Key Note

Access Control

2001 Market Report

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Access Control

Contents

2. Market Size 10

3. Industry Background 12

4. Competitor Analysis 16

Executive Summary

The UK access control market for 2000 will be worth £210m at end-user prices, showing 5% growth from 1999, according to Key Note's latest estimates. This market includes system design, equipment supply, installation and maintenance, and the ongoing sale of new cards and tokens where appropriate.

The products included in this market are audio and video entry systems, keypad systems, card systems, proximity systems, long-range and hands-free systems, and biometric systems. Systems may also include more than one technology for added security.

In the last 5 years, the market has been helped by high output in the industrial and commercial new building sectors, and by the fairly healthy economy. Improved awareness of data security risks have encouraged organisations to pay more attention to controlling access by outside persons. There has also been increased attention to the need for security in schools and hospitals.

Ongoing trends are the development of user-friendly and powerful management software based on Windows 95/98 and Windows NT operating systems, the greater use of integrated security, fire protection and building management systems, decreasing prices for biometric solutions and growing use of radio frequency asset tagging linked to access control systems.

Prospects remain good, with plenty of scope for upgrading to more sophisticated technologies, and Key Note forecasts steady growth for the market between 2000 and 2005. The industry forecasts strong growth in the use of smart card systems in the near future. In the longer term, the UK is expected to follow the US in making more widespread use of biometric systems and growth is proceeding gradually in this sector. Key Note forecasts that the access control market will be worth £222m at end-user prices in 2001, and will reach £275m by the end of 2005.

1. Market Definition

REPORT COVERAGE

Access control involves controlling the movement of people or vehicles through doors and other barriers. Access control systems should allow easy entrance and exit of authorised persons or vehicles, while barring non-authorised persons. The market covered by this report includes electrical and electronic devices of varying degrees of complexity but not the simple visual inspection of ID badges by security staff. Neither does this report attempt to include systems controlling access to data or networks. These are covered by a separate Key Note report on IT security.

Access control systems range from stand-alone devices controlling a single door or gate to networked solutions covering a whole building or even a complex of buildings, and they may be integrated within a larger security or building management system.

Intelligent access control systems can also store information about each transaction, making it possible to track a person's movements through a building. Any attempts to use an unauthorised door can also be logged.

Stand-alone intelligent systems use an independent, battery-powered unit for each door. The cost of batteries and the need to replace them are disadvantages but there is a saving in installation costs as the building does not need to be wired and the system can be easily expanded by adding more units. Information stored at stand-alone units has to be collected manually by visiting each door and using a control card or token to transport the data back to a computer. The alternative is to have each door unit wired into a building-wide system so that data about the door use can be read at a central computer. The advantages are that the information is immediately accessible and security staff time is saved as they do not need to visit all the doors.

MARKET SECTORS

The main types of access control system are as follows:

Entryphones and Video Entryphones

Entryphones are widely used in the household sector and in smaller non-domestic locations. An electronic strike lock is operated remotely by the person identifying the caller. Being non-automatic, these systems are not suited to locations where there is a high throughput of people or where 24-hour access is needed and cannot be monitored.

Keypad Systems

Keypads are widely used in flats, schools, offices and leisure centres and may be used in conjunction with card readers in more complex access control systems. Push button keypads are robust and inexpensive. Touchpad systems are also widely used. To avoid the risk of watchers learning the sequence of number, there are randomised scrambler keypads, on which the digits appear in different positions each time the pad is used.

Card Systems

The main card systyem technologies are as follows:

- **Barium ferrite** — this is the oldest technology. A sheet of barium ferrite is encoded during manufacture and embedded in the card. The cards cannot be copied but are thicker and heavier than other types and they cannot be kept in a wallet with magnetic stripe cards because they can corrupt them.
- **Wiegand cards** — specially constructed Wiegand wires embedded in the card induce a current in the coils of the reader. These are highly secure, being almost impossible to duplicate, they are very durable and not affected by external magnetic fields.
- **Magnetic stripe** — these are cheap to produce and very widely used but they can be duplicated and the cards deteriorate with wear. They also have a fairy limited data storage capacity.
- **Barcode** — this is a very inexpensive option but duplication is possible and the amount of information which can be stored is low.
- **Smart cards** — include a microprocessor which stores information about the holder. The same card can serve other functions besides access control.
- **Dual function** — a combination of Wiegand and magnetic stripe. These are used for sites which have both high security areas and lower security areas.
- **Infra-red** — this is a technology used by TDSi Group Ltd which involves passing infra-red light through a stripe on a card.

