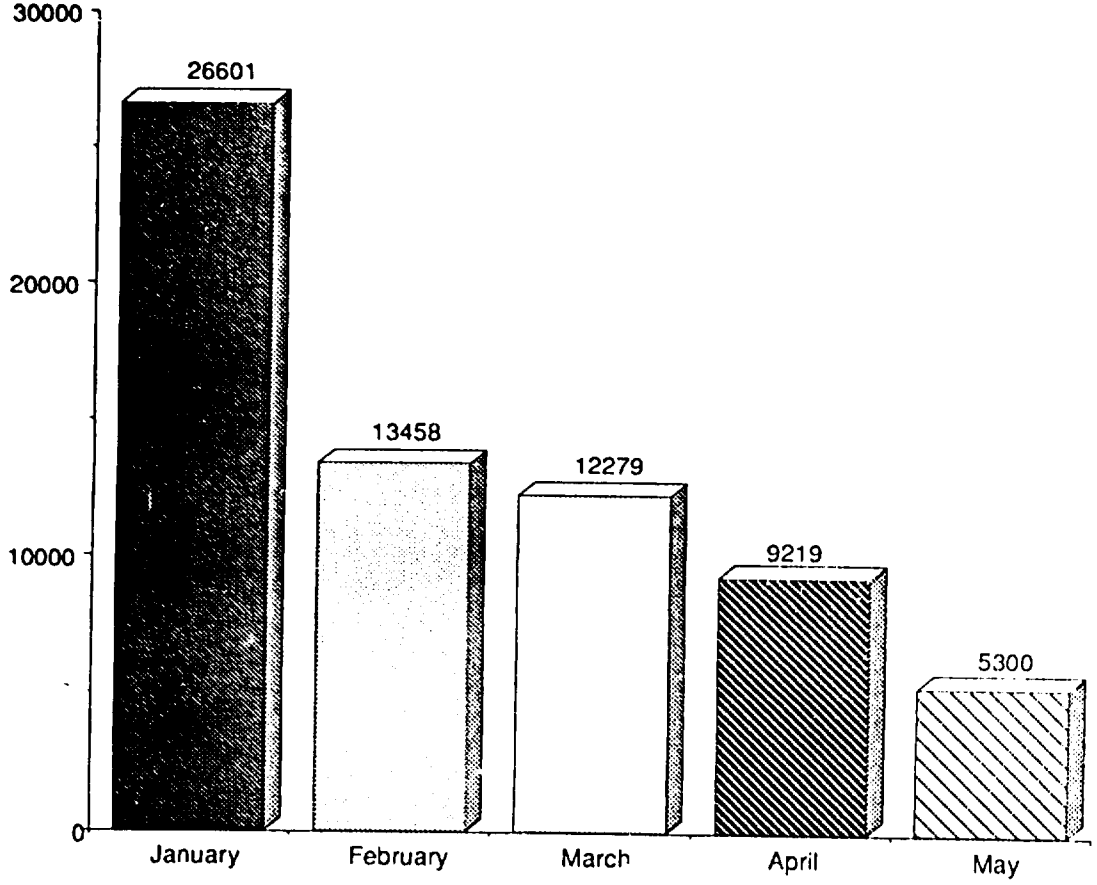
Unit Sales Major Products
(Thousands)

Product Line	1989	1990	1991 May YTD
Thyristor Drive Units	1.6	1.7	0.5
Transformer Stations	5.0	5.2	0.5
Control / Distribution Cabinets	110.7	98.3	4.4
Low Voltage Switches	497.6	456.0	151.8
Explosion-proof Mining Equipment	24.6	15.3	2.6
Crane Equipment	6.6	5.4	1.8

Source: Apator Sales / Accounts Departments and CET Analysis

UNFULFILLED CONTRACTS FOR THE USSR AND LOWER DEMAND FOR INVESTMENT GOODS IN POLAND HAVE CAUSED A RAPID DECREASE IN SALES OF APATOR'S TRADITIONAL PRODUCTS IN 1991. THE ORDER POSITION HAS IMPROVED IN SEPTEMBER, AS A CREDIT LINE HAS BEEN OPENED FOR THE SALE OF TRANSFORMER STATIONS

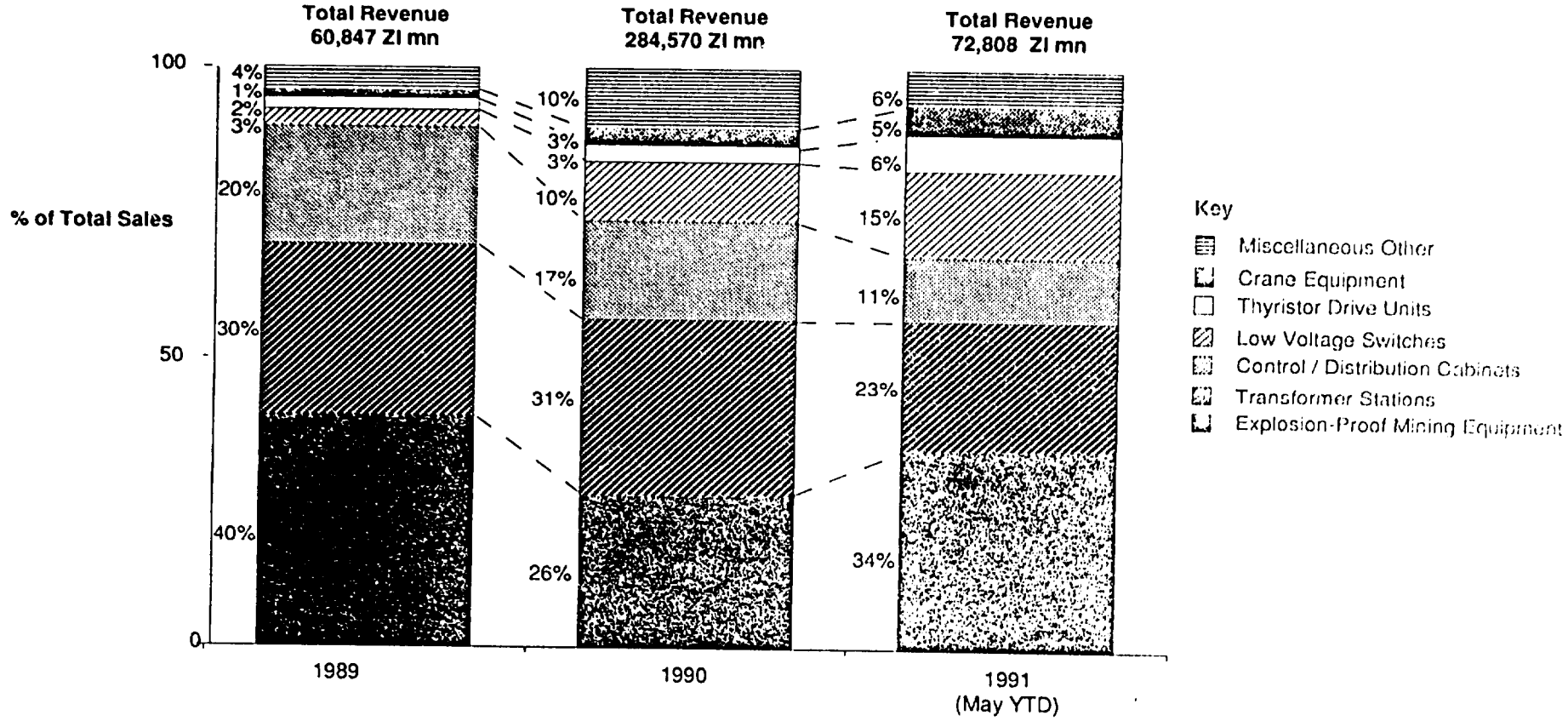
Apator Main Products Groups Sales : 1991
(Zl mn)



Orders for the 1991 Year (as on 5th July) Zl bn	
Control/ Distribution Cabinets	2.1
Low Voltage Switches	2.1
Thyristor Drive Units	1.8
Explosion-Proof Mining Equipment	2.6
Other	0.6
TOTAL	9.2

APATOR IS VERY RELIANT ON TWO PRODUCT GROUPS: EXPLOSION-PROOF MINING EQUIPMENT AND TRANSFORMER STATIONS. THESE TWO GROUPS TYPICALLY ACCOUNT FOR OVER 50% OF ANNUAL SALES

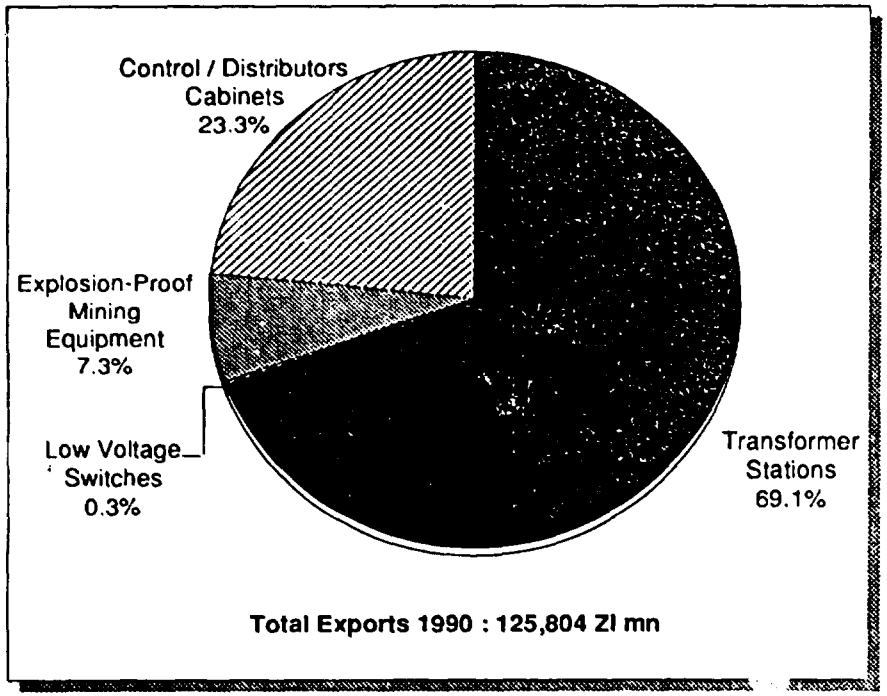
Apator Product Mix : 1989 - 1991
Based on Sales by Value
(Zl mn)



EXPORT SALES ARE DOMINATED BY THE SALES OF TRANSFORMER STATIONS AND CONTROL / DISTRIBUTION CABINETS TO THE SOVIET UNION. DOMESTIC SALES ARE FOCUSED ON EXPLOSION-PROOF EQUIPMENT FOR THE POLISH COAL MINING INDUSTRY

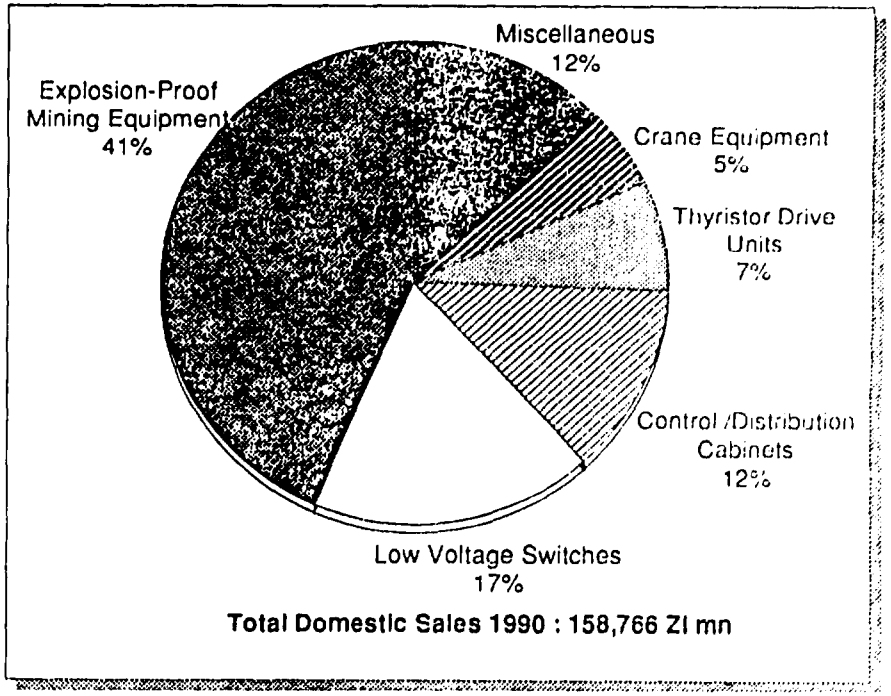
Apator Import/ Export Structure: 1990
(Zl mn)

Export Sales by Product Group: 1990



Total Exports 1990 : 125,804 Zl mn

Domestic Sales by Product Group: 1990

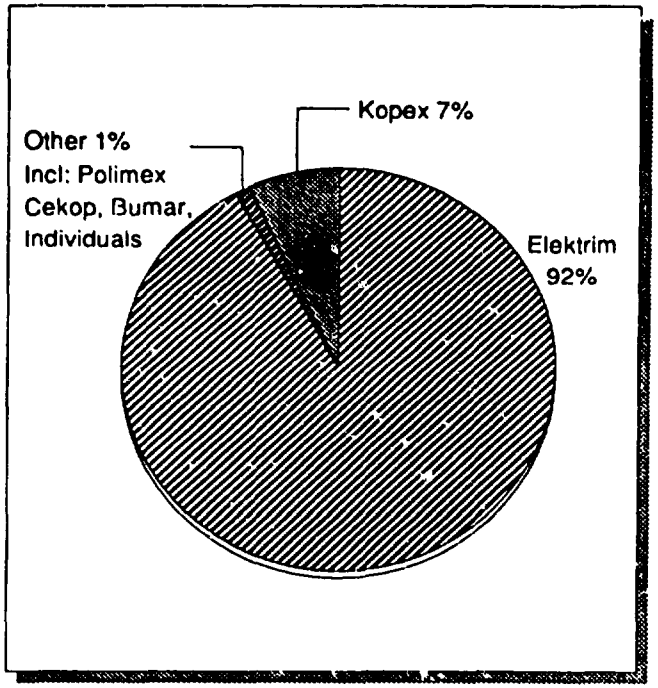


Total Domestic Sales 1990 : 158,766 Zl mn

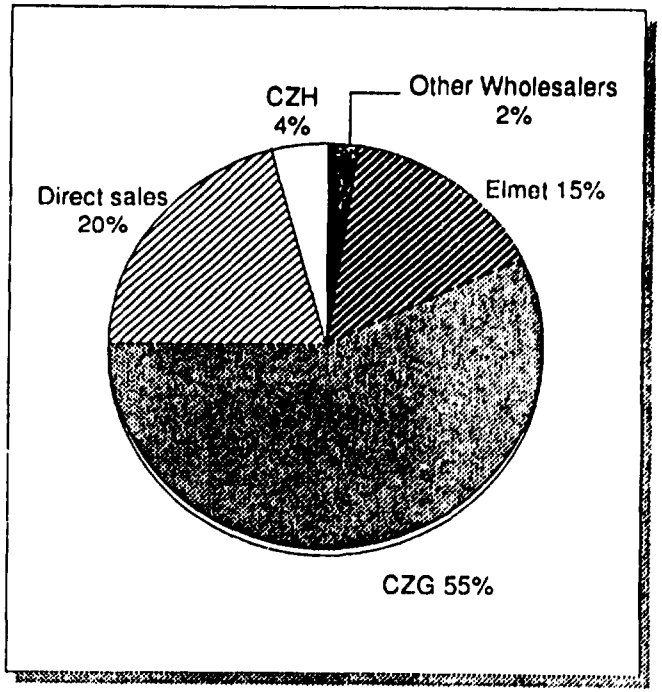
Source: Apator Commercial Department

APATOR ARE DEPENDENT ON STATE TRADING ORGANISATIONS FOR LINKS TO THEIR MARKETS, IN PARTICULAR ELEKTRIM, CZG AND ELMET. CZG* IS CURRENTLY IN FINANCIAL DIFFICULTIES AND IS DELAYING PAYMENT TO APATOR

Export Sales: 1990



Domestic Sales: 1990

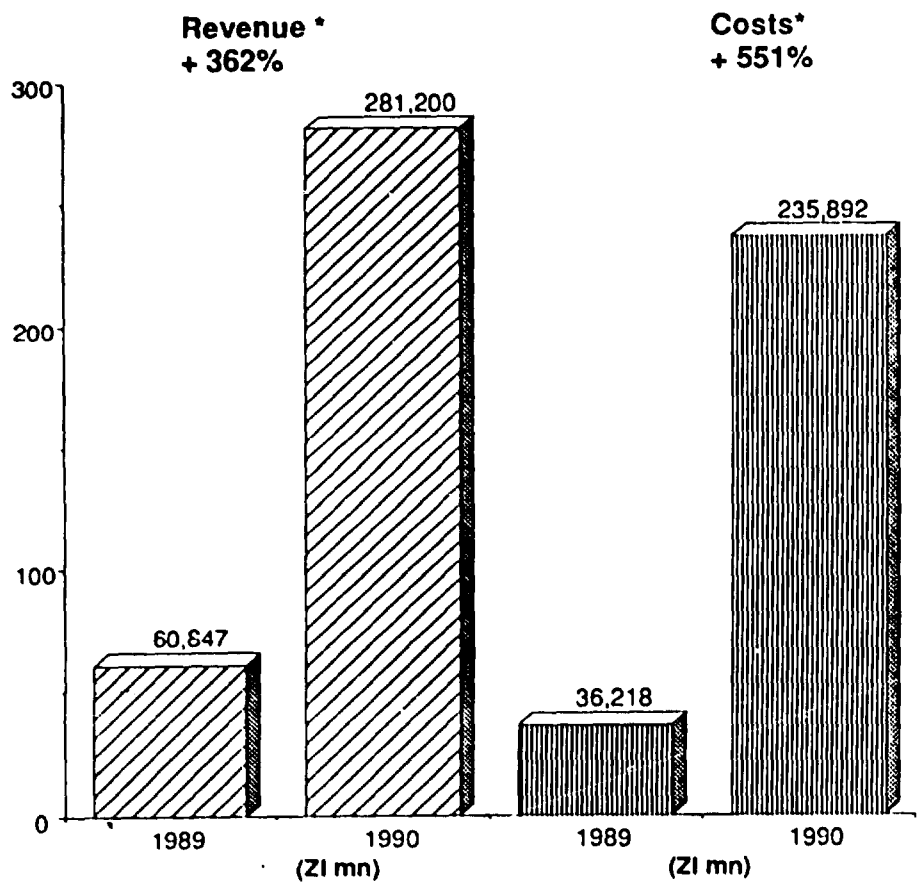


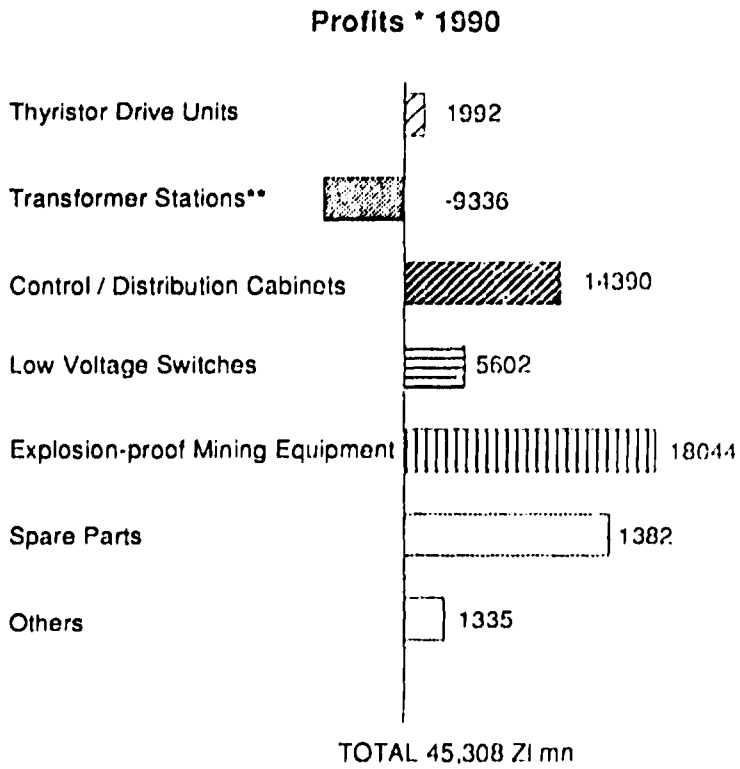
* Centrala Zaopatrzenia Gornictwa

Source: Apator Sales Department

WHILST COSTS GREW FASTER THAN REVENUES IN 1990, MOST PRODUCT GROUPS REMAINED PROFITABLE AS COMPETITION GROWS, MARGINS ARE LIKELY TO BE SQUEEZED

Apator Profitability: 1990
(Zl mn)





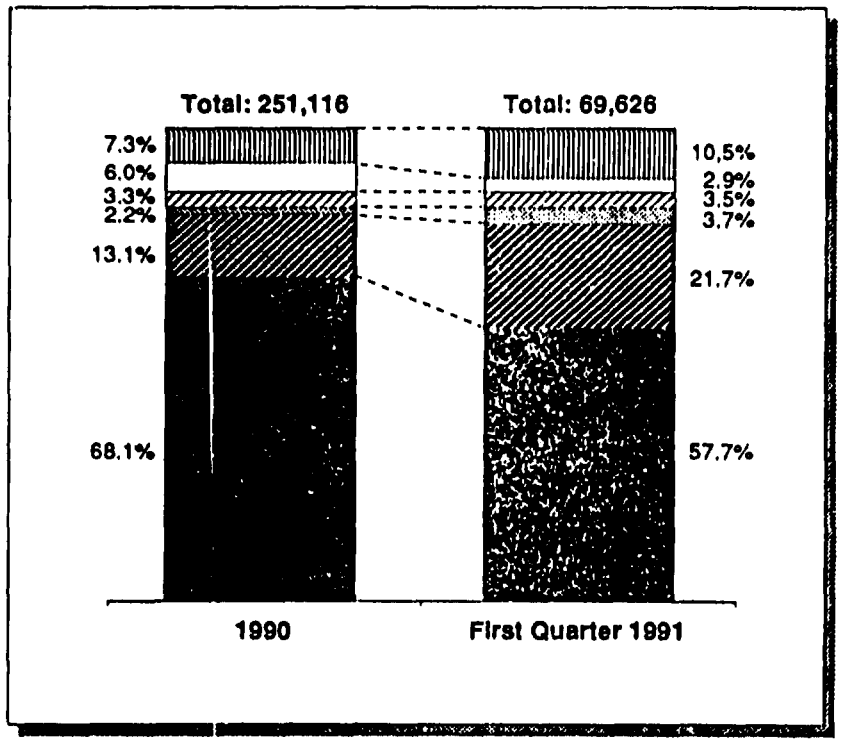
* Not including non industrial sales

** Apator received a subsidy for the loss made on these export sales to USSR from the Ministry for Foreign Economic Cooperation

Source: Apator Accounts Department

LABOUR COSTS HAVE INCREASED SHARPLY IN THE FIRST QUARTER OF 1991 BECAUSE APATOR HAS MAINTAINED STAFFING LEVELS DESPITE THE DECLINE IN SALES AND PRODUCTION

Apator Overall Cost Structure : 1990 -1991
(Zl mn)



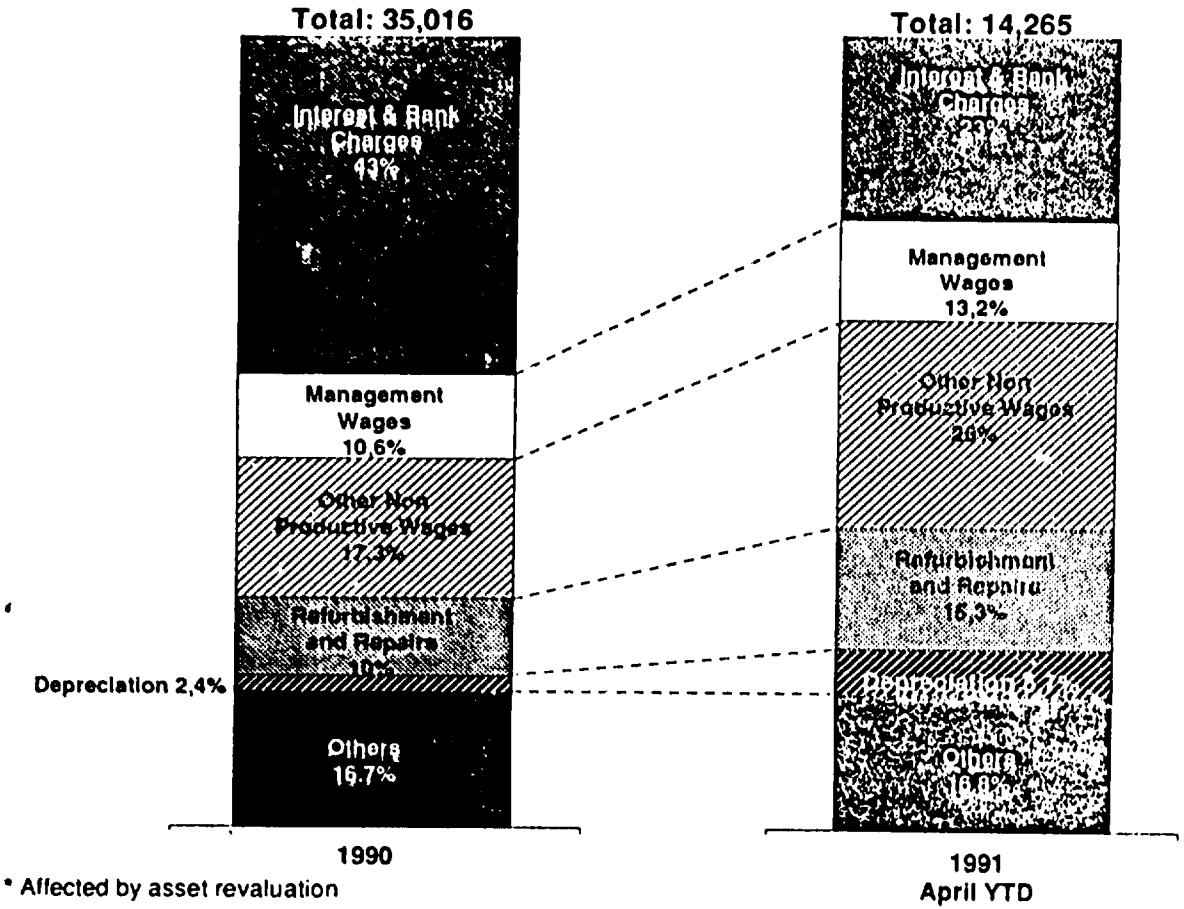
Key:

- Miscellaneous - Maintenance, Entertainment, Depreciation, Taxes
- Bank Charges
- Transport
- Energy
- Wages / Salaries
- Materials

Source: CET Analysis

CONSIDERING THE 30% INFLATION IN THE FIRST FOUR MONTHS OF 1991, APATOR HAS SUCCEEDED IN REDUCING OVERHEADS. HOWEVER, THIS HAS BEEN ACHIEVED MAINLY BY LOWERING BORROWING AND NOT THROUGH PRODUCTIVITY IMPROVEMENTS

Apator Overheads: 1990 - 91
(Zl mn)



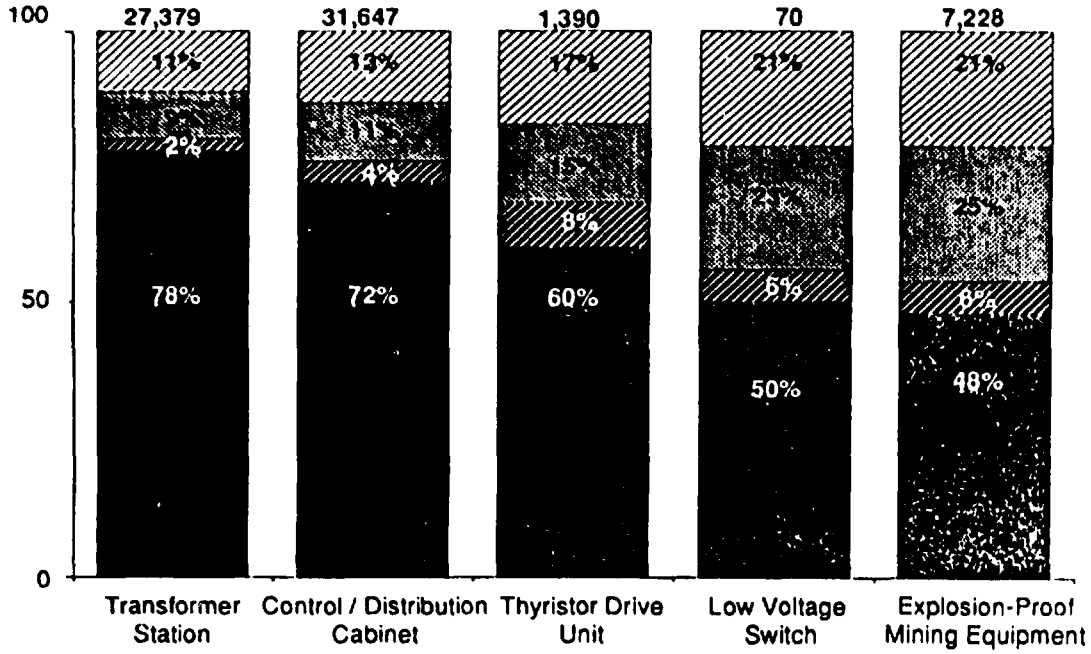
Category	Δ 1990 / 91
Interest and Bank Charges	-35%
Management Wages	+52%
Non-Productive Wages	+83%
Refurbishment and Repairs	+86%
Depreciation	+190%*
Others	+23%
Total	+22%

* Affected by asset revaluation

Source: Apator Accounts Department

THE MARGIN CURRENTLY BEING OBTAINED ON TRANSFORMER STATIONS IS COMPLETELY OUT OF LINE WITH THE VALUE ADDED BY APATOR. THIS MARKET IMPERFECTION IS UNLIKELY TO LAST

Apator Product Cost Structure: Jan 1991
(Zl mn)



Net Margin* Based on Most Recent Invoice:	
Transformer Station	201%
Control / Distribution Cabinet	20%
Thyristor Drive Unit	10%
Low Voltage Switch	21%
Explosion -Proof Mining Equipment	32%

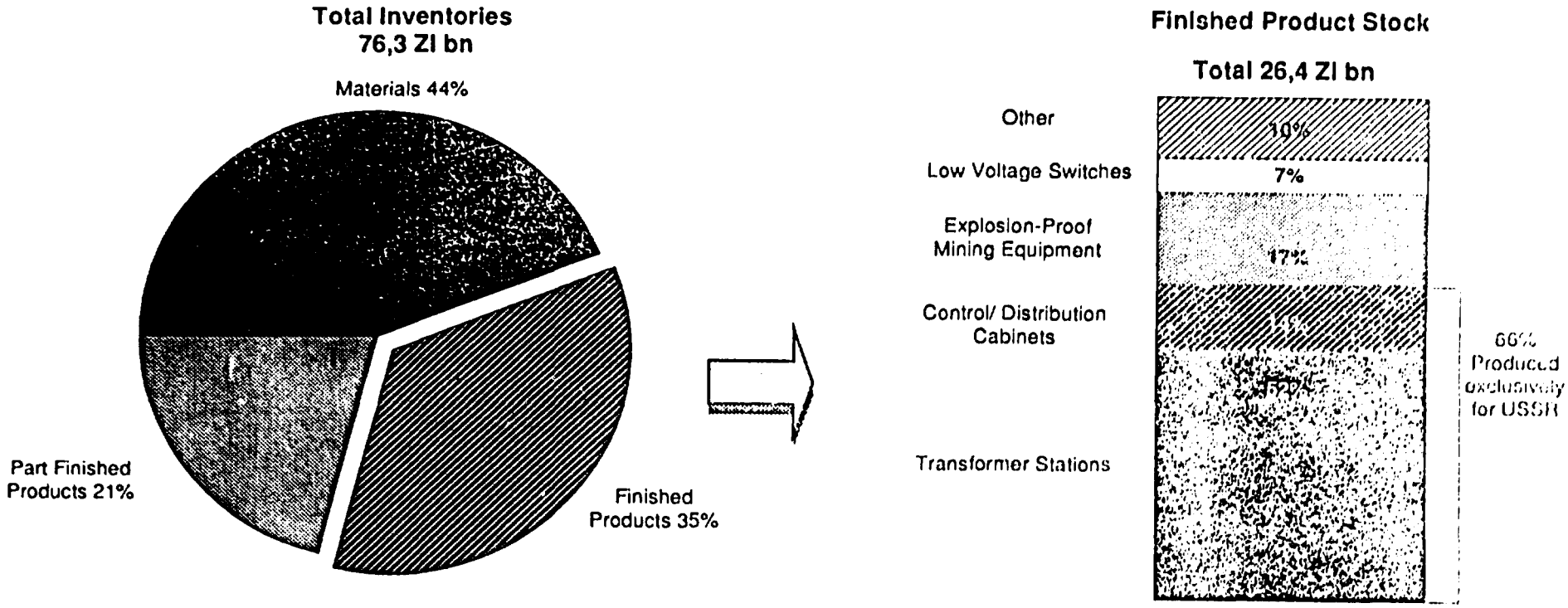
Administrative and Other Overheads*
Production Overheads
Direct Labour
Materials

* Based on Apator's method for allocating overheads

Source: Apator Accounts Department

AT THE END OF MAY, APATOR' S HIGH LEVELS OF FINISHED GOODS STOCK WERE MAINLY DUE TO UNFULFILLED SOVIET CONTRACTS FOR TRANSFORMER STATIONS AND CONTROL CABINETS. APATOR HAS SUBSEQUENTLY SOLD SOME OF THESE TRANSFORMER STATIONS CONSIDERABLY REDUCING THE STOCK PROBLEM

Apators: Stock Position May: 1991
(Zl Bn)



Source: Apator Commercial Department / CET Analysis

ALTHOUGH APATOR HAS TAKEN STEPS TO REDUCE MATERIALS INVENTORIES, STOCK LEVELS HAVE ACTUALLY INCREASED IN RELATION TO SALES. METAL MATERIALS AND ELECTRONIC/ ELECTRICAL COMPONENTS ACCOUNT FOR 76% OF MATERIAL INVENTORIES

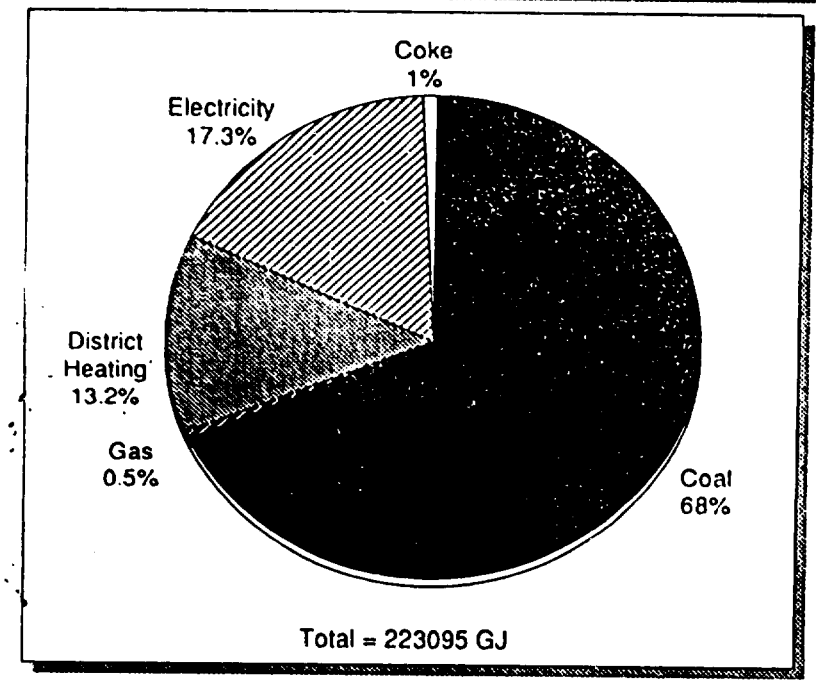
	Dec 31.90	Stock Days*	May 31.91	Stock Days**	Comments
Fuels	50	9	215	45	Apator aim to keep 60 days 'safety' stock
Metal Materials	9823	58	7719	86	Materials for transformer stations and explosion-proof enclosures
Machine Parts	168	30	257	46	-
Precision Devices	3058	133	2903	193	Measurement equipment that is used in transformer stations
Parts for Transport Machines	14	Minimal	5	Minimal	Spares for in-house transport vehicles
Wood	115	-	171	-	Wood for pallets
Electronic and Electrical Components	19613	80	17889	150	Romanian transformers for transformer stations, electrical parts for mining equipment
Chemical Materials	2641	68	1862	71	Ampal plastics for mining machines
Building Materials	4	10	4	16	-
Ceramics and Glass	171	20	870	180	Porcelain used for insulators in transformer stations
Paper, Textile, Leather, Food	208	140	201	91	-
Others	1635	170	1393	7	-
Total	37500	-	33489	-	

* Based on average usage in 1990
** Based on average usage in 1991 (May - year to date)

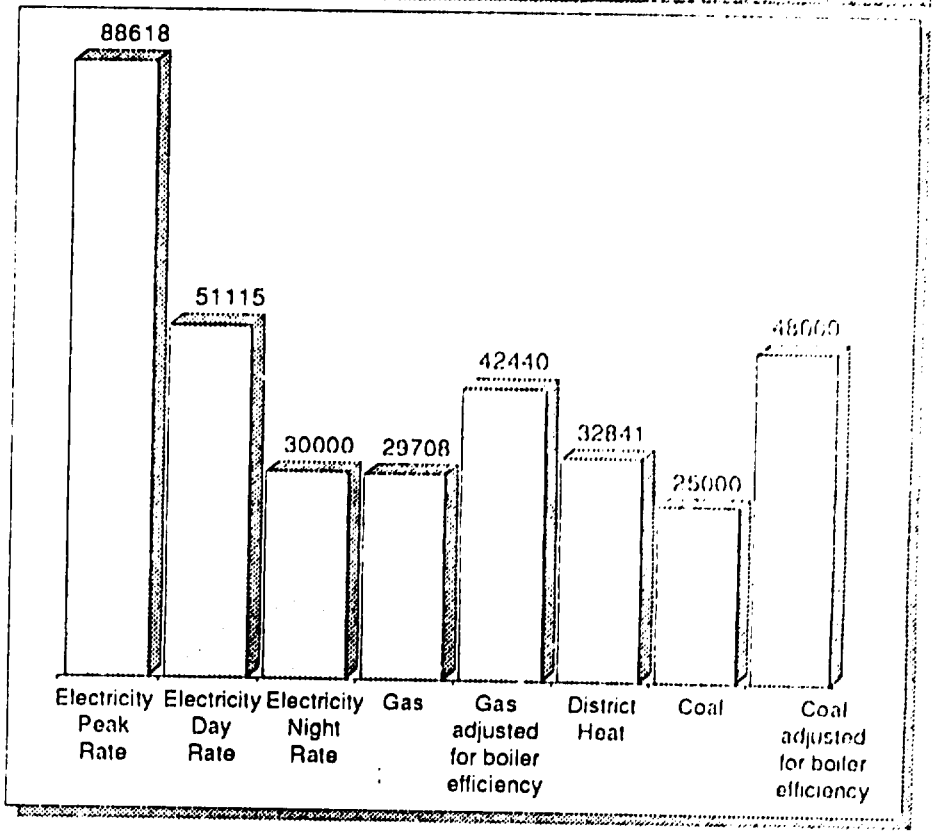
THE MAJORITY OF ENERGY IS USED FOR HEATING BUILDINGS, GALVANISING, AND DRYING. APATOR SHOULD INVESTIGATE THE ECONOMICS OF BUYING MORE DISTRICT HEAT AND CONSIDER DRYING ON THE NIGHT SHIFT

Apator Energy Usage

Apator: Energy Source Breakdown: 1990



Comparative Cost of Energy Zl per GJ*



* Prices as at 11/06/91
Adjusted to include standing charges where applicable

Source: CET Analysis

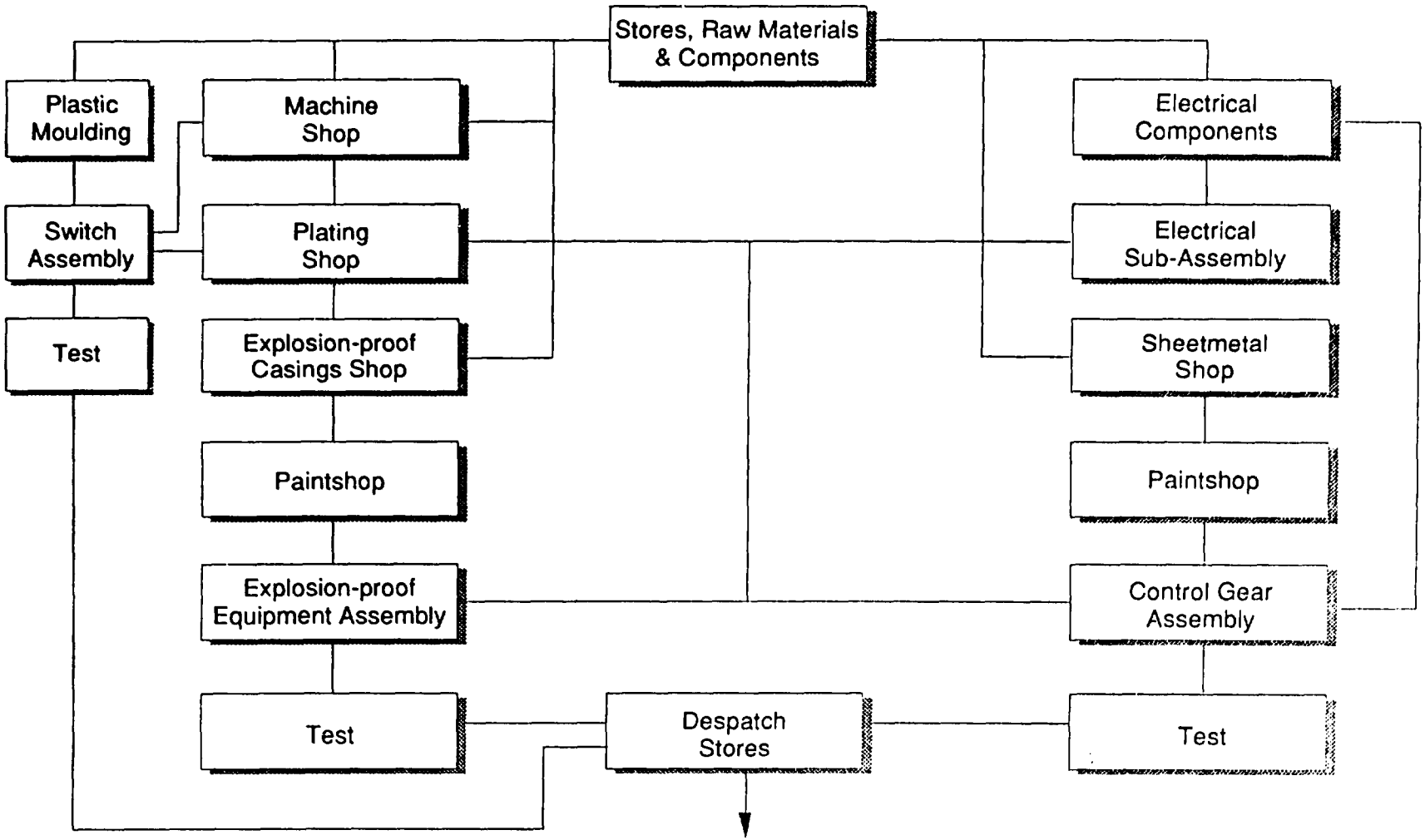
THE MANAGEMENT ACCOUNTING SYSTEM AS CURRENTLY OPERATED BY APATOR IS FAILING TO PROVIDE MEANINGFUL DATA

Management Accounting Problems

- Time delay in processing caused by monthly batch processing on a shared off-site computer system
- The costing structure is designed primarily to control physical stock. Each item of stock is controlled fully (there are some 10,000 part numbers in use)
- Production control is based on sub-assemblies rather than complete products
- Costing is performed at standard cost with materials standards being updated monthly for all items leading to mis-allocation of accounting staff time
- Overheads are fully absorbed on a monthly basis with little or no attempt at variance analysis
- The costing system does not allow for a split between fixed and variable costs. It is therefore not possible to establish product marginal cost
- The production profile is a mixture of one off, batch and continuous processes all of which are controlled by a single cumbersome accounting system
- The company produces a number of final products, and is capable of producing semi-manufactures including the provision of services based on under utilised capacity. Each of these products requires costing and should be capable of being controlled. At present no such control is possible
- Information overload caused by inability of system to produce relevant summaries

APATOR'S PRODUCTION FACILITIES CURRENTLY COVER VIRTUALLY THE WHOLE VALUE ADDED CHAIN. POTENTIAL CLEARLY EXISTS FOR SUBCONTRACTING SOME ACTIVITIES

Apator Production Flow Diagram



APATOR'S MACHINE PARC IS PRIMARILY OF EAST EUROPEAN ORIGIN AND ON AVERAGE 10 YEARS OLD. IT IS HOWEVER, STILL SUITABLE FOR BASIC MANUFACTURING. THE PAINTING LINES ARE IN URGENT NEED OF REPLACEMENT

	No. Off	Year of Manufacture	Country of Manufacture
Galvanising lines	4	1990	Poland
Assembly lines	4	1980	Poland
Electro-machining	1	1989	Switzerland
Coil winders	9	1975	Germany
Centre lathes	7	1985	Poland
Vertical / Horizontal lathes	47	1986	Poland
Milling machines	11	1988	Poland
Universal milling machines	5	1989	Poland
Electric presses	43	1970	Poland
Hydraulic presses for plastics	18	1989	—
Rotary presses	3	1980	Switzerland
Double acting presses	4	1981	Austria
Drilling / Milling machines	10	1985	Poland
Various presses	8	1980	Various
Painting lines	2	—	—
Various other machines	9	Various	Various

APATOR'S FIXED ASSETS ARE APPROXIMATELY 60% DEPRECIATED. MOST OF APATOR'S MACHINERY IS OLD AND APPROACHING FULL DEPRECIATION. HOWEVER, THE MACHINERY HAS BEEN WELL MAINTAINED AND WITH THE EXCEPTION OF THE PAINTING FACILITY NO MAJOR INVESTMENTS ARE REQUIRED IN THE NEXT TWO TO THREE YEARS

Degree of Depreciation of Fixed Assets*
(%)