Adding the photograph and details of the authorised card bearer enables any access control card to double as an ID card.

Proximity Systems

Proximity systems involve the use of a card, key or other token which has to be placed touching or, in some systems, just very near the reader. Because it does not have to be inserted into a reader, there is less risk of wear and the system is easier to use by people who have some manual disability. The systems also allow a faster throughput of people so they are useful for busy locations.

Long-Range/Hands-Free Systems

Long-range or hands-free systems use a reader which can accept a token at a distance. The token may, for example, take the form of an ID card worn as a pendant or on clothing. These systems are useful when staff need to pass in and out frequently, especially if they are carrying equipment.

Vehicle Access Systems

Vehicle access systems involve the use of a barrier, such as a lever bar or gate. Some are radio frequency vehicle tags, others require the driver to insert a card in a reader.

Biometric Systems

Biometric systems identify individuals by means of personal characteristics, such as fingerprints or hand geometry. Other characteristics which have been used include voice pattern, iris pattern, dynamic signature recognition and retinal pattern. Biometric systems are highly accurate and are able to cope with day-to-day variations caused by minor injuries, colds, etc. When a biometric system is installed the sensitivity of the system has to be set to avoid erroneous lockouts while maintaining security.

Biometric systems have the advantage that there are no cards or tokens to be mislaid. They are difficult to cheat because you cannot borrow, copy or steal another person's physical characteristics. They are useful systems where there is a known group of personnel whose fingerprints, etc. can be read into a database for later comparison. They are not useful for granting access to visitors who are not already in the database.

Biometric systems remain a relatively expensive option and they can be demanding of data storage.

MARKET TRENDS

Growth in Industrial and Commercial Building Work

Industrial and commercial locations are important customers for access control, so the strong growth in output of new buildings in these sectors has been an excellent trend for the access control market. The output of industrial building works grew by a total of 17.4% between 1995 and 1999, and the output of commercial building work grew by nearly 63%.

Table 1: New UK Building Work by Value (£m at constant 1995 prices), 1995-1999

	Housing	Industrial	Commercial	Public Sector	Infrastructure
1995	7,135	3,008	6,209	4,661	5,660
1996	6,876	3,149	6,810	4,279	6,118
1997	7,514	3,437	7,938	3,534	6,028
1998†	7,498	3,546	8,889	3,733	5,778
1999†	7,030	3,532	10,103	4,187	5,767

† — provisional figures

Source:Construction Forecasting and Research Ltd, Construction Forecasts, Summer 2000

The Level of Crime Remains High

The annual number of crimes in England and Wales rose in 1999/2000, after falling for several years.

Table 2: Number of Notifiable Criminal Offences Recorded by the Police in England and Wales by Cases (000), 1995/1996-1999/2000

April 1995 to March 1996	5,139.3
April 1996 to March 1997	4,930.7
April 1997 to March 1998	4,545.3
April 1998 to March 1999†	4,481.8
	5,109.1‡
April 1999 to March 2000	5,301.2‡

† — two sets of figures produced for this period, using old rules and new rules

‡ — figures arrived at using new rules for crime counting introduced in 1998

Source:Home Office Statistical Bulletin

Table 3 shows that crimes in Scotland have followed a similar pattern.