	Buildings	Machines and Equipment	Vehicles	Others
Productive Assets	42%	75%	76%	57%
Non Core Assets	35%	81%	67%	90%
Non Productive Assets	24%	50%	-	75%
% of Total Fixed Assets	62%	33%	2%	3%

* 30th April 1991

Source: Apator Finance Department/ CET Analysis

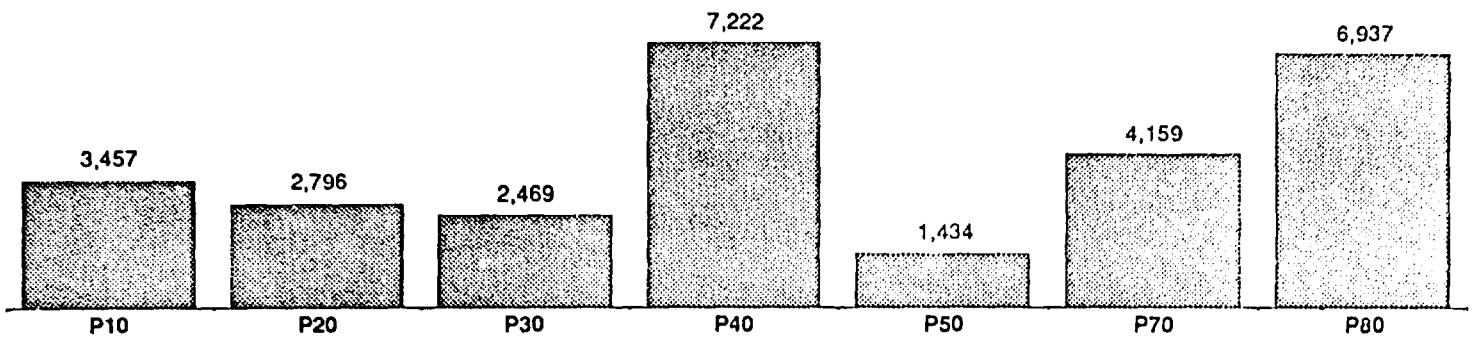
THE PRODUCTION OF APATOR'S VARIOUS PRODUCTS IS VERY INTEGRATED WITH EACH PRODUCTION DEPARTMENT INVOLVED IN THE MANUFACTURE OF VIRTUALLY EVERY PRODUCT. THIS MAKES IT VERY DIFFICULT TO TRACK PRODUCT COSTS. THE GALVANISING PLANT IS NOT FULLY UTILISED FOR INTERNAL PURPOSES. THE VARIOUS METAL WORKING SHOPS ACCOUNT FOR MOST OF APATOR'S COSTS

Production Department's Involvement in Particular Products

	Galvanising Plant P10	Control Gear Assembly P20	Electrical Assembly P30	Machine Shop P40	Electronics and Small Components P50	Sheet Metal Shop P70	Explosion-Proof Casings Shop P80
Thyristors Drive Units	1%	—	3%	6%	78%	6%	6%
Transformer Stations	1%	—	1%	10%	1%	67%	20%
Control /Distribution Cabinets	2%	60%	2%	7%	1%	25%	3%
Low Voltage Switches	4%	—	46%	44%	—	3%	3%
Explosion -proof Mining Equipment	2%	30%	8%	8%	4%	2%	28%

Production Departmental Costs: 1990

(Zł mn)



Source: Apator Production Department

APATOR HAS NEVER REALISED ITS PRODUCTION CAPACITY

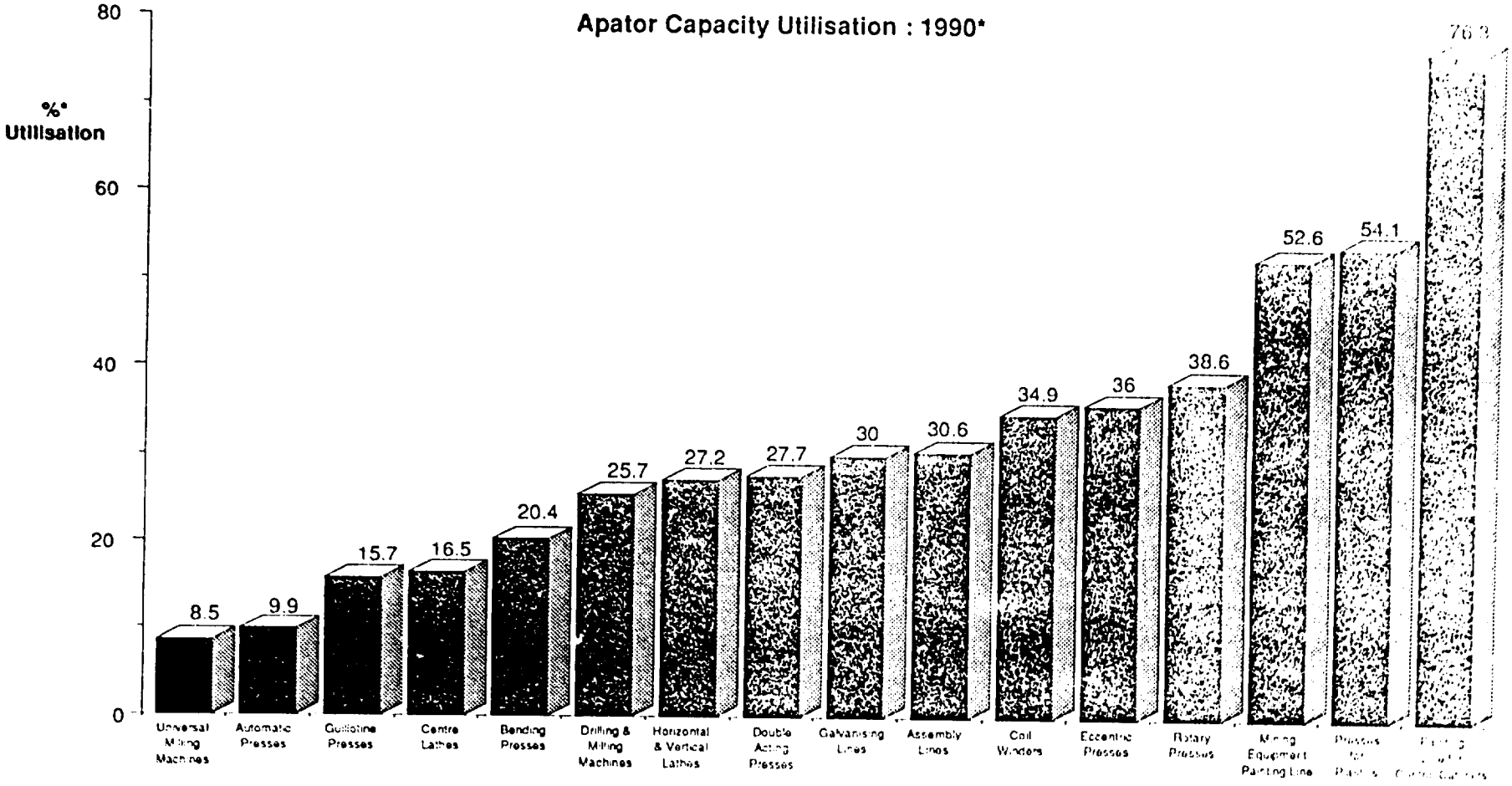
	Maximum Capacity* 2 Shifts Per Day Units Per Annum	Capacity Utilisation (%)		
		1988	1989	1990
Thyristor Drive Units	6,000	32	27	28
Transformer Stations	8,000	61	63	65
Control /Distribution Cabinets	240,000	43	46	41
Low Voltage Switches	1,500,000	34	33	30
Explosion-proof Mining Equipment	42,000	60	59	36

Comments

- CET estimates the factory is currently running at 31% of capacity
- Full capacity never reached due to:
  - component supply and quality problems
  - one shift operation on some products

* Based on 2 shifts per day production

APATOR'S PRODUCTION CAPABILITY IS CONSIDERABLY UNDERUTILISED. MILLING MACHINES, LATHES AND PRESSES HAVE THE MOST SPARE CAPACITY. AT HIGHER PLANT THROUGHPUTS THE PAINTING LINES ARE LIKELY TO BECOME A BOTTLENECK

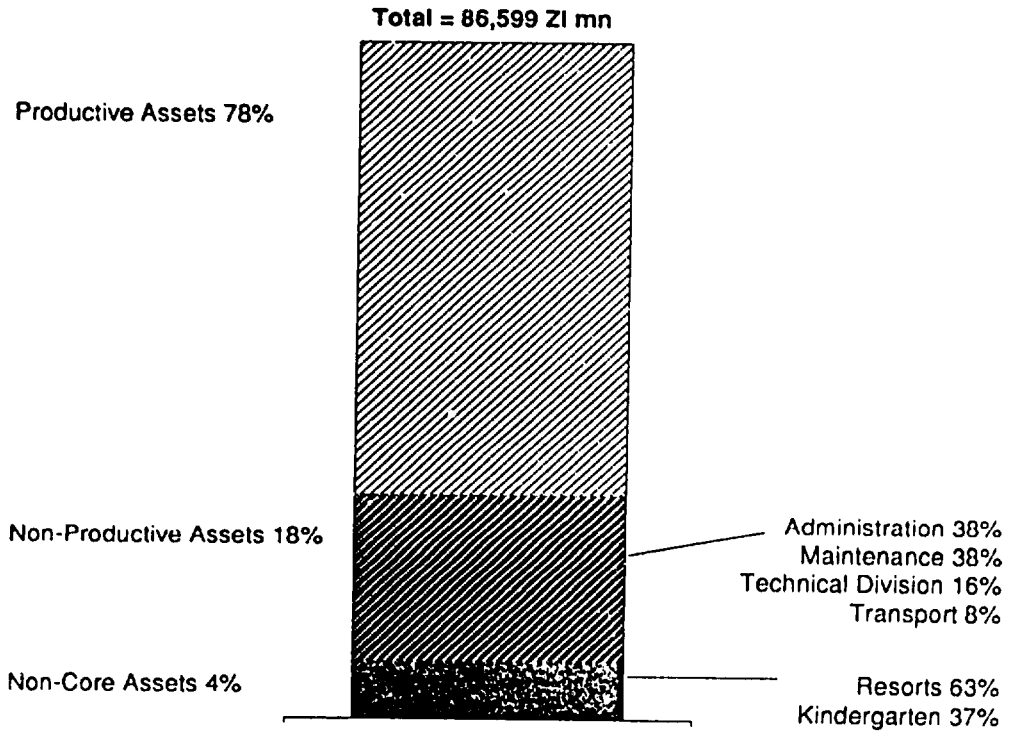


*Based on two shift working with allowance for tool change, maintenance etc. Utilisation calculated using machine hours

Source: Apators Production Department/ CET Analysis

APART FROM ITS PRODUCTIVE ASSETS, APATOR HAS A WIDE RANGE OF NON PRODUCTIVE ASSETS AND SOCIAL FACILITIES. APATOR MAY NEED TO DIVEST ITSELF OF THESE

Apator Net Fixed Assets*
(Zl mn)



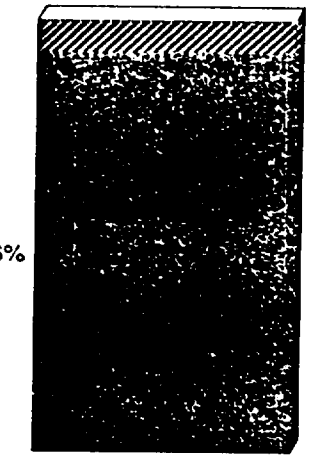
* As at 30/4/31

Source: Apator Accounts Department/ CET Analysis

APATOR HAS SCOPE FOR IMPROVING LABOUR PRODUCTIVITY, PARTICULARLY AT WORKSTATIONS SUCH AS COIL WINDING WHERE TEAMWORK IS NOT INVOLVED AND OPERATORS CAN WORK AT THEIR OWN PACE WITHOUT AFFECTING OTHER WORKERS

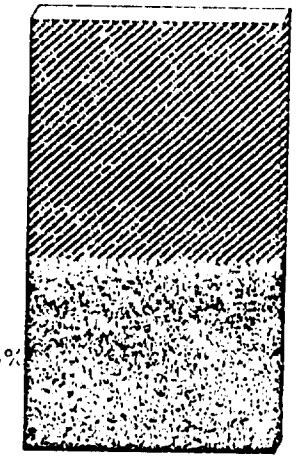
Apator Production Labour Utilisation

Machine Shop



Time of observation - 3 hours
Total man hours - 15 hours
Productive work - 92.6%
Additional Opportunity (away) - 0%
Hidden Opportunity (not working) - 7.4%

Coil Winding



Time of observation - 3 hours
Total man hours - 24hours
Productive work - 43.4%
Additional Opportunity (away) - 50%
Hidden Opportunity (not working) - 6.6%

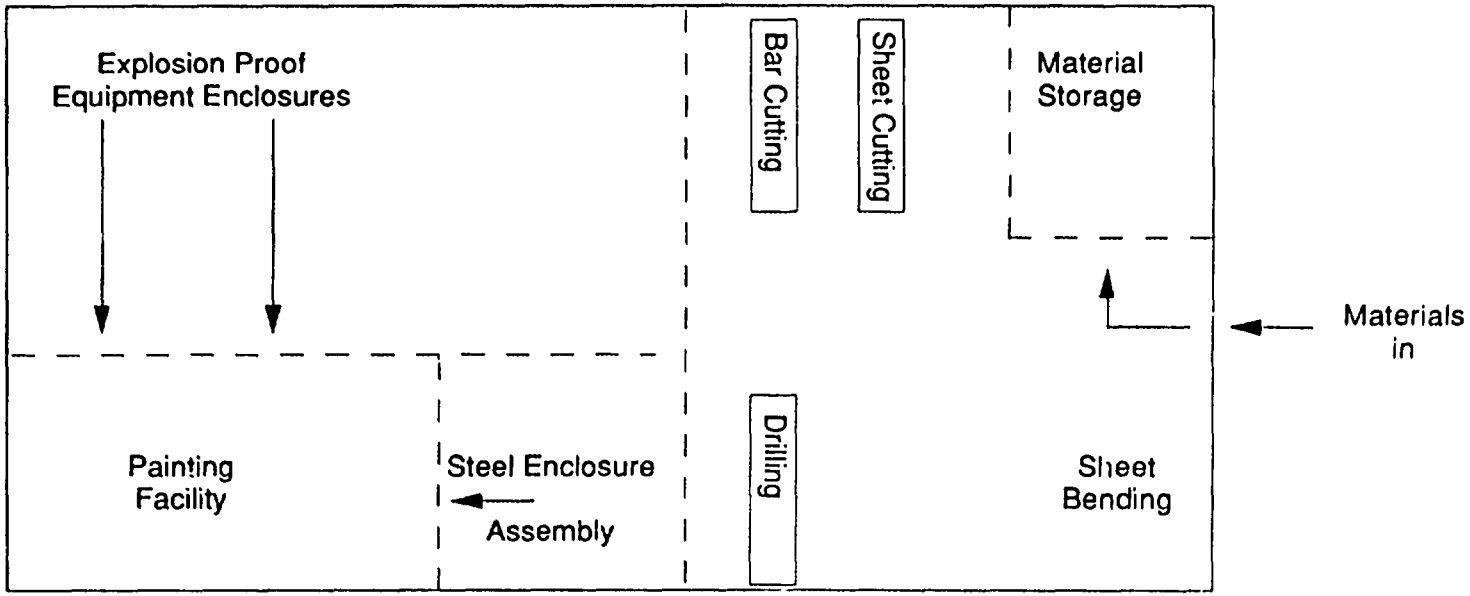
Electronic Sub-Assemblies

Time of observation - 3 hours
Total man hours - 18 hours
Productive work - 97.3%
Additional Opportunity (away) - 0.9%
Hidden Opportunity (not working) - 1.8

Source: CET Analysis

GIVEN THE HIGH EXPENDITURES INVOLVED IN MOVING MACHINERY AND THE CURRENT LOW CAPACITY UTILISATION, THE BENEFITS OF MOVING TO FLOW LINE TECHNOLOGY ARE LIKELY TO BE OUTWEIGHED BY THE COSTS

Shop Floor Layout - Sheet Metal and Explosion - Proof Casings Shops



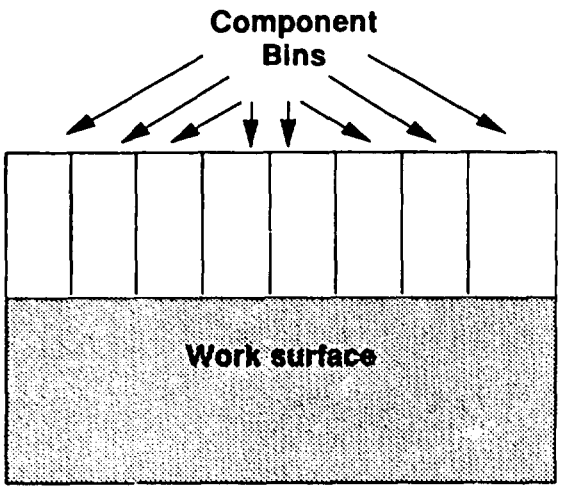
Not to scale - schematic only

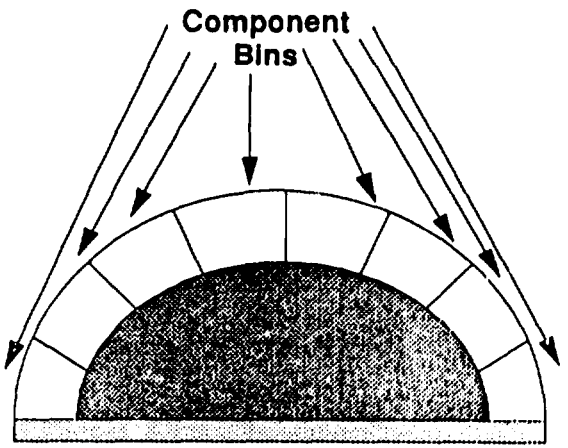
Comments
• Material flow is logical. Cross-overs are minimised as far as possible
• Materials are stored under cover and segregated

Source: Apator Site Plans / CET Analysis

SCOPE EXISTS FOR THE IMPROVEMENT OF THE ERGONOMIC DESIGN OF SOME WORKSTATIONS IN THE ASSEMBLY DEPARTMENT

Workstation Design





Current Design

Improved Design

Comments
• Improved operator comfort
• Improved producitivty as operators spend less time reaching for components

ALTHOUGH OFFICIALLY RECORDED QUALITY FAULTS APPEAR LOW, POOR RECORDS ARE KEPT OF IN-PROCESS REWORK. MOST QUALITY PROBLEMS ARE THEREFORE CURRENTLY HIDDEN

Faults by Product Group : 1990
(% of sales)

Product Group	Final Inspection	Customer Claims
Thyristor Drive Units	1.52	3.5
Control / Distribution Cabinets	0.16	2.3
Low Voltage Swtiches	0.28	0.3
Explosion-Proof Mining Equipment	0.76	0.4

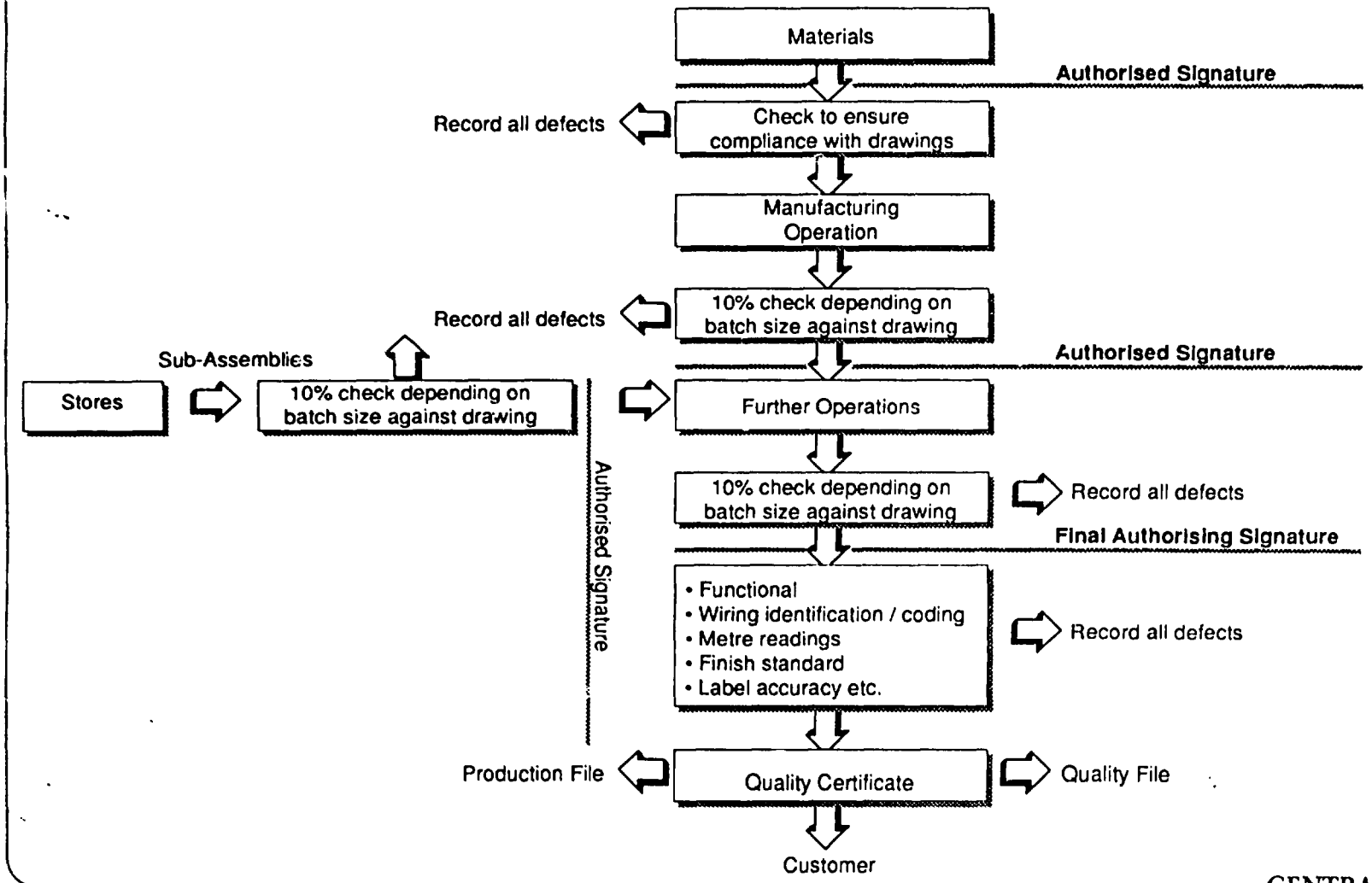
Specific Examples of Poor Quality

- Uneven paint finish on many cabinets inlcuding runs in paint
- Paintwork damaged by jigs required during assembly process
- Damaged rubber surround on thyristor drive unit cabinet door frame caused by extremely poorly fitted door
- Some extremely unattractive welds with excessive spatter on explosion -proof enclosures
- **Foreman** in electronic assembly knowingly dropped an assembled circuit board from a height of approximately 2 feet onto a work surface after having shown it to CET

Source: CET Analysis

IMPROVED QUALITY WILL DEPEND ON RIGOROUS RECORDING OF ALL DEFECTS, ANALYSIS OF HOW AND WHY THESE DEFECTS OCCURRED, AND TAKING ACTION TO CORRECT THE SITUATION

Suggested Manufacturing Quality Trail



Diagnostic... Production / MIS...

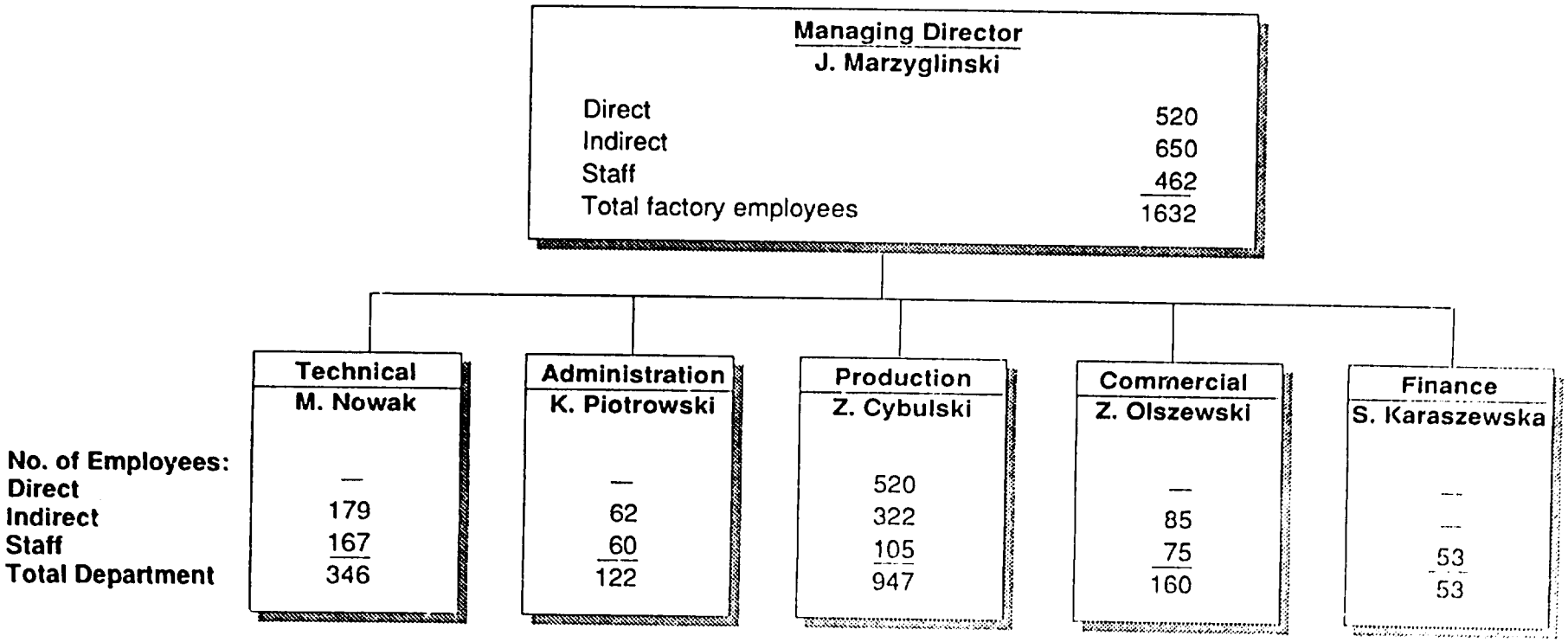
THE CURRENT PRODUCTION PLANNING SYSTEM IS INADEQUATE AND REPRESENTS A REAL OBSTACLE TO FLEXIBLE PRODUCTION PLANNING AND EFFECTIVE INVENTORY CONTROL. SUCCESSFUL IMPLEMENTATION OF AN UP TO DATE INTEGRATED MANUFACTURING SYSTEM WILL BE ONE OF THE KEYS TO APATOR'S TURN AROUND

Product Group	Key Operational Issues	Other Important Issues	Overall Concerns
- Batch system - Running the monthly production schedule takes 17 hours - Computer located 7 km from plant - No real time update	• Maximum possible frequency of production planning is one month • System does not have an MRP application to optimise inventory ordering and manufacturing work orders. These functions are performed manually by separate departments	• Work orders are manually generated using an IBM computer as an advanced typewriter • No real time inventory records are kept • Inventory levels are tracked on a manual card index system up for 10,000 items • Data update takes place at the month end when all movement forms are sent to the data centre	- Time delay - Reliability and quality of data - Labour intensive - Cumbersome document flow

Source: CET Analysis

DESPITE A SIGNIFICANT REDUCTION IN STAFFING LEVELS IN 1990, APATOR MANNING LEVELS REMAIN HIGH. FOR EXAMPLE, INDIRECT LABOUR AND STAFF ACCOUNT FOR 45% OF PRODUCTION EMPLOYEES

Apator Organisational Structure *



* At 11/6/91

MOST OF APATOR'S SENIOR MANAGEMENT TEAM ARE FROM ENGINEERING BACKGROUNDS AND LACK EXPERIENCE IN THE SALES/ MARKETING AREA

MANAGING DIRECTOR - J MARZYGLINSKI	Electrical Engineer - Gdansk Technical University Managing Director since September 1990 Previously Manufacturing Director and Commercial Director of "Apator" 1982 - 1990
TECHNICAL DIRECTOR - M. NOWAK	Electrical Engineer - Lódz Technical University In current position since October 1990 Previously Manufacturing Department Manager of "Apator" 1985 - 1989
PRODUCTION DIRECTOR - Z. CYBULSKI	Mechanical Engineer - Bydgoszcz Technical / Agricultural Academy Production Director since October 1990 Previous Director of Maintenance at "Apator" 1989 - 1990
ADMINISTRATION DIRECTOR - K. PIOTROWSKI	Economist Torun University Administration Director since October 1990 Previously Organisation / Department Manager 1988 - 1990
COMMERCIAL DIRECTOR - Z. OLSZEWSKI	Electrical Engineer - Gdansk Technical University Commercial Director since October 1990 Previously Technical Director of "Apator" 1988 - 1990
ECONOMIC DIRECTOR, CHIEF ACCOUNTANT - J. KARASZEWSKA	Administration Degree from Torun University In present role since October 1990 Previously Financial Department Manager at "Apator" 1986 - 1990

LACK OF A CLEAR DIRECTION FOR APATOR IS RESULTING IN MANAGEMENT INDECISIVENESS AND WORK OVERLOAD

Management Problems: Issues

- Managers are faced with a large range of tasks and are not specialising
- Few lower/ middle managers who are senior management material
- No clear long term vision of the company. Short term vision is also confused
- Lack of consensus as to the future direction of the company except for in very broad terms
- Poor information for decision making particularly in the areas of marketing and costs
- Indecisiveness of the management team
- Lack of clear responsibility and goals. Closely linked with this is the lack of evaluation of management performance against these goals
- Managers are overloaded with trivial issues

Source: Apator Interviews/ Training Sessions

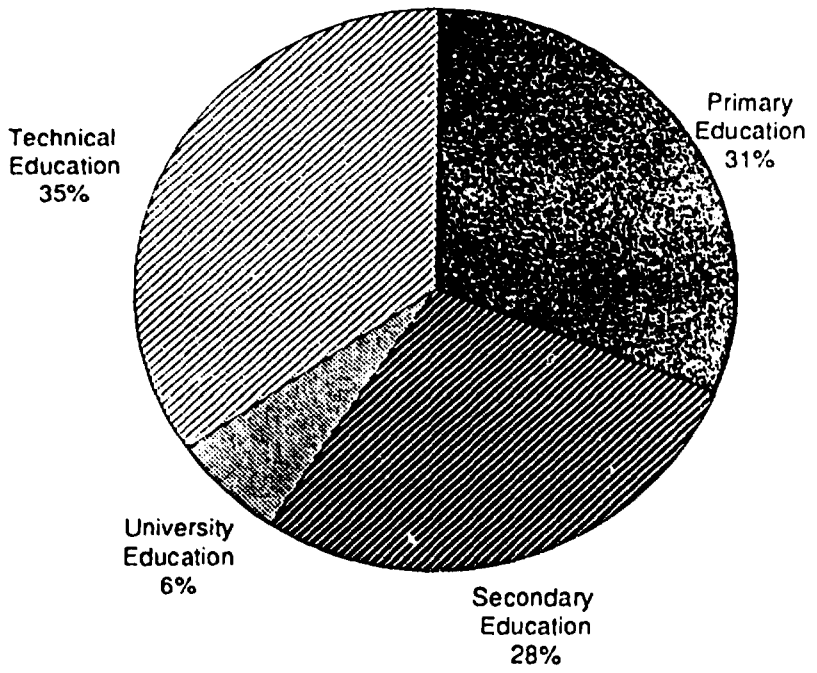
APATOR FACES AN IMPORTANT PROBLEM OF OVERMANNING. INDIRECT LABOUR AND STAFF ACCOUNT FOR OVER TWO THIRDS OF THE TOTAL WORKFORCE

	TECHNICAL	ADMINISTRATION	PRODUCTION	COMMERCIAL	FINANCE	OTHER	TOTAL	%
DIRECT	—	—	520	—	—	—	520	31,9
INDIRECT	179	62	322	85	—	2	650	39,8
STAFF	167	60	105	75	53	2	462	28,3
TOTAL	346	122	947	160	53	4	1632	100

APATOR IS CURRENTLY CARRYING A LARGE NUMBER OF ENGINEERS WHO ARE NOT EXPERIENCED IN THE APPLICATION OF MODERN PRODUCT AND PROCESS TECHNOLOGIES

Apator Workforce Structure

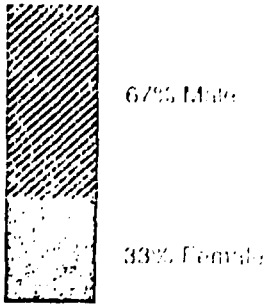
Apator Education Structure



Apator Age Structure

Age	%
18 - 35	55%
35 - 50	40%
50 and more	5%

Apator Gender Structure



ONE OF APATOR STRENGTHS IS ITS LOYAL WORKFORCE, 60% OF WHOM HAVE BEEN EMPLOYED BY APATOR FOR 10 YEARS OR MORE

Workforce Issues, Apator

- Large number of dedicated employees
- Strong non formal relationship, entire families work for Apator
- Strong work ethic, but need for more discipline
- Lack of significant conflicts
- Good relationship between management and trade unions (Solidarnosc, OPZZ)
- Relatively high wages, 10 - 15% more than the average in the Torun region

Source: Apator Interviews

APATOR'S FINANCIAL GEARING IS FAR LOWER THAN THAT OF MANY OTHER POLISH ENTERPRISES, BUT CASH FLOW IS BECOMING A PROBLEM

Balance Sheet - Assets

	31.12.89 (Zl mln)	31.12.90 (Zl mln)	31.5.91 (Zl mln)
Fixed Asset			
Tangible	3,156	89,099	86,599
Intangible	56	970	833
Capital Expenditure	3,584	1,988	1,510
Shares in Others	12	9	9
Current Assets			
Stocks	18,363	52,808	76,340
Accounts Receivable	18,882	46,848	34,152
Cash	6,736	22,503	1,377
Deferred charges	383	544	1,355
TOTAL ASSETS	**51,172**	**214,769**	**202,175**

Balance Sheet - Liabilities

	31.12.89 (Zl mln)	31.12.90 (Zl mln)	31.5.91 (Zl mln)
Capital			
Enterprise Fund	17,923	105,873	138,750
Founders Fund	1,406	4,704	4,704
Worker's Capital	1,212	736	2,663
Accumulated Income	—	—	—
Short Term Liabilities			
Accounts Payable	8,915	41,348	26,989
Other Payable	128	—	—
Short Term Debt	11,531	24,909	20,000
Short Term Loan	—	—	—
Overdraft	—	—	—
Deferred Income	172	23	12
Reserves	47	138	2,203
Non Distributed Income	9,838	37,038	6,854
Total Liabilities	**51,172**	**214,769**	**202,175**

Source: CET Analysis

DUE TO SEPTEMBER SALES OF TRANSFORMER STATIONS, PROFITABILITY AT 1990 LEVELS HAS BEEN RESTORED

Income Statement
(Zl mn)

	31.12.1989	31.12.1990	1991 (Sept YTD)
Sales	60,847	284,570	136,173
Sales tax	(27)	(179)	(321)
Cost of sales	(33,170)	(217.208)	(91,603)
Gross margin	27,650	67,183	44,249
Less depreciation	311	3.635	7075
Operating income / loss	27,339	63,548	37,174
Less interest paid	2,723	15,049	8,237
Other income / loss	4,089	21,756	(162)
Income before tax	28,705	70,255	28,775
Dividend	(620)	(948)	(776)
Income tax	(5,319)	(27,815)	(11,667)
Excessive wages tax	(644)	(3,719)	(753)
	22,122	**37,773**	**15,579**

Source: CET Analysis

IT APPEARS THAT APATOR'S LIABILITIES AND RECEIVABLES ARE WELL MATCHED BUT...

Apator Receivables / Payables
(Zł mn)

Accounts Payable	1990	May 1991	Accounts Receivable	1990	May 1991
Commercial Liabilities	26 349	23 725	Commercial Receivables	46 468	30 217
State Budget	11 081	1 029	State Budget (Return of overpayment)	24	3 394
Wages	2 083	1 165			
Social Security	1 453	824	Receivables of Financially Independent Activity	312	429
Others	382	246			
			Others	44	112
Total	41 348	26 989	Total	46 848	34 152

Source: Apator Accounts Department

...MANY OF APATOR'S ACCOUNTS RECEIVABLE ARE LONG OVERDUE. CZG* ACCOUNTS FOR APPROXIMATELY 50% OF OUTSTANDING RECEIVABLES

Apator Receivables / Payables 15 July 1991
(Zl mn)

Due In	Accounts Receivable (Zl mn)	Accounts Payable (Zl mn)
July	2,880	629
June	4,592	2,405
May	3,653	2,089
April	6,997	2,948
March	3,420	—
February	1,197	—
January	1,098	—
1990	3,028	—
TOTAL	26,865	8,071

* Centrala Zaopatrzenia Gornictwa

Source: Apator Accounts Department

RATIO ANALYSIS ILLUSTRATES APATOR'S HIGH STOCKS, DECREASING PROFIT MARGINS, LOW ASSET UTILISATION, AND WORSENING LIQUIDITY POSITION

Apator Ratio Analysis

Ratio	1989	1990	1991*
Acid Test	4.12	1.67	1.32
Days Debtors	113	60	171
Stock Days	110	88	523
Profit Margin	47%	25%	18%
Turnover / Assets	1.19	1.32	0.36

* May YTD

Source: CET Analysis

Conclusions

- Apator has previously been very dependent on markets in old Socialist block and the Soviet Union. Apator have the basic foundation and the need to develop these traditional markets and expand activities to Western market opportunities
- Apator has a very diverse product range and is unlikely to be able to generate sufficient resources to update all of it as currently planned
- **Marketing is a weak area of the organisation. There is little effort attached to quantifying markets for potential new products and to developing a market strategy**
- There is scope for cost reduction in the following areas:
  - Materials - through improved purchasing strategy and stock control
  - Labour - through improved labour productivity, quality procedures, and through manpower reduction particularly indirect labour
  - Energy - through utilising night rate rather than peak rate electricity
- Apator's cost accounting systems were designed to control materials in an era of commodity shortages and hence to maximise production rather than to assist management in maximising profits
- Apator's production facilities are heavily integrated, with each production department involved in the manufacture of every product. In the medium term Apator should strive to organise the factory into separate flow lines for each product. In the short term this is not advisable as it would lead to duplication of already underutilised machinery
- Apator's machinery is currently underutilised and management need to identify new products to fill capacity in the short term. CET suggests the following as possible options: site offices, filtration units, machine tool and press guards, turned components for the automotive industry.
- Apator has a flexible underutilised machine parc which gives Apator the potential to manufacture a wide range of products. It is not really very well suited at present to the production of high technology electronic products
- 4% of Apator's fixed assets could be divested immediately without disrupting factory operations. The proceeds could be used for investment for example in a new painting line which is necessary if paint finish quality is to be improved
- Apator's information systems are inadequate for current needs, and will become increasingly more problematic as competition in the market place increases. The enterprise has a new computer. Implementation of a system cannot take place until suitable costing systems are in place

CONTENTS

CENTRAL EUROPE TRUST

Strategy...

APATOR NEEDS TO REPLACE ITS PRODUCTION ORIENTED APPROACH, WITH A CLEAR MARKET DRIVEN STRATEGY

- As many Polish companies, Apator approaches the new economy planning to invest into new products and machines, rather than trying to build up its sales
- This chapter contains the following proposals:
  - A mission statement outlining the main strategic thrusts of Apator
  - Potential strategies for each of Apator's major product groups
  - Cooperation/ strategy
  - Company organisation and asset mix
  - A financial business plan
- They were prepared as the result of work with Apator management
  - during training sessions
  - interviewing individuals

Corporate Mission

Apator aims to be a medium sized private company producing technologically up to date industrial electrical and electronic goods with a leading position in their traditional markets in the former socialist block and with outlets in developed markets

Strategy... General Objectives...

APATOR MUST RENEW ITS PRODUCT LINE A RE-DEFINE ITS COSTING PROCEDURES IN ORDER TO BE ABLE TO SELL SUCCESSFULLY

- To acquire new technology in all product groups to enable Apator to sustain its position in the domestic and Soviet market and to expand into new geographic markets in more developed countries

- In the short term to introduce new products not necessarily in areas traditional to the company in order to utilise spare capacity and generate the cash flow required to finance the objectives outlined above

- To cooperate with foreign partners in order to acquire new product technology and to develop opportunities to distribute those products in markets other than those traditionally served by the company

- To implement an organisational structure and cost control system which will enable Apator to identify key sources of cost and drive them down in order to maintain their position as a low cost producer

- To implement quality control procedures in line with the technclogical standards of the new products that Apator plan to produce

Strategy... Summary of Actions...

THE FOLLOWING ACTIONS SHOULD BE CONSIDERED BY MANAGEMENT TO IMPROVE PROFITABILITY

	Actions	Objectives	Drawbacks	Who	When	Specific Items
Social Assets	Sell	Raise cashflow	Not significant	Council of workers	As soon as possible	• Apartment buildings • Recreational facilities
Productive Assets	Dispose of redundant assets and subcontract activity	• Raise cashflow • Save on running costs • Improve manufacturing focus • Increase space availability	• Limit technology base • Polish market for machinery limited	General manager Director of production	• As soon as possible after having decided upon product mix and resolved legal issues	To be considered: • Tool room • Transport • Galvanising • Carpentry • Plastic Injection • Machining
• Engineering and production support staff • Administrative personnel	Reduce Reduce	• Lower operating costs and break-even point • Adjust employment structure to business requirements	• Limit technological base • May impair move to higher value added or R & D based production	General Manger Directors of production, technology and human resources	• After having decided on product mix and integration level	To be considered personnel in • Design • Toolroom • Production planning • Mechanical workshop • Transport • Plastic injection • Stores • Finance

Source: CET Analysis

WITHIN THE EXISTING PRODUCT RANGE THERE ARE SOME PRODUCTS WHICH HAVE PRIORITY BECAUSE OF THEIR MARKET ATTRACTIVENESS

Product/ Market Attractiveness

Criterium	Mining Equipment	Low Voltage Switches	Thyristor Drive Units	Transformer Stations	Control Cabinets	Importance of Criterium
Technological level						
Workforce quality						
Fixed asset quality						
Organisation						
Market potential				 *		
Distribution channels						
Profitability						
Total profit				 *		
Competition						
Investment required						

 Positive  Negative * Highly dependent on developments in USSR

Source: Apator/ CET Training Session

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APATOR IS FACED WITH AN ENORMOUS RANGE OF POSSIBLE OPPORTUNITIES. APATOR'S MANAGEMENT NEEDS TO IDENTIFY THE BEST OPPORTUNITIES AND FOCUS ON THESE

Apator's	Mining Equipment	Low Voltage Switches	Thristor Drive Units	Control/Distribution Cabinets	Transformer Stations
Strengths	• Specialist technical expertise • Assets capable of producing this specialised product • High market share	• Apator's products are known throughout Poland	• Contacts with many branches of Polish industry • Strong team of engineers		• Strong links with Soviet Union
Weaknesses	• Lack of presence in Silesia	• Poor technical expertise and product technology • Injection moulding facilities and plastic technology	• Lack of funds for investment	• Secondary Apator product • Low technical level of product offering • Investment required in bending and painting	• Low product quality
Opportunities	• Diversification into chemical sector • Complete mining systems	• Improve product technology through licensing • Import switches to make up range • Przelaczniki z nie olejowymi kondensatorami	• Move engineers into system design • Develop own AC frequency converter • Import "standard" drives and modify	• Develop a product with a "siec" enabling reduced cabinet size • Improve design by moving from welded construction to modular design	• Short term profitable sales
Threats.	• Hamaher • Siemens, AEG, Walestown • Plastic product from Elektromontaz • Slow recovery of mining industry	• Importers • Competitive response of other Polish producers • Siemens, ABB and other large multinationals in the sector	• Strong competition from small private players • Imports • Apena • Siemens, ABB and other large multinationals in the sector	• Strong competition from Elektromontaz • Strong competition from small private players	• Entry of Soviet producers • Breakdown in distribution network in USSR • Other Polish producers

APATOR'S KEY OBJECTIVE MUST BE TO BUILD A CLOSER RELATIONSHIP WITH CUSTOMERS IN THE COAL MINES

Mining Equipment: Key Actions

Development	Distribution/Sales	Investments/Finance
• Bring in Siemens new generation product • Extensions to product range to cover new applications • Improvement in product quality and reliability by identifying the parts most prone to failure and taking action to eliminate them • Response to potential threats from plastic encased flameproof product currently being developed by one of the Elektromontaz's in Katowice • Linkages with firms with the necessary skills in computing to develop complete mining control systems when these start to be required by the market • Linkages with mining machinery and electric motor producers to open up the possibility of offering complete mining system	• Build closer relationships with customers in the coal mines by opening a branch office in Silesia. Benefits of such an approach include: - Access to market research information leading to new product opportunities - Removal of CZG margins - Faster service response enabling Apator to gain larger share of spares market - Ability to expedite test approvals on new products - Springboard for other product groups in the most industrialised area in Poland • Diversification into the chemical industry which requires flame/explosion proof electrical equipment • Develop the market for mining products in the Soviet Union making efforts to establish direct contact with customers • Reestablish contacts with markets in Western Europe previously served by Apator	• Investments are required to fund the branch office in Silesia - Rent/Purchase of buildings - Hiring of sales/marketing personnel - Promotion materials • Financial resources need to be made available for product development

Strategy... Transformer Stations...

IN THE SHORT TERM TRANSFORMER STATIONS ARE LIKELY TO BE A USEFUL SOURCE OF CASH FLOW, BUT APATOR MUST GUARD AGAINST BEING LEFT WITH EXCESSIVE STOCKS AGAIN

Transformer Stations: Key Actions

Development	Distribution/Sales	Investments/Financo
• Keep further product development to a minimum. Higher voltage stations from 400KV to 630 KV are already designed	• Maintain current contacts through Elektrim with the Soviet Union • Develop more direct contacts with the final customers in order to protect against breakdown of the distribution system • Do <u>not</u> allow foreign partners access to information on this market or to customers	• Given that the situation in the USSR is likely to remain unstable for some time take steps to reduce risk - Negotiate prepayment or stage payments on large contracts - Break large orders up into smaller quantities to be delivered and paid for monthly - Purchase materials only for firm orders to avoid excessive stock holding costs - Assist customers with finding alternative sources of finance • No investments in new machinery • Given continued demand and high margins Apator can expect competition in this market. Apator must prepare for this possibility by taking the following actions: - Identify true marginal cost of each type of station - Never sell below this cost

APATOR HAS NOW PROCEEDED WITH THE PURCHASE OF LICENCE FROM ABB. KEY ACTIONS WILL NOW BE THE PROMOTION/SALES OF THESE NEW PRODUCTS AND THE RAPID DRIVING DOWN OF PRODUCTION COSTS

Low Voltage Switches: Key Actions

Development	Distribution/Sales	Investments/Finance
• Update and extend product range by licensing from and cooperating with Western firms e.g. ABB • Drive costs of newly introduced products down as rapidly as possible • During CET's market study, a gap in the market was identified in the area of non-contacting switches (przelaczniki bezstykowe z nie olejowymi kondensatorami) Explore the potential of this opportunity • Once new switches have been introduced, rationalise product range phasing out old switches • Negotiate future licence agreements which enable Apator to enter markets outside of the old Socialist block	• Where licences/cooperation are not available, consider importing switches so that customers know that they can buy the switch that they need from Apator • Extend contacts with domestic customers, particularly with private firms. Motivate staff by introducing a sales visit reporting system which includes: - a minimum number of calls to be made to existing customers per month - a minimum number of "cold" calls to new customers per month - linkage of calls made to pay incentives - database gathering customer information • Immediately begin promotion of awareness of new products soon to be introduced by Apator emphasising benefits arising from the smaller size, higher quality and "Westerness" of new offerings	• Maximise speed of new product introductions so that payback on licence fee begins as soon as possible • Promotional material and training of sales staff will need to be financed • New sales/marketing staff with appropriate language skills need to be hired if European markets are to be entered • Clearly investments in licences will be required • Investments in new machinery, particularly for plastic injection moulding to be carefully weighed up against external contracting possibilities

EVEN IF APATOR CAN DEVELOP A CHEAP ELECTRONIC AC DRIVE CONTROLLER, THEY HAVE TO DEVELOP THE MARKETING CONTACTS REQUIRED TO GAIN A SUBSTANTIAL SHARE OF THE MARKET AND TO DEVELOP APPLICATIONS

Thyristor Drive Units: Key Actions

Development	Distribution/Sales	Investments/Finance
• Acquisition of technology by legal means likely to be very difficult • Develop own AC drive controller in-house • Import "standard" drive controllers and modify to suit customer needs • Drive costs of newly introduced products down as rapidly as possible • Improve flow of materials from individual components to finished assemblies • Introduce total quality standards • Restrict development work on old thyristor drive units to a minimum. Focus on cutting costs in this area	• Large marketing effort required to develop clear applications for new control units • Build linkages with machine and motor manufacturers to establish applications for motor control devices and establish Apator as preferred supplier • Build contacts with electrical engineering contractors to ensure that they are aware of Apator's offering and Apator are in a position to tender for contracts • Identify large potential markets for Apator such as water pumping stations and influence key decision makers • Build up service organisation to support products as customer maintenance engineers will not be in a position to carry out anything but the most basic repairs • Build contacts with potential distributors in Western Europe	• Investment required to upgrade CAD/CAM system which is inadequate • Large investment required in marketing to identify applications for control units • Assembly and subassembly areas will have to be segregated to better effect with the move to higher technology components which are sensitive to degradation due to contamination • Training of service engineers • New painting facility required • Large investment required in product development

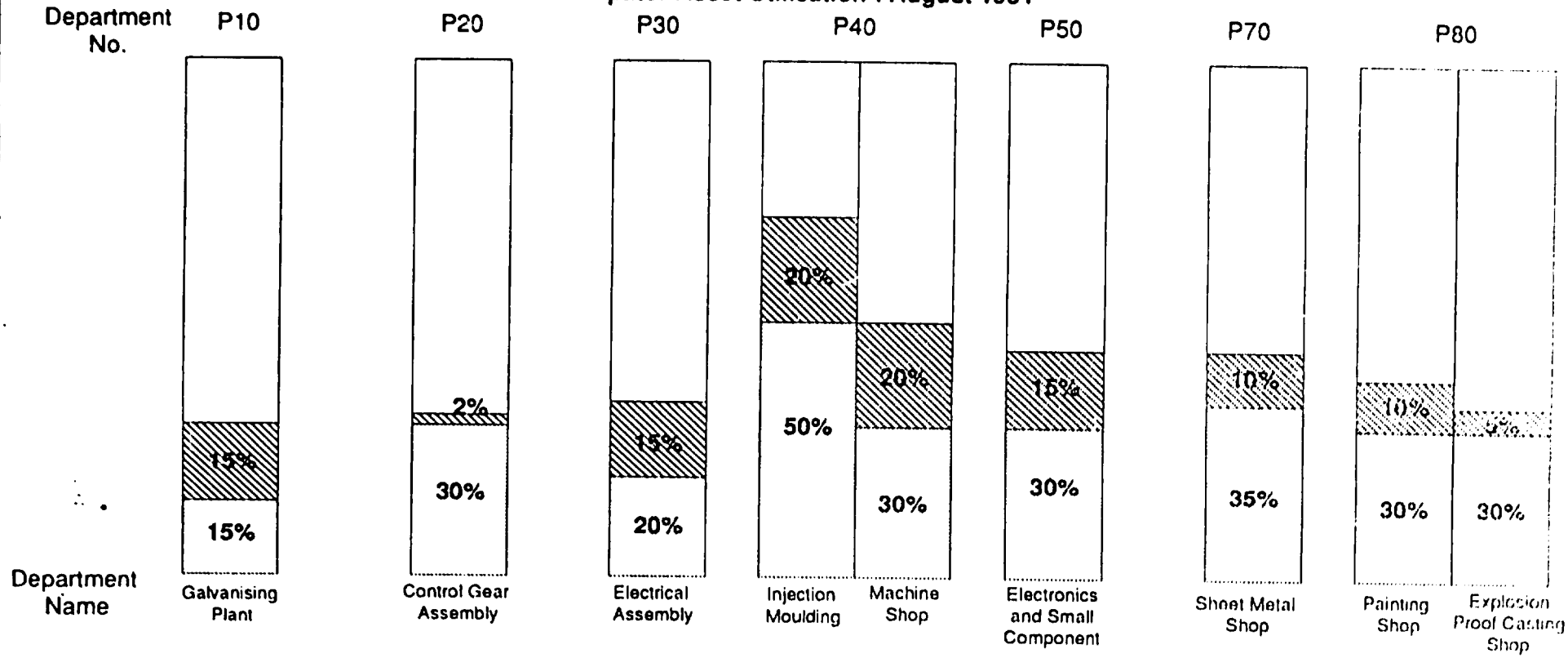
GIVEN THE INVESTMENT REQUIRED IN BENDING MACHINES AND RESISTANCE WITHIN THE ORGANISATION, APATOR'S MANAGEMENT NEEDS TO CONSIDER CAREFULLY THE OFFICE FURNITURE OPTION BEFORE ENTERING THE MARKET. DELAY IN MAKING A DECISION HAS MEANT THAT POLISH FIRMS HAVE BEATEN APATOR TO THE MARKET

Office Furniture: Key Actions

Development	Distribution/Sales	Investments/Finance
• Purchase filing cabinet and other potential products and identify manufacturing techniques used • Design and production of a prototype product range which meets market requirements • Implement quality discipline among workers in the parts of the plant which produce office furniture. This is particularly important as office furniture is likely to be produced in the same departments as transformer stations which are notoriously low in quality	• Develop contacts with potential distributors - Furnel have outlets in most major Polish cities - Large central trade houses such as Emilia in Warsaw - Private warehouses which advertise their goods in newspapers - Copyfax a private distributor identified by Apator also is an interesting option • Explore opportunities in Germany such as the one advertised in Gazeta Wyborcza • Further market research to identify the following: - Types of cabinets that Apator are capable of producing and which will generate the largest volumes - Margins charged by various distributors - Colour range required - Availability of accessories such as files and hangers	• New powder painting facility and metal bending machine required • Promotion materials required and sales team • Further market research work • Investment in new design expertise

MANAGEMENT ARE CURRENTLY DEVOTING A DISPROPORTIONATE AMOUNT OF TIME TO UPDATING THE LOW VOLTAGE SWITCH RANGE. PARTICULARLY, AS EVEN IF ALL OF THESE INVESTMENTS SUCCEED THEY WILL MAKE LITTLE IMPACT ON ASSET UTILISATION

Apator Asset Utilisation : August 1991



* Excludes office furniture

Source: CET Analysis

AT PRESENT APATOR OWNS A LARGE NUMBER OF MACHINES WHICH ARE UNDERUTILISED. APATOR'S MANAGEMENT HAS IDENTIFIED REDUNDANT ASSETS AND PLAN TO DISPOSE OF THEM AS SOON AS THE MARKET FOR SUCH MACHINERY IN POLAND PERMITS

Apator's Disposal Programme

	Control Gear Assembly	Electrical Assembly	Machine Shop	Electronics Components	Sheet Metal Shop	Explosion Proof Casting Shop
Total number of machines+	6	40	149	3	49	56
Machines for disposal	2	16	63	1	22	22

Estimated Capacity Utilisation*						
Before disposals	12.5%	20.5%	19.9%	0.7%	14.5%	16.0%
After disposals	18.8%	28.2%	32.2%	1.05%	24.1%	26%

+ Excludes machines fully utilised on one shift or more

* Based on 1991 planned production

Strategy... Cooperation...

APATOR SHOULD PREPARE A CLEAR COOPERATION STRATEGY FOR EACH PRODUCT GROUP. EARLY CAPITAL LINKS WITH FOREIGN FIRM IN ONE PRODUCT AREA MAY RESTRICT FUTURE POSSIBILITIES FOR COOPERATION IN OTHER AREAS

Development Options

	License	In-house	Joint Venture
Advantages	• Technology usually proven • Quick technology transfer possible	• Company has full control over the innovation process • Firm fully understands technology and develops its own know-how • Opens revenue possibilities through licensing own products • No restrictions on markets	• Possible capital input by partner • Possible access to partner's markets, distribution chain, and marketing skills • Partner may bring management skills and training
Disadvantages	• Usually large lump-sum payment up front • Royalties reduce margins • Notoriously difficult to implement • Licences usually only available for dated technology • Licensor often imposes restrictive market conditions	• Costs can be very large unless development is clearly market driven • Introduction of new technology products is notoriously problematic • Company has to develop its own markets which may prove costly	• Restricts options for cooperation with other partners • Loss of control • Partner will gain access to your markets • Costly to pull out once formed

Strategy... Finance...

NEW REGULATIONS ARE FORCING APATOR TO MAKE CHANGES IN ITS ACCOUNTING POLICES AND SYSTEMS. THE FOLLOWING CHANGES SHOULD BE IMPLEMENTED IN THE NEAR FUTURE

- New applicable accounting principles
  - Matching expenses and revenue
  - Prudence
  - Valuation of assets at historical cost modified by revaluation

- New accounting principles
  - Inventories are to be valued at the lower of actual costs or net realisable value
  - Accounts receivable - recording of bad debt reserve
  - Fixed assets - redefinding depreciation methods and asset life
  - Prepare a profit and loss statement to EEC format

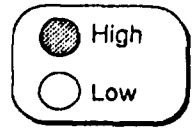
- Systems changes
  - Cost Accounting
    - Cost allocation
    - Variance tracking and allocation
    - Inventory valuation method
  - Fixed Asset Register

Source: CET Analysis

Strategy... Finance...

AS APATOR ENTERS COMPETIVE MARKET, IT MUST IMPLEMENT STRICTER AND MORE ADVANCED FINANCIAL MANAGEMENT

Areas For Improvement	Priority
• Cash Flow Management • Forecasting and Budgeting • Banking Relationship • Financial Information • Working Capital need	
• Investment Analysis and Planning	
• Cost Control • Reduce fixed costs - lower break-even point • Budgeting - Responsibilities	
• Organisational Structure • Implications for cost control	
• Contracts & Pricing	
• Accounting Policies and Procedure	
• Information System - (Administrative)	
• Internal Control	
• Management Education	



Source: CET Analysis

Strategy... Finance...

APATOR'S MANAGEMENT MUST FOCUS ON BOOSTING REVENUES AND CASH FLOW BY BRING IN PRODUCTS WHICH CAN BE PRODUCED ON THE EXISTING MACHINE PARC

- Focus on improving cash flow
  - Institute rigorous telephone expediting of debtors to maximise prompt payment of invoices
  - Implement cash planning on a monthly basis
  - Consider very carefully the relationship with CZG, and whether to extend them further credit. Consider ways of extracting their outstanding liability to Apator - court proceedings, take goods instead of cash
  - Continue current efforts to reduce material inventories. Order stock **only** when required
  - Consider leasing buildings on Apator's site, e.g. warehousing
  - Intensify efforts to utilise the galvanising line and other machinery operations through subcontract work for all branches of industry
  - Try to negotiate better payment terms with large suppliers
  - Keep bank informed of all developments. Build up relationship with banker

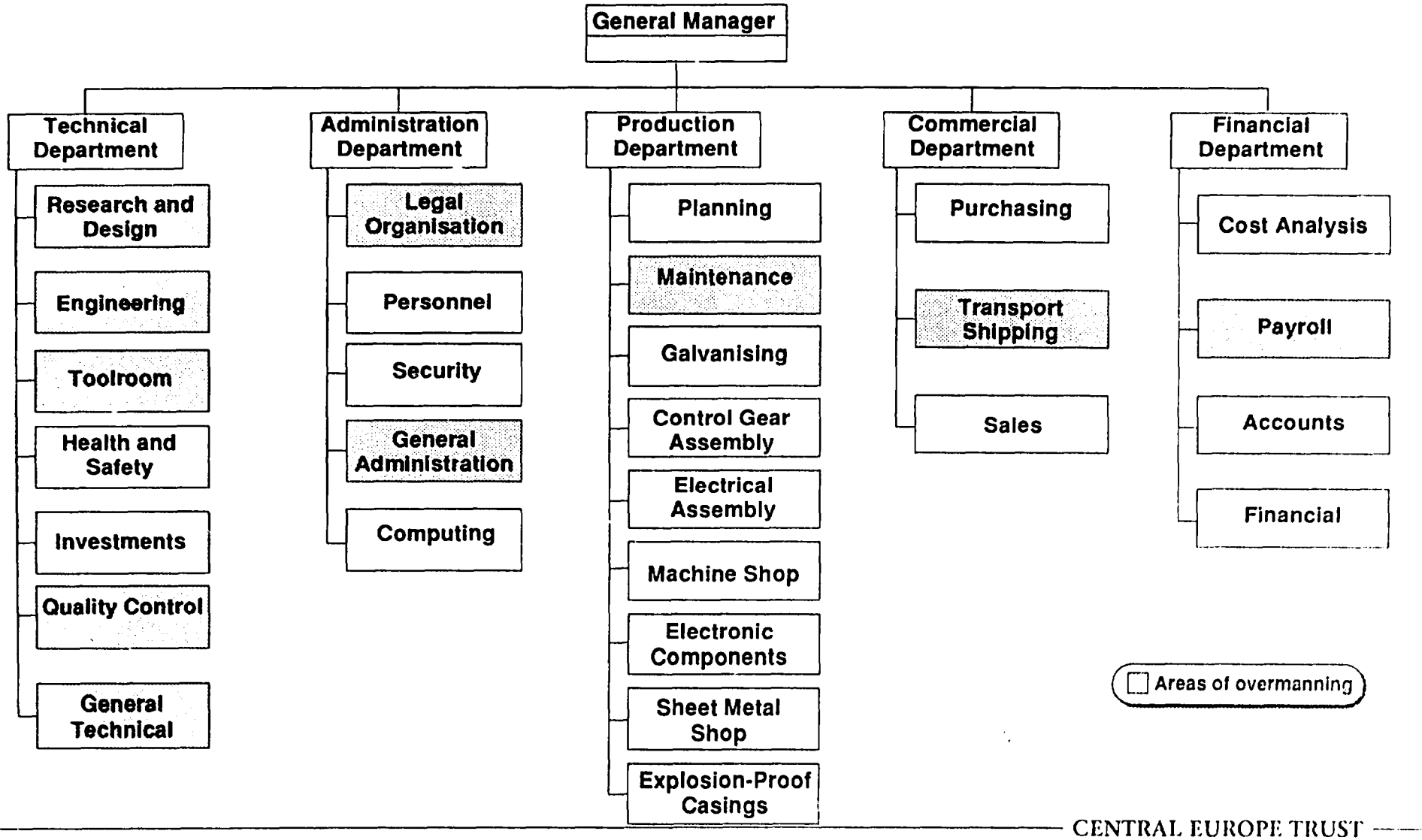
- Seek cheaper sources of credit and restructure debt. The currency risks from this can be reduced if Apator develop sales in countries with hard currencies

- Institute capital budgeting procedure evaluating projects against each other using internal rate of return techniques

- Keep borrowing for new product development purposes to a minimum to avoid high fixed costs early in product life cycle

- Invest heavily in building up sales, marketing and after sales service activities even at the expense of new product development

OVERMANNING IS CURRENTLY CONCENTRATED IN NON PRODUCTIVE DEPARTMENTS SUCH AS QUALITY CONTROL, ADMINISTRATION, AND MAINTENANCE



FURTHER REDUCTIONS IN PERSONNEL SHOULD BE CARRIED OUT THROUGH NATURAL WASTAGE AS FAR AS POSSIBLE. SCOPE EXISTS FOR REDEPLOYMENT OF SOME TECHNICAL STAFF IN SALES

Redundancy / Redeployment Programme

Department	Estimated Overmanning	Timing	Options	Comments
Technical	20	Early 1992	• Redeploy to sales • Utilise through introduction of system design services • "Natural wastage" / redundancy	• Mainly staff connected with thyristor drive unit production • Qualified experienced engineers
Toolroom	50	1992	• "Natural wastage" / redundancy • Spin off as a separate business forcing staff seek external orders	• Currently costs of making tools in Apator are higher than the prices of toosl purchased externally • Spin-off removes redundancy burden from Apator management
Quality Control	20	As total quality programme implemented	• "Natural wastage" / redundancy • Some work available in the area of improving quality information systems	• A total quality programme will cause these redundancies as deliveries will have to be to specification and worker's will check their own work
Administration	10	Mid 1992	• "Natural wastage" or redundancy	• People involved with running Apator's social infrastructure. This will be removed prior to privatisation
Maintenance	50	Gradually over 1992 and 1993	• Redeploy skilled craftsmen in production areas requiring quality work • "Natural wastage" / redundancy	• Maintenance needs will gradually fall as redundant machinery is sold
Transport	20	1992	• "Natural wastage" / redundancy • Spin off as a separate business forcing staff to seek external orders	• Transport is a a very poor fit with Apator's core business. • Spin -off removes redundancy burden from Apator's management
Accounts	10	When privatised	• "Natural wastage" or redundancy	• Financial documentation and reporting requirements of state company will be eliminated

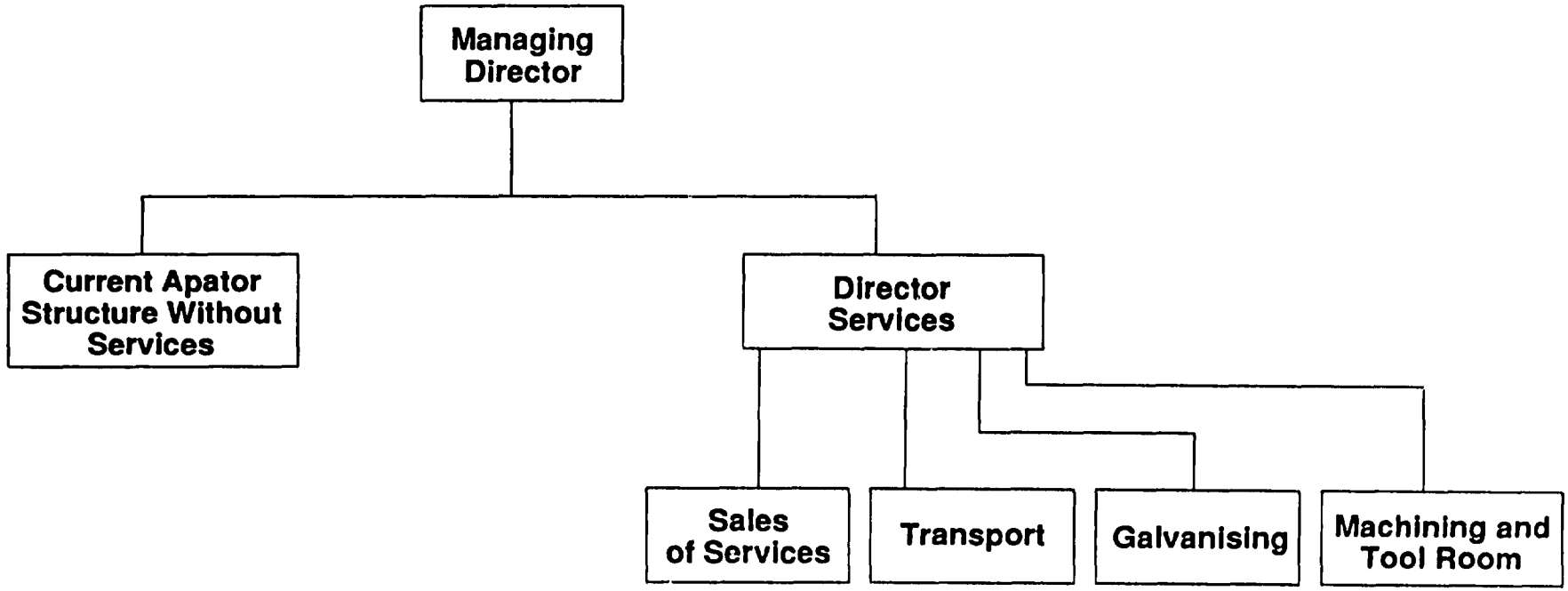
APATOR HAS SEVERAL INTERMEDIATE PRODUCT DEPARTMENTS WHICH ARE CAPABLE OF SELLING THEIR SERVICES AND PRODUCTS OUTSIDE OF THE COMPANY. IN ORDER TO MOTIVATE MANAGEMENT OF THESE DEPARTMENTS AND TO CLARIFY THEIR COSTS TO APATOR, IT IS SUGGESTED THAT THESE BECOME PROFIT CENTRES

Department	Potential to sell External Services	Possibility of Buying External Service	Proposed Form
Galvanising	High	High	Temporary Profit Centre
Control Gear Assembly	Low	Low	Cost Centre
Electrical/Electronic Assembly	High	Low	Cost Centre
Machine Shop	High	High	Temporary Profit Centre
Tool Room	High	High	Temporary Profit Centre
Injection Moulding	Medium	High	Cost Centre
Sheet Metal Shop	Low	Low	Cost Centre
Explosion Proof Casings Shop	Medium	Low	Cost Centre
Painting Facility	Low	Low	Cost Centre
Information Systems	Low	Low	Cost Centre
Research and Development	Low	High	Cost Centre
Design	High	Low	Cost Centre
Health and Safety	Low	Low	Cost Centre
Investment Projects	Low	High	Cost Centre
Quality Control	Low	Low	Cost Centre
Process Development	Low	Low	Cost Centre
Legal	Low	High	Cost Centre
Personnel	Low	Low	Cost Centre
Maintenance	Low	Medium	Cost Centre
Purchasing	Low	Low	Cost Centre
Sales and Marketing	Low	Low	Cost Centre
Transport	High	High	Temporary Profit Centre
Accounts	Low	Medium	Cost Centre

Issues

- Precedence of internal requirements over outside client work in temporary profit centres
- Internal transfer prices to be determined on the basis of cost to the purchasing department of buying outside.

GIVEN THE HIGHLY INTEGRATED NATURE OF APATOR, IT WILL BE DIFFICULT TO DISENTANGLE IT INTO BUSINESS UNITS. IT IS CURRENTLY NOT JUSTIFIED DUE TO LOW CAPACITY UTILISATION. HOWEVER THE SEPARATION OF SERVICE BUSINESSES FROM CORE DEPARTMENTS AS TEMPORARY PROFIT CENTRES WOULD BE A USEFUL FIRST STEP. EXPERT INPUT FROM AN ORGANISATIONAL SPECIALIST IS ESSENTIAL



ONCE APATOR HAS REORGANISED INTO PROFIT AND COST CENTRES IT WILL BE POSSIBLE TO IMPLEMENT A COMPUTER-BASED MANAGEMENT INFORMATION SYSTEM

MANAGEMENT INFORMATION SYSTEMS: OUTLINE SYSTEM SPECIFICATION

Data Collection
Labour & Materials - at shop floor Production Overhead - allocated by relevant ratio at shop floor or centrally Overheads - allocated by central accounts department

Systems
Existing ICL solutions if practable using shop floor and accounts department terminals

Reporting
Simplified tailored to management needs. Avoid at all costs information overload

APATOR'S FINANCIAL ACCOUNTING SYSTEM SHOULD BE REDESIGNED IN ACCORDANCE WITH INTERNAL REPORTING REQUIREMENTS SUBJECT TO MEETING MINIMUM EXTERNAL REPORTING STANDARDS

Management Information Systems: Key Points

System of data capture to be completely re-organised:

Materials to be costed at standard cost with a program module monitoring price variance and updating standards once price variation exceeds say 5%. Stores requisition to be source document

Direct labour to be allocated on basis of actual hours/rates. Variance reports to be produced automatically based on standard hours. Time records to source document

Overhead to be allocated on actual cost basis using relevant ratios. Input via account departments

Fully integrated with financial accounting system

Real time processing

Powerful report generating package to ensure relevant reports can be produced

Formalised management structure of each department to include review of performance measures

Profit centres to be evaluated on profit as measured by both controllable and total departmental costs

Transfer prices between departments to be established

Appropriate costing system to be used according to type of procedure (ie. batch, one-off or continuous processing)

Strategy... Costs/ MIS...

A HIGH LEVEL TASK FORCE SHOULD BE SET UP MADE UP OF TECHNICAL, ACCOUNTING, AND PRODUCTION STAFF IN ORDER TO ESTABLISH TRUE PRODUCT COSTS

Cost Accounting: Key Factors

Establish actual material and labour usage for each product, sub-assembly or service

- Establish a costing system on Lotus 123 able to react quickly to changes in unit costs
- Establish variable overhead usage for each product and sub-assembly - of necessity on an estimated basis
- Establish on an on-going basis the variable costs of each new product or service
- Report weekly capacity utilisation in each department
- Management to keep close control over pricing decisions being made by sales staff
- Avoid at all costs decisions to sell at below marginal cost
- Revalue stocks (particularly slow moving) at the lower of replacement cost and net realisable value and use these costs in pricing decisions
- The existing accounting system should only be used for financial reporting purposes as it is not adaptable to provide meaningful or timely management data
- Given that materials are the main cost factor in all products, link overhead absorption to material cost rather than labour

APATOR NEEDS TO MAKE GATHERING OF INFORMATION ON THEIR ENVIRONMENT MORE SYSTEMATIC AND DOCUMENTED. PAPER SYSTEMS SHOULD BE DEVELOPED PRIOR TO IMPLEMENTING COMPUTER DATABASES

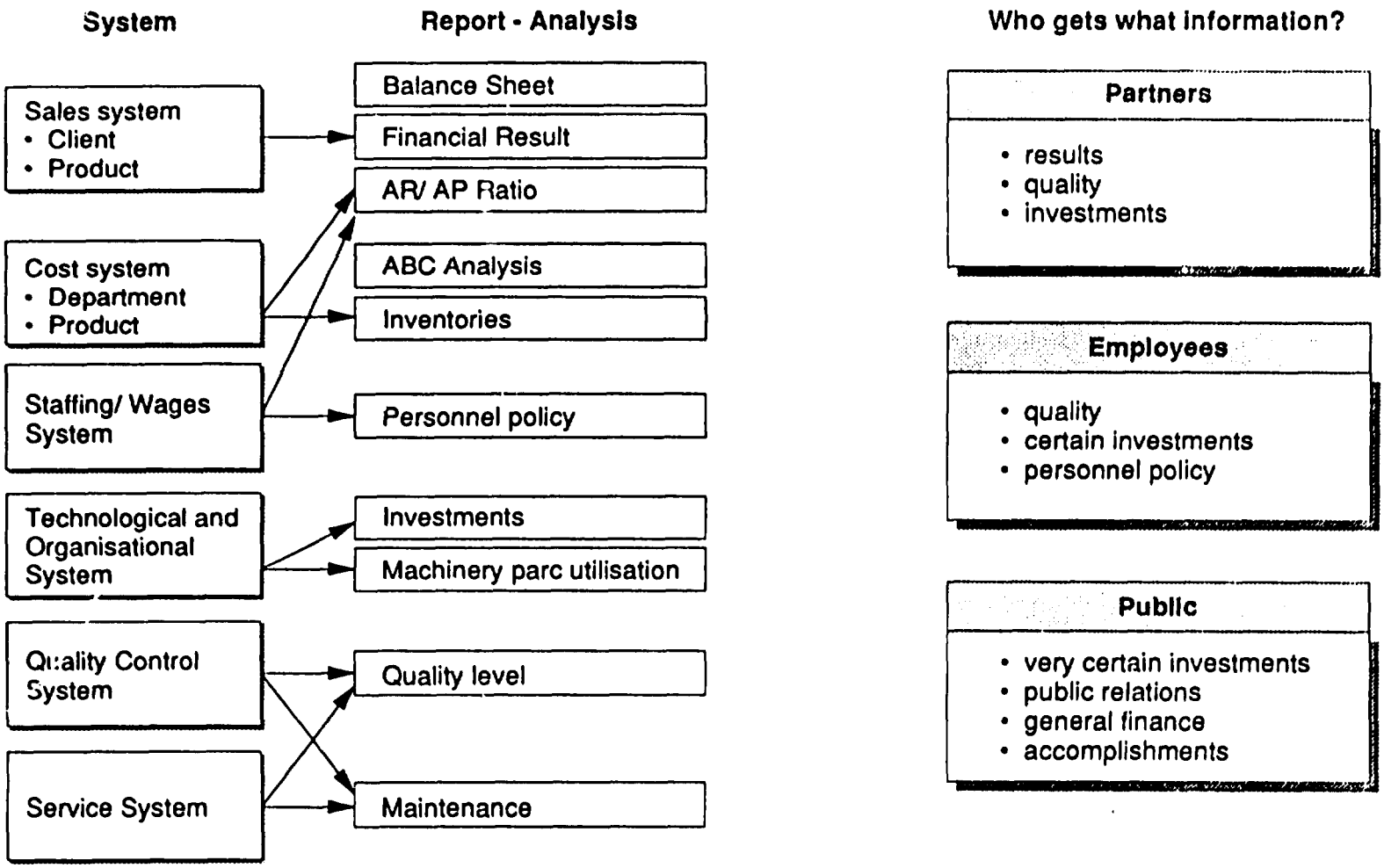
Information Gathering: External

Information	Product	Market	Competition	Environment
What?	New developments Patents Technical Information	Currently and potential customers (segmentation) • which are most important • their financial position • opinion on Apator • opinion on competitors • distribution channels • marketing	Products Customers Competitor's financial standing Strategies Prices	State regulations Financing Industrial policy Relevant legislation Economy
Who collects it?	Information Bureau Technical personnel	Directors Salesmen Accountant	Chief Accountant Marketing Department Directors Salesmen	Managing Director Legal Department Chief Accountant
How is it gathered?	Technical publications Mass media Direct visits Purchases Files in information bureau	Visit reports File notes Fact sheets Questionnaires Paper information Database by customer held by marketing	File notes Fact sheets Meetings Interviews Research Paper Information Database by competitor held by marketing	Publications Direct enquiries Interviews Meetings Conferences Files in administration department

Source: CET/ Apator Management Training Sessions

INTERNAL INFORMATION FLOWS NEED TO BE RATIONALISED AND CONTROL EXERCISED OVER WHO INFORMATION IS DISSEMINATED TO

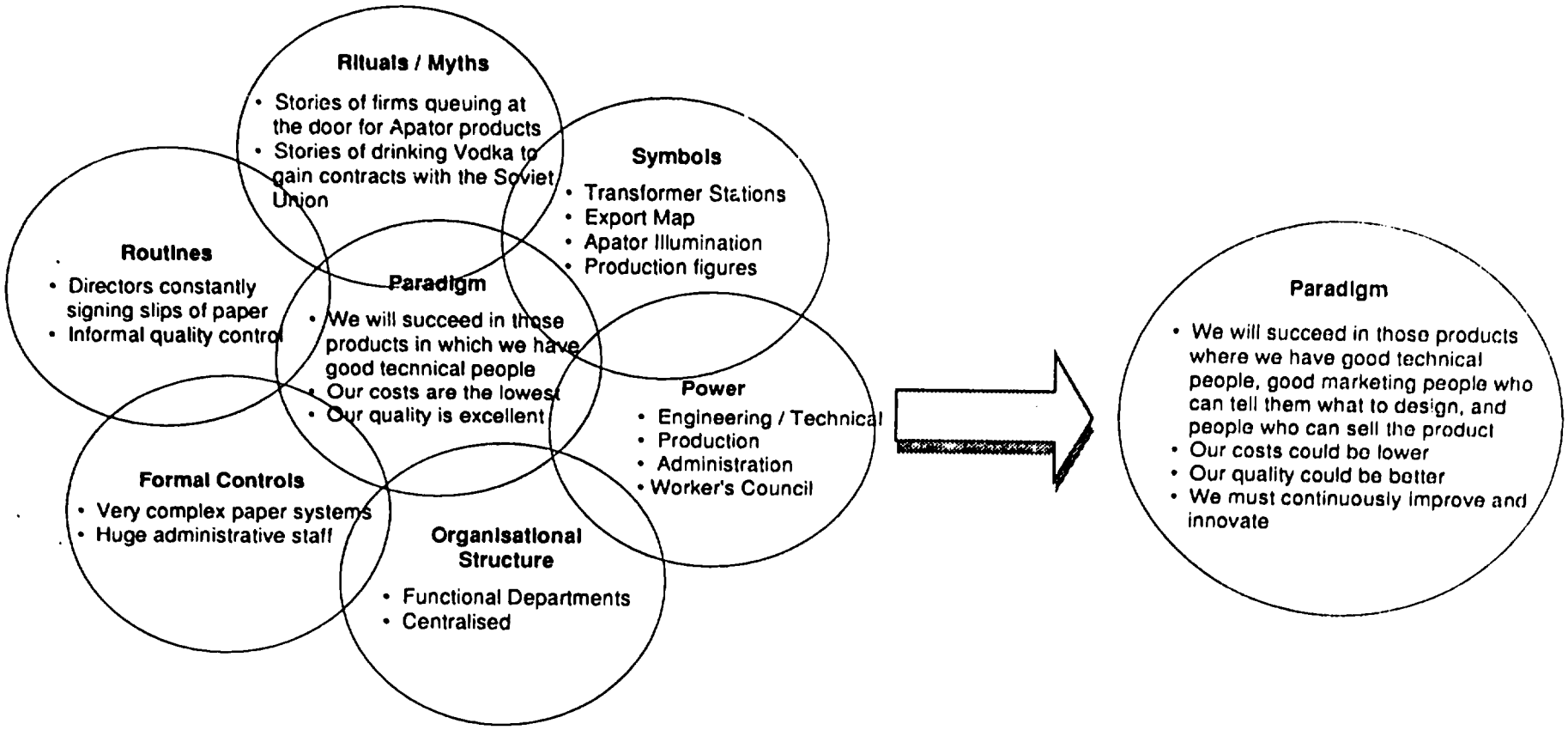
Information Flows: Internal



Source: CET/ Apator Management Training Session

Strategy... Organisational Culture...

IF APATOR IS TO SUCCEED IN THE COMPETITIVE ELECTROTECHNICAL SECTOR OF THE FUTURE, THEY WILL HAVE TO CHANGE TO A MORE DECENTRALISED MARKET DRIVEN ORGANISATION IN WHICH EVERYONE IS AWARE OF THE NEED TO CONTINUOUSLY DRIVE DOWN COSTS AND IMPROVE QUALITY



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Strategy... Conclusions...

THE KEY TO APATOR'S RESTRUCTURING IS INITIALLY NOT PRODUCT DIVERSIFICATION/ MODERNISATION, BUT DIVERSIFICATION THROUGH ALTERNATIVE UTILISATION OF EXISTING ASSETS

- Unless Apator find products which fill existing capacity, they will not generate the financial resources to continue to compete effectively in all of their current markets and realise their plans for upgrading their product and process technology

- Although the market for explosion - proof mining equipment is declining it appears to be the most attractive for the following reasons:

  - Apator have a lot of technical expertise and assets dedicated to producing this specialised product
  - Barriers to entry for new competitors are relatively high. The product needs to conform to special standards and gain approval from the relevant authorities
  - Competition is likely to be less intense in this niche market for specialist products
  - Apator has a good relationship with the mining industry and their equipment has gained the industry's confidence

However even in this market it is unlikely that Apator will be able to sustain competitive advantage against firms with the power of Siemens

- Unless Apator forms links with a partner from a developed economy, they are unlikely to be able to gain or sustain a competitive advantage in product groups such as low voltage switches, drive control units, and control/ distribution cabinets because:

  - Apator do not have the innovative organisational culture required to keep pace with technological developments, particularly in the innovation-driven drive control unit market
  - The industry for these products is globally competitive and is dominated by major multinational corporations such as Siemens, ABB, and General Electric
  - Apator do not have the financial resources to recover the technology gap which has developed between them and firms from the developed world
  - Apator needs to gain access to more stable growing markets in Western Europe
    Ideally these links should include training and market access as well as technological licenses

- Apator has an extensive flexible machine parc which is currently underutilised. These machines could be utilised to make new less technologically advanced products such as:

  - Metal office furniture
  - Site office cubicles
  - Machine tool guards
  - Turned components for the automotive industry
  - Engineering specialists could be employed in system design

FINANCIAL BUSINESS PLAN

Strategy... Financial Business Plan.....

	Model A	Model B	Model C
Activities and Actions	• Siemens sales 10 units per annum • Office furniture 1000 units in 1992 rising to 10,000 in 1995 • Gradual fall in sales of old generation products	• Siemens sales rising to 25 units per annum in 1995 • Office furniture 2000 units in 1992 rising to 15,000 in 1995 • Gradual fall in sales of old generation products	• As model B but with no transformer station sales in 1992
Operating Cash Flow	• Negative in 1992 • Deficit could be financed by 1991 surplus if sales of transformer stations materialise • Potential for borrowing to finance investments	• Negative in 1992 • Deficit would be financed by 1991 surplus if sales of transformer stations materialise • Better potential for borrowing than model A	• Largely negative in 1992 • Deficit not financed by 1991 sales and Apator would have to delay investment plans

Conclusions :

Provided that Sales of Transformer stations are materialised in 1992
Current cost structure is maintained
Volumes and margins of new and existing products are maintained

Apator will have small cash surpluses available for investment or wage rises of the order of:
$ 167,000 in 1992
$ 487,000 in 1993

They will also have borrowing potential

MODEL A ASSUMPTIONS

No inflation
Domestic sales at the level of 1991
No Soviet market growth over the whole period of time
Apator will not get any state subsidies
Transformer Stations are not sold after 1992
Siemens Mining Equipment sales volume is 10 units per annum from 1992 to 1995
Office Furniture sales volume is 1000 units in 1992, 3000 in 1993, 5000 in 1994, 10000 in 1995
Projected cost structure based on actual costs achieved in 1991 YTD and Apator cost estimates after 1991
No administration cost increase
No other revaluation of assets
Sales tax is in force only to the end of 1992, then it will be replaced by VAT
No cost/salary increase above inflation
inventories constant
Liabilities are paid off to the level of accounts receivable
State dividend is paid off to the level of accounts receivable
Excessive wages tax is not pay in 1992 and thereafter
US Dollar - 11500 PZL
Apator will dispose of its assets, 4 bln PZL in 1992 and 500 mln PZL a year thereafter
Assets disposed of are fully depreciated
Apator will invest to maintain production and to acquire manufacturing facilities 11 bln PZL in 1991, 20 bln PZL in 1992, 17 bln in 1993 and 1994, 15 bln PZL in 1995
Major investments in 1992 referring to new machines include cutting machine, bending machine, and powder painting facility
New investments depreciated at 10 per cent annually
Apator will pay off its short term credit to the end of 1992, 10 bln PZL per annum
No significant changes in working capital
Money from Siemens mining equipment will come in immediately not in installments
Sales projections for existing and new electrotechnical products provided by Apator management
Sales projections for office furniture come from CET market study
Increase in spend on marketing and distribution will enable Apator to maintain predicted sales levels and margins

SALES BY PRODUCTS

(UNITS)	1990	1991	1992	1993	1994	1995
Explosion-Proof Mining Equipment:	15300	4800	4660	4760	4760	4760
- Flame-Proof Circuit-Breakers	15300	4785	4600	4700	4700	4700
- Flame-Proof Switching Units	0	15	50	50	50	50
- Siemens Mining Equipment	0	0	10	10	10	10
Transformer Stations	5200	1347	560	0	0	0
Thyristor Drive Units	1700	1200	1820	2000	2000	2000
Control/Distribution Cabinets:	98300	5500	1500	1500	1500	1500
- Switching-Control Units	2000	2000	1500	1500	1500	1500
- Control Panels	96300	3500	0	0	0	0
Low Voltage Switches:	456000	290000	290000	290000	330000	330000
- Cam-Operated Switches	456000	290000	261000	232000	231000	198000
- EBD Contactors	0	0	29000	58000	99000	132000
Office Furniture	0	0	1000	3000	5000	10000
Miscellaneous	5400	3000	3000	6000	10000	10000

REVENUES (in million PZL)	1991	1992	1993	1994	1995
Explosion-Proof Mining Equipment:	67150	102500	117500	122500	132500
- Flame-Proof Circuit-Breakers	63400	80000	95000	100000	110000
- Flame-Proof Switching Units	3750	12500	12500	12500	12500
- Siemens Mining Equipment	0	10000	10000	10000	10000
Transformer Stations	100600	35000	0	0	0
Thyristor Drive Units	7800	13720	14800	16800	16800
Control/Distribution Cabinets:	19850	10000	10000	10000	10000
- Switching-Control Units	13800	10000	10000	10000	10000
- Control Panels	6050	0	0	0	0
Low Voltage Switches:	21900	25000	27500	31300	31300
- Cam-Operated Switches	21900	20455	18330	16850	13410
- EBD Contactors	0	4545	9170	14450	17890
Office Furniture	0	2000	6000	10000	20000
Other	6000	6000	12000	20000	20000
Sales	223300	194220	187800	210600	230600
Assets Disposal	0	4000	500	500	500
Total Revenues	223300	198220	188300	211100	231100

Business Plan...Model A

FINANCIAL FORECAST
(in million PZL)

	1990	1991	1992	1993	1994	1995
Revenues:	284570	223300	194220	187800	210600	230600
Mining Equipment	73988	67150	102500	117500	122500	132500
Transformer Stations	88217	100600	35000	0	0	0
Thyristor Drive Units	8537	7800	13720	14800	16800	16800
Control/Distribution Cabinets	48377	19850	10000	10000	10000	10000
Low Voltage Switches	28457	21900	25000	27500	31300	31300
Office Furniture	0	0	2000	6000	10000	20000
Other	36994	6000	6000	12000	20000	20000
Sales Tax	179	350	400	0	0	0
Costs:	235892	187824	169811	168978	185247	198244
Direct Materials	159372	92501	74958	75558	85198	90748
Energy	5024	8856	9043	7390	7403	7400
Labour	32843	47520	48130	53190	58650	65300
Marketing & Distribution	8221	8700	10000	11000	12000	13000
Interest	15049	9000	5800	0	0	0
Depreciation	3635	9381	11400	11100	11100	10900
Administration	11298	10866	9180	9180	9180	9180
Other	450	1000	1300	1560	1716	1716
Net of Extra Incomes/Losses	21756	500	4000	500	500	500
Profit Before Tax	70255	35626	28009	19322	25853	32856
Income Tax	28102	14250	11204	7729	10341	13142
Dividend	948	1030	0	0	0	0
Other Taxes	3719	4972	0	0	0	0
Profit After Tax	37486	15374	16805	11593	15512	19714

CASH FLOW ANALYSIS
(in million PZL)

CF ANALYSIS	1991	1992	1993	1994	1995
Profit After Tax	15374	16805	11593	15512	19714
Add Back Depreciation	9381	11400	11100	11100	10900
Less Loan Capital Repayments	10000	10000	0	0	0
Less Investment	11000	20000	17000	17000	15000
Increase in Working Capital	0	0	0	0	0
Total Cash Flow	3755	-1795	5693	9612	15614

MODEL B ASSUMPTIONS

No inflation
Domestic sales at the level of 1991
No Soviet market growth over the whole period of time
Apator will not get any state subsidies
Transformer Stations are not sold after 1992
Siemens Mining Equipment sales volume is 10 units in 1992, 15 in 1993, 20 in 1994, 25 in 1995
Office Furniture sales volume is 2000 units in 1992, 5000 in 1993, 10000 in 1994, 15000 in 1995
Projected cost structure based on actual costs achieved in 1991 YTD and Apator cost estimates after 1991
No administration cost increase
No other revaluation of assets
Sales tax is in force only to the end of 1992, then it will be replaced by VAT
No cost/salary increase above inflation
Inventories constant
Liabilities are paid off to the level of accounts receivable
State dividend is paid off to the level of accounts receivable
Excessive wages tax is not paid in 1992 and thereafter
US Dollar - 11500 PZL
Apator will dispose of its assets, 4 bln PZL in 1992 and 500 mln PZL a year thereafter
Assets disposed of are fully depreciated
Apator will invest to maintain production and to acquire manufacturing facilities 11 bln PZL in 1991, 20 bln PZL in 1992, 17 bln in 1993 and 1994, 15 bln PZL in 1995
Major investments in 1992 referring to new machines include cutting machine, bending machine, and powder painting facility
New investments depreciated at 10 per cent annually
Apator will pay off its short term credit to the end of 1992, 10 bln PZL per annum
No significant changes in working capital
Money from Siemens mining equipment will come in immediately not in installments
Sales projections for existing and new electrotechnical products provided by Apator management
Sales projections for office furniture come from CET market study
Increase in spend on marketing and distribution will enable Apator to maintain predicted sales levels and margins

SALES BY PRODUCTS (UNITS)	1990	1991	1992	1993	1994	1995
Explosion-Proof Mining Equipment:	15300	4800	4660	4765	4770	4775
- Flame-Proof Circuit-Breakers	15300	4785	4600	4700	4700	4700
- Flame-Proof Switching Units	0	15	50	50	50	50
- Siemens Mining Equipment	0	0	10	15	20	25
Transformer Stations	5200	1347	560	0	0	0
Thyristor Drive Units	1700	1200	1820	2000	2000	2000
Control/Distribution Cabinets:	98300	5500	1500	1500	1500	1500
- Switching-Control Units	2000	2000	1500	1500	1500	1500
- Control Panels	96300	3500	0	0	0	0
Low Voltage Switches:	456000	290000	290000	290000	330000	330000
- Cam-Operated Switches	456000	290000	261000	232000	231000	198000
- EBD Contactors	0	0	29000	58000	99000	132000
Office Furniture	0	0	2000	5000	10000	15000
Miscellaneous	5400	3000	3000	6000	10000	10000

Business Plan...Model B

REVENUES

(in million PZL)	1991	1992	1993	1994	1995
Explosion-Proof Mining Equipment:	67150	102500	122500	132500	147500
- Flame-Proof Circuit-Breakers	63400	80000	95000	100000	110000
- Flame-Proof Switching Units	3750	12500	12500	12500	12500
- Siemens Mining Equipment	0	10000	15000	20000	25000
Transformer Stations	100600	35000	0	0	0
Thyristor Drive Units	7800	13720	14800	16800	16800
Control/Distribution Cabinets:	19850	10000	10000	10000	10000
- Switching-Control Units	13800	10000	10000	10000	10000
- Control Panels	6050	0	0	0	0
Low Voltage Switches:	21900	25000	27500	31300	31300
- Cam-Operated Switches	21900	20455	18330	16850	13410
- EBD Contactors	0	4545	9170	14450	17890
Office Furniture	0	4000	10000	20000	30000
Other	6000	6000	12000	20000	20000
Sales	223300	196220	196800	230600	255600
Assets Disposal	0	4000	500	500	500
Total Revenues	223300	200220	197300	231100	256100

Business Plan...Model B

FINANCIAL FORECAST

(in million PZL)	1990	1991	1992	1993	1994	1995
Revenues:	284570	223300	196220	196800	230600	255600
Mining Equipment	73988	67150	102500	122500	132500	147500
Transformer Stations	88217	100600	35000	0	0	0
Thyristor Drive Units	8537	7800	13720	14800	16800	16800
Control/Distribution Cabinets	48377	19850	10000	10000	10000	10000
Low Voltage Switches	28457	21900	25000	27500	31300	31300
Office Furniture	0	0	4000	10000	20000	30000
Other	36994	6000	6000	12000	20000	20000
Sales Tax	179	350	400	0	0	0
Costs:	235892	187824	170481	174112	188675	201711
Direct Materials	159372	92501	75448	80293	87648	93198
Energy	5024	8856	9093	7499	7671	7677
Labour	32843	47520	48260	53480	59360	66040
Marketing & Distribution	8221	8700	10000	11000	12000	13000
Interest	15049	9000	5800	0	0	0
Depreciation	3635	9381	11400	11100	11100	10900
Administration	11298	10866	9180	9180	9180	9180
Other	450	1000	1300	1560	1716	1716
Net of Extra Incomes/Losses	21756	500	4000	500	500	500
Profit Before Tax	70255	35626	29339	23188	42425	54389
Income Tax	28102	14250	11736	9275	16970	21756
Dividend	948	1030	0	0	0	0
Other Taxes	3719	4972	0	0	0	0
Profit After Tax	37486	15374	17603	13913	25455	32633

CASH FLOW ANALYSIS
(in million PZL)

CF ANALYSIS	1991	1992	1993	1994	1995
Profit After Tax	15374	17603	13913	25455	32633
Add Back Depreciation	9381	11400	11100	11100	10900
Less Loan Capital Repayments	10000	10000	0	0	0
Less Investment	11000	20000	17000	17000	15000
Increase in Working Capital	0	0	0	0	0
Total Cash Flow	3755	-997	8013	19555	28533

MODEL C ASSUMPTIONS

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Domestic sales at the level of 1991
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Increase in spend on marketing and distribution will enable Apator to maintain predicted sales levels and margins

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(UNITS)

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- Flame-Proof Switching Units	0	15	50	50	50	50
- Siemens Mining Equipment	0	0	10	15	20	25
Transformer Stations	5200	1347	0	0	0	0
Thyristor Drive Units	1700	1200	1820	2000	2000	2000
Control/Distribution Cabinets:	98300	5500	1500	1500	1500	1500
- Switching-Control Units	2000	2000	1500	1500	1500	1500
- Control Panels	96300	3500	0	0	0	0
Low Voltage Switches:	456000	290000	290000	290000	330000	330000
- Cam-Operated Switches	456000	290000	261000	232000	231000	198000
- EBD Contactors	0	0	29000	58000	99000	132000
Office Furniture	0	0	2000	5000	10000	15000
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REVENUES
(in million PZL)

	1991	1992	1993	1994	1995
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Other	6000	6000	12000	20000	20000
Sales	223300	161220	196800	230600	255600
Assets Disposal	0	4000	500	500	500
Total Revenues	223300	165220	197300	231100	256100

Business Plan...Model C

FINANCIAL FORECAST

(in million PZL)	1990	1991	1992	1993	1994	1995
Revenues:	284570	223300	161220	196800	230600	255600
Mining Equipment	73988	67150	102500	122500	132500	147500
Transformer Stations	88217	100600	0	0	0	0
Thyristor Drive Units	8537	7800	13720	14800	16800	16800
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CASH FLOW ANALYSIS
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Less Investment	11000	20000	17000	17000	15000
Increase in Working Capital	0	0	0	0	0
Total Cash Flow	3755	-16268	8013	19555	28533

MAJOR INVESTMENTS PLANNED FOR 1992 INCLUDE A NEW POWDER PAINTING FACILITY

INVESTMENTS

In billion PZL	1991	1992	1993	1994	1995
Licences	2.1	1.5	0	0	0
Existing machinery parc replacement	7.9	12.5	15.0	15.0	15.0
New machines	1.0	6.0	2.0	2.0	0.0

CONTENTS

CENTRAL EUROPE TRUST

Appendices...

I OFFICE FURNITURE MARKETS

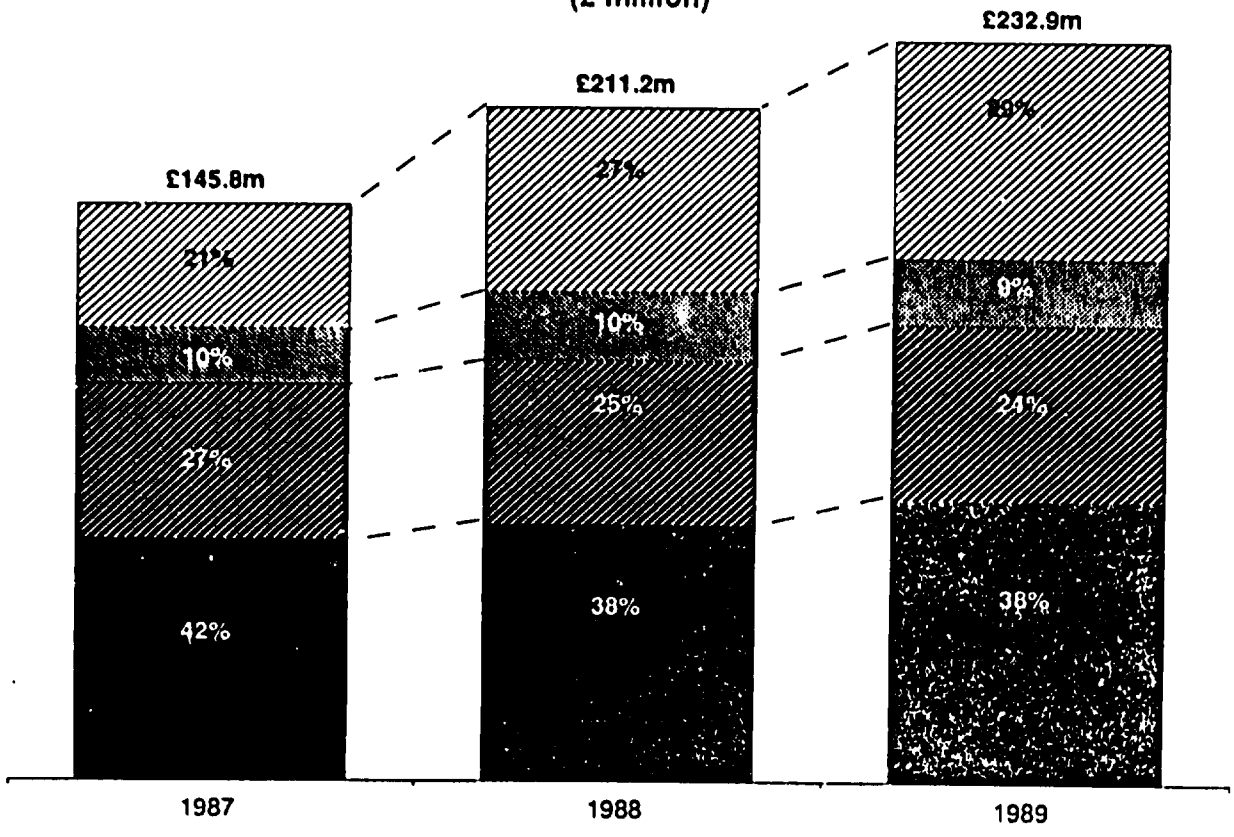
II BUSINESS PLAN - SUPPORTING CALCULATIONS

OFFICE FURNITURE APPEARS TO BE AN ATTRACTIVE POTENTIAL OPTION FOR APATOR. THIS SECTION EXAMINES:

- Trends in the UK office furniture market and the implications for Apator
- The likely demand for office furniture in Poland from new offices
- Current Polish distribution channels for office furniture
- Apators potential to compete on the Polish office furniture market
- The results of CET's survey of the Polish office furniture market

BOOSTED BY THE GROWTH OF THE SERVICE SECTOR, UK SALES OF METAL OFFICE FURNITURE GREW RAPIDLY IN THE LATE 1980's

UK Manufacturer's Sales of Metal Office Furniture 1987 - 1989
(£ million)



Key Trends

Increased demand from new businesses starting up in the financial services sector

Increased demand for "systems furniture" as established companies converted to electronic data and world processing systems

Source: Keynote Report

Key Features of the Office Furniture Market In the UK

- Continuous and sustained growth. The market is expected to grow in value at a rate of approximately 10% p.a until 1995

- As office technology has developed, the office furniture market has undergone a shift away from its traditional area of free-standing furniture towards systems furniture. Mini and micro computers, and word processors have stimulated the demand for furniture specifically designed to facilitate their use

- During the current downturn in the UK economy, the office furniture indsutry has been cushioned by the increasing demand for systems furniture

- Around 35% of the market is served by manufacturers who deal directly with the end user. The rest of the market is served by wholesalers

- Over 80% of UK domestic demand is satisfied by local producers. Importers mainly compete at the high price/ quality end of the market

ALTHOUGH THERE ARE SEVERAL HUNDRED UK MANUFACTURERS OF OFFICE FURNITURE, THE MARKET IS DOMINATED BY A SMALL NUMBER OF SUCCESSFUL COMPANIES

Major UK Players: Office Furniture

U.K. Company	Ultimate Holding Company	1989 Sales (£ million)
VF International	Samas Groups N.V. (Netherlands)	92.18
Project Office Furniture PLC	Bullough PLC (UK)	54.35
Wassal PLC	———	38.94
Steelcase Strafor PLC	Steelcase Strafor S.A. (France)	38.39*
Steelcase Strafor (UK) Ltd	Steelcase Strafor S.A. (France)	24.68*
Herman Miller Ltd	Herman Miller Inc (USA)	35.41
FC Brown	Bisley Office Equipment Ltd (UK)	24.84

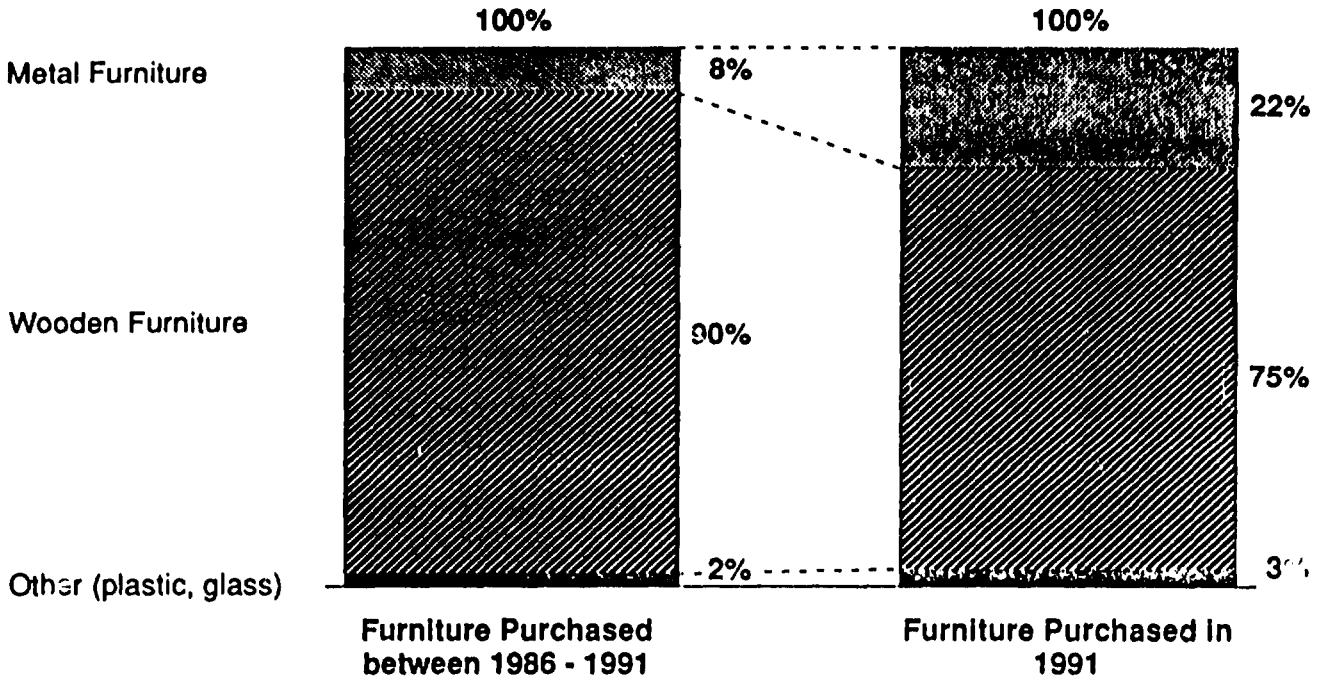
* 1988 Sales

CET HAS CARRIED OUT A SURVEY OF THE OFFICE FURNITURE MARKET IN POLAND

- Sample size was 36 firms of which 17 were foreign
- The methodology used was as follows:
    - A standard questionnaire was prepared
    - Telephone / individual interviews were carried out with the people responsible for the office furniture purchase decision in each office
    - The data from the questionnaires was statistically analysed using Lotus 123 software
    - The results of the analysis were completed, shown in graphical form and conclusions drawn
- It is important to point out that the metal office furniture market in Poland is very underdeveloped. Estimates of potential sales quantities and revenues could therefore be prone to error

THE MAJORITY OF OFFICES SURVEYED ARE EQUIPPED WITH WOODEN FURNITURE. THIS IS THE RESULT OF THE PREVIOUS LOW AVAILABILITY AND LACK OF PROMOTION OF METAL FURNITURE. CET'S SURVEY SHOWS THAT THE METAL FURNITURE SHARE IS GROWING

Types of Furniture in Offices in Poland
% of Offices Surveyed



Source: CET Market Survey/ Analysis

THE OFFICE FURNITURE MARKET CAN BE DIVIDED INTO TWO SEPARATE SEGMENTS WITH DIFFERENT PURCHASING PLANS AND CRITERIA

Office Furniture Market Segmentation*

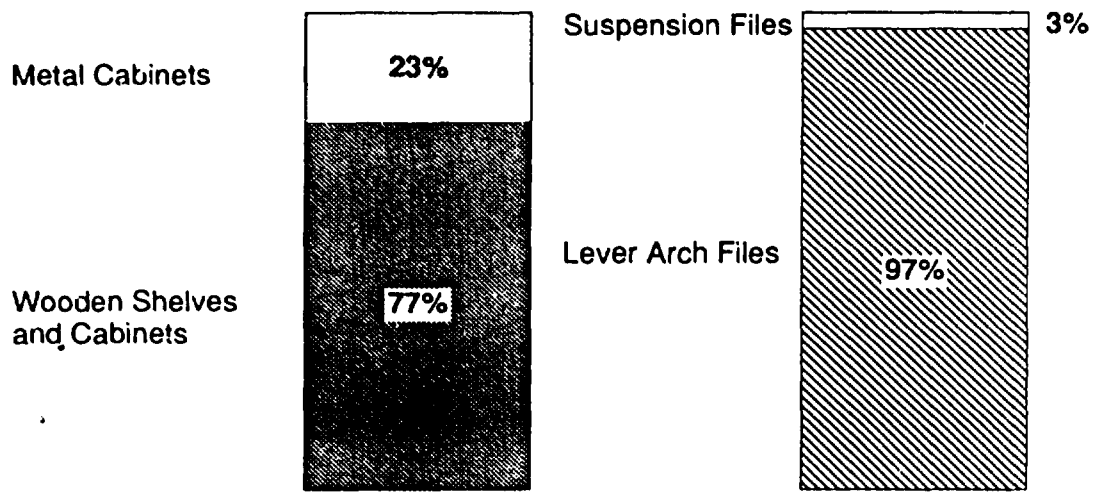
	Foreign Companies	Polish Companies
Present type of furniture	Metal furniture accounts for c.a. 40% of total. The majority was purchased in the last five years	Over 95% is wooden furniture and approximately half was bought more than five years ago
Purchasing plans	Purchasing of new furniture was declared by 35% of companies, for expansion purposes. All expect to spend more than 50 zl mln on office furniture within the next 2 years	Purchasing, within the next 1-2 years declared by 57% of companies for reasons of company expansion or increasing storage capacity. The majority expect to spend more than 50 zl mln in the next two years
Criteria	Many dedicated to metal furniture, and it doesn't matter whether its Polish or foreign made. The most important criteria are: - Quality, matching office style - Attractiveness - Functionality	Not familiar with metal furniture, but are interested in metal furniture if it fulfils the following criteria: - functionality - inexpensive and available - attractive - matches office style
Where customers look for the product	• Furniture shops • Office furniture specialised shop • Newspaper advertisements	• Furniture shops • Direct from producers • Newspaper advertisements

* Based on CET Survery

Source: CET Market Survey/ Analysis

ONLY A LIMITED NUMBER OF OFFICES IN POLAND STORE DOCUMENTS IN METAL CABINETS. THEY USUALLY STORE IT IN WOOD IN LEVER ARCH FILES (OR BINDERS) AND RARELY IN SUSPENSION FILES. AN EFFECTIVE PROMOTION CAMPAIGN SHOWING THE ADVANTAGES OF METAL FURNITURE AND SUSPENSION FILING MAY CHANGE THIS SITUATION. SHOULD APATOR ENTER THIS MARKET, THEY MUST ENSURE THAT THEIR CUSTOMERS HAVE ACCESS TO APPROPRIATELY SIZED SUSPENSION FILES AND HOLDERS

Types of Filing Documents in Offices in Poland
(% of offices surveyed)



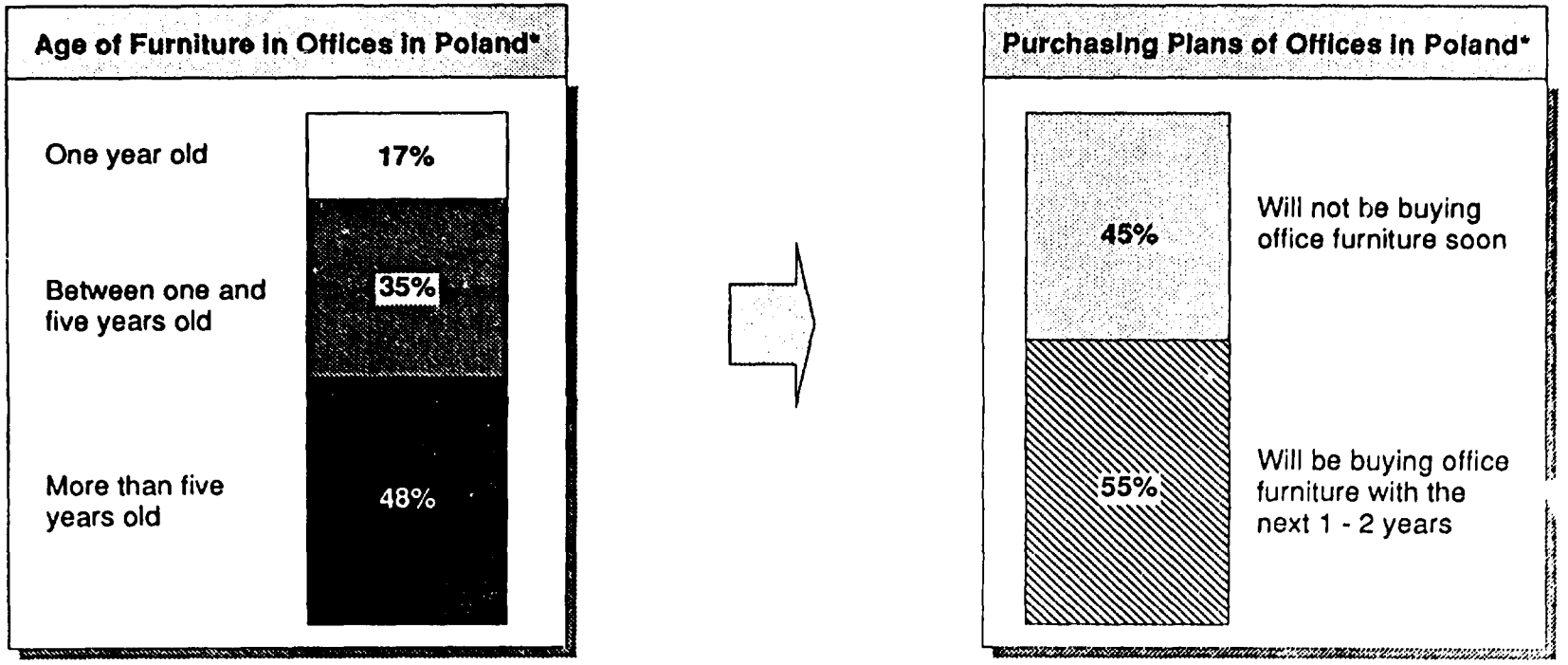
Metal Furniture Benefits

- Fire risk lower
- More durable
- Less expensive
- More functional
- Weight is comparable to wood
- Document security is higher

Source: CET Market Survey/ Analysis

CONSIDERING THAT ALMOST HALF OF THE OFFICES SURVEYED HAVE FURNITURE WHICH IS MORE THAN 5 YEARS OLD AND COMPANIES THAT HAVE PURCHASED FURNITURE WITHIN THE LAST FIVE YEARS CLAIM THAT THEY ARE GOING TO INVEST MORE, THERE APPEARS TO BE CONSIDERABLE POTENTIAL FOR MARKET GROWTH

Office Furniture Market Prospects



* % of offices surveyed

Source: CET Market Survey/ Analysis

Appendix... Office Furniture Markets...

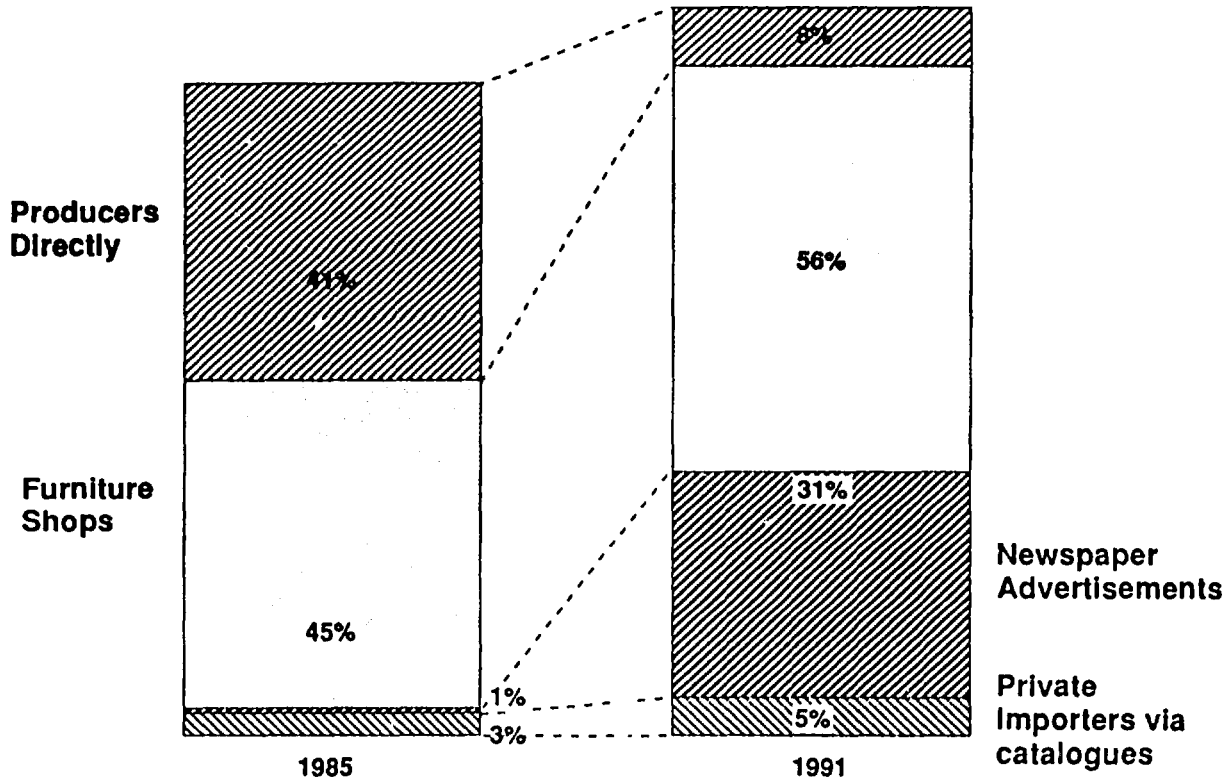
THE HIGH DEMAND FOR OFFICE FURNITURE IN POLAND EMERGED QUITE RECENTLY SO THE DISTRIBUTION SYSTEM IS NOT WELL DEVELOPED YET

Furniture Distribution Options

Furniture Supermarkets	Wholesalers	Specialised Office Furniture Shops	Other Furniture Retailers	Agents
• There are usually 2-3 in each big city in Poland • Well known in its region • Have office equipment • Often the first "port of call" for potential customers	• Currently there is very limited number of wholesalers, only 20% goes through them • They are starting to act as retailers • Their role is likely to increase when the market is more competitive	• Presently 6-8 in each major city, but their number is rapidly increasing. More than half of them were established in the last two years • Most of them address their goods to top companies that can afford very expensive furniture • To be sold through this channel Apator should provide high quality level • Specialised shops prefer to contact producer directly	• Presently 20-25 in each major city • 25% show interest to sell office furniture but only 5% already sell it	• The very common way of selling furniture • Agent advertise furniture in media and provide delivery in 3-5 weeks time

MOST POTENTIAL BUYERS STILL START LOOKING FOR OFFICE FURNITURE IN GENERAL FURNITURE STORES. NEWSPAPER ADVERTISEMENTS ARE ALSO WIDELY USED. AWARENESS OF SPECIALIST FURNITURE SHOPS SUCH AS IKEA STILL REMAINS LOW

Where Buyers Look for Office Furniture
(% of those surveyed)



Source: CET Analysis

JUST AFTER AN EFFECTIVE PROMOTION CAMPAIGN CET ESTIMATES THAT APPROXIMATELY 50 THOUSAND METAL CABINETS COULD BE SOLD ON THE POLISH MARKET

Polish Metal Cabinets Market Potential

	Customers	Potential No. of Cabinets (approx)	Place	Comments
70%	Offices*	8400	Warsaw	c.a. 2000 offices required now. Additional insatisfied demand for office space is approximately equal to 1800 offices (180 000 sq m)
		4200	Poznan	c.a. 1000 offices required now. Additional insatisfied demand approx 750 offices (180 000 sq m)
		8400	Gdansk Katowice Krakow	c.a. 2000 offices. Unsatisfied demand approx. 1200 offices (120 000 sq m)
		14700	Other Regions	c.a. 3500 offices now. Additional insatisfied demand approx. 1500 offices (150 000 sq m)
30%	Public Services, Schools, Others	15300	Throughout Poland	The high demand from this segment is expected to emerge in 2-4 years. It is assumed that currently this segment accounts for 30% of sales.
100%	TOTAL	51000		

Demand in 2-4 Years

Considering the likely significant increase in office space in 2-4 years the demand for metals cabinets may grow by up to 60%

* Assumptions - 60% of offices need database files composed on average of 7 cabinets

Source: CET Analysis

A CONSERVATIVE ESTIMATE OF MARKET SIZE SHOWS THAT THE POLISH MARKET FOR METAL OFFICE FURNITURE NEXT YEAR WILL BE IN THE REGION OF 166 ZL BN. THIS IS LIKELY TO GROW RAPIDLY IN SUBSEQUENT YEARS

Metal Office Furniture - Estimated Market Size
(zl bn)

55% of companies declared that they will buy new office furniture 1-2 years

95% of them expect to spend more than 50 mln zl and less than 100 mln zl next year. Taking an average of 75 mln zl

Approximately 4450 offices will spend 75 mln zl on office furniture. Taking a 50/50 split between wood and metal gives a market in the region of 166 zl bn per annum

Source: CET Market Survey/ Analysis

OTHER USEFUL INFORMATION ON THE OFFICE FURNITURE MARKET IN POLAND

- Markets are seasonal with sales concentrated in the months of May, November and December. Sales in January, February and August are less than 50% of the peak levels achieved in May, November and December
- Most firms offer guarantees ranging form 6 months up to 5 years. This guarantee is usually of the form that faulty furniture will be replaced provided that the fault was not caused by normal wear and tear
- Firms usually offer discounts which are very variable
  - ABI offer 10% on orders of over 500 mln zl
    Schaeffer offer 8% discount
  - Mestra negotiate individual discounts with different customers
- There is a very wide price variation between various suppliers for similar equipment. For example Roma charge a price which is 75% lower than that charged by the most expensive on the market - ABI
- Foreign firms such as Febrü offer an office planning service, delivery and installation
- Advertisements in Gazeta Bankowa have yielded most success
- One firm advertised its products on the side of a tram and reportedly gained a 20% increase in sales
- The main markets in Poland are Warsaw, Katowice, and Poznan
- Margins on office furniture are generally higher than for domestic furniture because of the lower volume nature of the market and the lower price sensitivity of firms when compared with consumers. Sources at Paged, a major wooden furniture exporter, quotes the following margins of retail price over factory price:
  Consumer furniture 10 - 20%
  Office furniture 40 - 70%

Conclusions

- The service sector is extremely underdeveloped in Poland. As in the case of the UK, as this sector grows the demand for metal office furniture is also likely to grow
- Domestic demand is likely to be satisfied primarily by Polish producers due to the significance of transport costs. Foreign players are likely to stick to the high quality/ high margin end of the market
- CET estimates that there is a large latent demand for metal office furniture in Poland. This demand has to be stimulated and there is a risk that it will not develop rapidly especially if buyers stick to more traditional wooden products
- Distribution systems for office furniture are currently underdeveloped. Most customers currently buy from general furniture shops or look in newspaper advertisements
- Apator have spare capacity and technical skills in metal sheet processing which makes entry into the Polish market an attractive option at present. Initial calculations show that Apator could be competitive on price. The potential returns have however to be weighed up against the following risks:
    - Diversification to a new product and market where aesthetics play an important role in customer decisions
    - The Polish office equipment market will not develop as envisaged
    - Apator will not be able to acquire the necessary design expertise
    - The view amongst most members of Apator's management and staff that the company should stick to industrial markets and electrotechnical products
    - Low availability of products such as suspension files and holders, which are required if metal office furniture is to be sold in significant quantities
    - Return of the Soviet market for transformer stations causing production planning problems

EXPLOSION-PROOF MINING EQUIPMENT

FLAME-PROOF CIRCUIT-BREAKERS

	1991	1992	1993	1994	1995
Sales (in units)	4785	4600	4700	4700	4700
Sales (in million PZL)	63400	80000	95000	100000	110000
Unit Cost Calculation (in million PZL)					
1. Direct Materials	4.51	5.56	6.67	7.2	7.9
2. Direct Labour	0.5	0.61	0.78	0.87	1.02
3. Departmental Costs	2.28	2.78	3.56	3.97	4.65
4. Defaults	0.087	0.107	0.132	0.144	0.163
5. Administration	2.36	2.88	3.69	4.11	4.82
6. Marketing & Distribution	0.24	0.29	0.36	0.39	0.44
7. Special Costs	0	0	0	0	0
8. Total Cost Per Unit	9.98	12.08	15.12	16.49	18.79
9. Unit Price	13.25	17.39	20.2	21.3	23.4
10. Profit Per Unit	3.27	5.31	5.08	4.81	4.61
11. Profit Per Unit In Percent	25	31	25	23	20

EXPLOSION-PROOF MINING EQUIPMENT

FLAME-PROOF SWITCHING UNITS

	1991	1992	1993	1994	1995
Sales (in units)	15	50	50	50	50
Sales (in million PZL)	3750	12500	12500	12500	12500
Unit Cost Calculation (in million PZL)					
1. Direct Materials	58.75	59.25	59.25	59.25	59.25
2. Direct Labour	17.5	17.75	17.75	17.75	17.75
3. Departmental Costs	79.8	80.94	80.94	80.94	80.94
4. Defaults	1.873	1.895	1.895	1.895	1.895
5. Administration	58.77	59.61	59.61	59.61	59.61
6. Marketing & Distribution	5.05	5.11	5.11	5.11	5.11
7. Special Costs	0	0	0	0	0
8. Total Cost Per Unit	219.06	221.81	221.81	221.81	221.81
9. Unit Price	250	250	250	250	250
10. Profit Per Unit	30.94	28.19	28.19	28.19	28.19
11. Profit Per Unit In Percent	12	11	11	11	11

EXPLOSION-PROOF MINING EQUIPMENT

SIEMENS MINING EQUIPMENT

	1991	1992	1993	1994	1995
Sales (in units)	0	10	10	10	10
Sales (in million PZL)	0	10000	10000	10000	10000
Unit Cost Calculation (in million PZL)					
1. Direct Materials		751	760	760	760
2. Direct Labour		6	6.25	6.25	6.25
3. Departmental Costs		27.36	28.5	28.5	28.5
4. Defaults		9.412	9.537	9.537	9.537
5. Administration		20.15	20.99	20.99	20.99
6. Marketing & Distribution		25.4	25.74	25.74	25.74
7. Special Costs		0	0	0	0
8. Total Cost Per Unit		826.37	838	838	838
9. Unit Price		1000	1000	1000	1000
10. Profit Per Unit		173.63	162	162	162
11. Profit Per Unit In Percent		17	16	16	16

THYRISTOR DRIVE UNITS

	1991	1992	1993	1994	1995
Sales (in units)	1200	1820	2000	2000	2000
Sales (in million PZL)	7800	13720	14800	16800	16800
Unit Cost Calculation (in million PZL)					
1. Direct Materials	2.34	2.63	2.45	2.78	2.78
2. Direct Labour	0.5	0.57	0.59	0.68	0.68
3. Departmental Costs	1.2	1.36	1.41	1.63	1.63
4. Defaults	0.048	0.055	0.053	0.061	0.061
5. Administration	1.45	1.64	1.7	1.97	1.97
6. Marketing & Distribution	0.13	0.15	0.14	0.16	0.16
7. Special Costs	0	0	0	0	0
8. Total Cost Per Unit	5.58	6.4	6.14	7.05	7.05
9. Unit Price	6.5	7.53	7.4	8.4	8.4
10. Profit Per Unit	0.92	1.13	1.26	1.35	1.35
11. Profit Per Unit In Percent	14	15	17	16	16

CONTROL/DISTRIBUTION CABINETS

SWITCHING-CONTROL UNITS

	1991	1992	1993	1994	1995
Sales (in units)	2000	1500	1500	1500	1500
Sales (in million PZL)	13800	10000	10000	10000	10000
Unit Cost Calculation (in million PZL)					
1. Direct Materials	3.8	3.6	3.6	3.6	3.6
2. Direct Labour	0.31	0.28	0.28	0.28	0.28
3. Departmental Costs	1	0.9	0.9	0.9	0.9
4. Defaults	0.061	0.057	0.057	0.057	0.057
5. Administration	0.79	0.71	0.71	0.71	0.71
6. Marketing & Distribution	0.15	0.14	0.14	0.14	0.14
7. Special Costs	0	0	0	0	0
8. Total Cost Per Unit	6.13	5.69	5.69	5.69	5.69
9. Unit Price	6.9	6.67	6.67	6.67	6.67
10. Profit Per Unit	0.77	0.98	0.98	0.98	0.98
11. Profit Per Unit In Percent	11	15	15	15	15

LOW VOLTAGE SWITCHES

	1991	1992	1993	1994	1995
Sales (in units)	290000	290000	290000	330000	330000
Sales (in million PZL)	21900	25000	27500	31300	31300
Unit Cost Calculation (in million PZL)					
1. Direct Materials	0.031	0.033	0.037	0.036	0.036
2. Direct Labour	0.002	0.0031	0.0035	0.0035	0.0035
3. Departmental Costs	0.007	0.011	0.013	0.013	0.013
4. Defaults	0.0005	0.0006	0.0006	0.0006	0.0006
5. Administration	0.0077	0.012	0.0141	0.0141	0.0141
6. Marketing & Distribution	0.0013	0.0015	0.0017	0.0017	0.0017
7. Special Costs	0	0	0	0	0
8. Total Cost Per Unit	0.049	0.0596	0.0681	0.0681	0.0681
9. Unit Price	0.076	0.086	0.095	0.095	0.095
10. Profit Per Unit	0.027	0.0264	0.0269	0.0269	0.0269
11. Profit Per Unit In Percent	36	31	28	28	28

OFFICE FURNITURE

	1991	1992	1993	1994	1995
Sales (in units)	0	1000	3000	5000	10000
Sales (in million PZL)	0	2000	6000	10000	20000
Unit Cost Calculation (in million PZL)					
1. Direct Materials		0.48	0.485	0.49	0.49
2. Direct Labour		0.12	0.127	0.13	0.13
3. Departmental Costs		0.55	0.58	0.59	0.59
4. Defaults		0.014	0.014	0.015	0.015
5. Administration		0.4	0.43	0.43	0.43
6. Marketing & Distribution		0.04	0.04	0.04	0.04
7. Special Costs		0	0	0	0
8. Total Cost Per Unit		1.67	1.7	1.7	1.7
9. Unit Price		2	2	2	2
10. Profit Per Unit		0.33	0.3	0.3	0.3
11. Profit Per Unit In Percent		17	15	15	15

REVENUE STRUCTURE

	1991	1992	1993	1994	1995
Explosion-Proof Mining Equipment	30.1%	52.8%	62.6%	58.2%	57.5%
Transformer Stations	45.0%	18.0%	0.0%	0.0%	0.0%
Thyristor Drive Units	3.5%	7.1%	7.9%	8.0%	7.2%
Control/Distribution Cabinets	8.9%	5.1%	5.3%	4.7%	4.3%
Low Voltage Switches	9.8%	12.9%	14.6%	14.9%	13.6%
Office Furniture	0.0%	1.0%	3.2%	4.7%	8.7%
Other	2.7%	3.1%	6.4%	9.5%	8.7%

COST STRUCTURE

	1991	1992	1993	1994	1995
Direct Materials	49.2%	44.1%	44.7%	46.0%	45.8%
Energy	4.7%	5.3%	4.4%	4.0%	3.7%
Labour	25.3%	28.3%	31.5%	31.7%	32.9%
Marketing & Distribution	4.6%	5.9%	6.5%	6.5%	6.6%
Interest	4.8%	3.4%	0.0%	0.0%	0.0%
Depreciation	5.0%	6.7%	6.6%	6.0%	5.5%
Administration	5.8%	5.4%	5.4%	5.0%	4.6%
Other	0.6%	0.9%	0.9%	0.8%	0.9%

EXPLOSION-PROOF MINING EQUIPMENT

FLAME-PROOF CIRCUIT-BREAKERS

	1991	1992	1993	1994	1995
Sales (in units)	4785	4600	4700	4700	4700
Sales (in million PZL)	63400	80000	95000	100000	110000
Unit Cost Calculation (in million PZL)					
1. Direct Materials	4.51	5.56	6.67	7.2	7.9
2. Direct Labour	0.5	0.61	0.78	0.87	1.02
3. Departmental Costs	2.28	2.78	3.56	3.97	4.65
4. Defaults	0.087	0.107	0.132	0.144	0.163
5. Administration	2.36	2.88	3.69	4.11	4.82
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	1991	1992	1993	1994	1995
Sales (in units)	15	50	50	50	50
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Unit Cost Calculation (in million PZL)					
1. Direct Materials	58.75	59.25	59.25	59.25	59.25
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3. Departmental Costs	79.8	80.94	80.94	80.94	80.94
4. Defaults	1.873	1.895	1.895	1.895	1.895
5. Administration	58.77	59.61	59.61	59.61	59.61
6. Marketing & Distribution	5.05	5.11	5.11	5.11	5.11
7. Special Costs	0	0	0	0	0
8. Total Cost Per Unit	219.06	221.81	221.81	221.81	221.81
9. Unit Price	250	250	250	250	250
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11. Profit Per Unit In Percent	12	11	11	11	11

EXPLOSION-PROOF MINING EQUIPMENT

SIEMENS MINING EQUIPMENT

	1991	1992	1993	1994	1995
Sales (in units)	0	10	15	20	25
Sales (in million PZL)	0	10000	15000	20000	25000
Unit Cost Calculation (in million PZL)					
1. Direct Materials		751	760	760	760
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3. Departmental Costs		27.36	28.5	28.5	28.5
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7. Special Costs		0	0	0	0
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3. Departmental Costs	1.2	1.36	1.41	1.63	1.63
4. Defaults	0.048	0.055	0.053	0.061	0.061
5. Administration	1.45	1.64	1.7	1.97	1.97
6. Marketing & Distribution	0.13	0.15	0.14	0.16	0.16
7. Special Costs	0	0	0	0	0
8. Total Cost Per Unit	5.58	6.4	6.14	7.05	7.05
9. Unit Price	6.5	7.53	7.4	8.4	8.4
10. Profit Per Unit	0.92	1.13	1.26	1.35	1.35
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CONTROL/DISTRIBUTION CABINETS

SWITCHING-CONTROL UNITS

	1991	1992	1993	1994	1995
Sales (in units)	2000	1500	1500	1500	1500
Sales (in million PZL)	13800	10000	10000	10000	10000
Unit Cost Calculation (in million PZL)					
1. Direct Materials	3.8	3.6	3.6	3.6	3.6
2. Direct Labour	0.31	0.28	0.28	0.28	0.28
3. Departmental Costs	1	0.9	0.9	0.9	0.9
4. Defaults	0.061	0.057	0.057	0.057	0.057
5. Administration	0.79	0.71	0.71	0.71	0.71
6. Marketing & Distribution	0.15	0.14	0.14	0.14	0.14
7. Special Costs	0	0	0	0	0
8. Total Cost Per Unit	6.13	5.69	5.69	5.69	5.69
9. Unit Price	6.9	6.67	6.67	6.67	6.67
10. Profit Per Unit	0.77	0.98	0.98	0.98	0.98
11. Profit Per Unit In Percent	11	15	15	15	15

LOW VOLTAGE SWITCHES

	1991	1992	1993	1994	1995
Sales (in units)	290000	290000	290000	330000	330000
Sales (in million PZL)	21900	25000	27500	31300	31300
Unit Cost Calculation (in million PZL)					
1. Direct Materials	0.031	0.033	0.037	0.036	0.036
2. Direct Labour	0.002	0.0021	0.0035	0.0035	0.0035
3. Departmental Costs	0.007	0.011	0.013	0.013	0.013
4. Defaults	0.0005	0.0006	0.0006	0.0006	0.0006
5. Administration	0.0077	0.012	0.0141	0.0141	0.0141
6. Marketing & Distribution	0.0013	0.0015	0.0017	0.0017	0.0017
7. Special Costs	0	0	0	0	0
8. Total Cost Per Unit	0.049	0.0596	0.0681	0.0681	0.0681
9. Unit Price	0.076	0.086	0.095	0.095	0.095
10. Profit Per Unit	0.027	0.0264	0.0269	0.0269	0.0269
11. Profit Per Unit In Percent	36	31	28	28	28

OFFICE FURNITURE

	1991	1992	1993	1994	1995
Sales (in units)	0	2000	5000	10000	15000
Sales (in million PZL)	0	4000	10000	20000	30000
Unit Cost Calculation (in million PZL)					
1. Direct Materials		0.48	0.485	0.49	0.49
2. Direct Labour		0.12	0.127	0.13	0.13
3. Departmental Costs		0.55	0.58	0.59	0.59
4. Defaults		0.014	0.014	0.015	0.015
5. Administration		0.4	0.43	0.43	0.43
6. Marketing & Distribution		0.04	0.04	0.04	0.04
7. Special Costs		0	0	0	0
8. Total Cost Per Unit		1.67	1.7	1.7	1.7
9. Unit Price		2	2	2	2
10. Profit Per Unit		0.33	0.3	0.3	0.3
11. Profit Per Unit In Percent		17	15	15	15

REVENUE STRUCTURE

	1991	1992	1993	1994	1995
Explosion-Proof Mining Equipment	30.1%	52.2%	62.2%	57.4%	57.7%
Transformer Stations	45.0%	17.8%	0.0%	0.0%	0.0%
Thyristor Drive Units	3.5%	7.0%	7.5%	7.3%	6.6%
Control/Distribution Cabinets	8.9%	5.1%	5.1%	4.3%	3.9%
Low Voltage Switches	9.8%	12.7%	14.0%	13.6%	12.2%
Office Furniture	0.0%	2.1%	5.1%	8.7%	11.8%
Other	2.7%	3.1%	6.1%	8.7%	7.8%

COST STRUCTURE

	1991	1992	1993	1994	1995
Direct Materials	49.2%	44.2%	46.1%	46.4%	46.2%
Energy	4.7%	5.3%	4.3%	4.1%	3.8%
Labour	25.3%	28.3%	30.7%	31.5%	32.7%
Marketing & Distribution	4.6%	5.9%	6.3%	6.3%	6.4%
Interest	4.8%	3.4%	0.0%	0.0%	0.0%
Depreciation	5.0%	6.7%	6.4%	5.9%	5.4%
Administration	5.8%	5.4%	5.3%	4.9%	4.6%
Other	0.6%	0.8%	0.9%	0.9%	0.9%