Table 3: Number of Notifiable Criminal Offences Recorded by the Police in Scotland by Cases (000), 1995-1999

1995	475.7
1996	452.0
1997	420.6
1998	431.6
1999	436.0

Source:Scottish Office Statistical Bulletin

Increased Awareness of the Need to Invest in Security

There has been an improved awareness in recent years of the need to maintain some control over who enters places such as schools and hospitals. Press coverage of violent attacks on schools and baby snatching from hospitals have led to increased spending on security in these sectors. There is also more emphasis on data security and the risks of fraud and industrial espionage. Large industrial, commercial and public sector establishments can save money on manned security by investing in increased use of automatic access control systems.

Demand Shifting Gradually to High Value Products and Systems

Another reason for the growth in the market has been the added value achieved as demand has shifted from the simpler keypad systems to card reader systems, from card readers to proximity systems and from audio entry systems to audio plus closed circuit television (CCTV) systems. Demand is also growing for integrated systems.

There is also increasing demand for integrated systems and intelligent access control systems which can incorporate information on staff movements.

Integration can be of many types. Access control can be integrated with other security systems, usually intruder alarms, CCTV and asset tagging. Asset tagging uses radio frequency tags on company property. If the property is taken out of the building the fact can be automatically logged along with the identity of the person responsible for it.

Access control can be part of a wider building management system, which controls the lighting and heating. The system can be programmed to turn lights off in each department after everyone has left, for example. Co-ordination with fire protection systems ensures that emergency services can attend fires and alerts the security staff if there are people remaining in the vicinity of a fire. Other services which can be linked to access control are car park management and staff timekeeping.

There was strong demand for integrated security systems in 2000, especially at middle-sized sites of 200 to 300 doors.

MARKET POSITION

UK Market

Access control has been one of the most dynamic sectors in the wider security market over the last 4 years. Key Note estimates that the access control market has increased its share of the total UK electronic security market from 11.5% in 1996 to 15.5% in 2000.

Table 4: Breakdown of the UK Market for Electronic Security Systems (% by value at current prices), 1996-2000

	1996	1997	1998	1999	2000
Intruder alarms	45.0	43.6	41.8	41.5	40.7
Access control	11.5	12.7	13.7	15.1	15.5
CCTV	29.2	28.3	27.4	25.9	25.9
EAS	4.7	5.3	6.1	6.0	5.9
Personal	4.8	4.9	4.9	4.7	4.6
Systems Integration/other	4.8	5.2	6.1	6.8	7.4
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

CCTV — closed circuit television

EAS — electronic article surveillance

Source:Key Note

Overseas

Recent research suggests that the UK accounts for about 16% of the Western European market for access control equipment in 2000 and for 10% plus of the combined market of the US plus Western Europe. Growth in the UK is running at about 5%, about average for Europe, but the US market is growing in double figures. The UK is the most mature market in Western Europe and is exceeded in value by the German and French markets. According to forecasts by Frost & Sullivan, the US market is expected to reach US$2bn by 2005 at manufacturers' prices, while the Western European market (commercial and industrial sectors only) is expected to reach US$1.9bn at manufacturers' prices by this time.

Outside these regions, manufacturers report strong export opportunities in the Far East. Eastern Europe also has a good market potential.

KEY TRADE ASSOCIATIONS

The British Security Industry Association

The British Security Industry Association (BSIA) is the professional trade association for the UK security industry. The BSIA represents over 400 companies and its members are responsible for more than 70% of security business undertaken in the UK market, including manned security services, alarms systems, CCTV, information security, physical security, access control and secure transport.

One of the BSIA's top priorities is the maintenance of high standards within the industry. The BSIA insists that its members meet general requirements, such as being financially sound, and that their directors and senior executives are of good repute. They must also achieve registration to BS EN ISO9000 and prove that they conform to the relevant codes of practice and standards.

The BSIA also regularly updates codes of practice and technical documentation as well as introducing new publications to cover recent developments. Its representatives work on European standards to ensure that these will meet the practical needs of the industry and its customers.

The National Approval Council for Security Systems

The National Approval Council for Security Systems (NACOSS) is the largest of the four regulatory bodies for electronic security system installers. It maintains a list of approved installers of electronic security systems. This is in three parts, covering intruder alarms, access control systems and CCTV installations. Companies may be approved for one or more sections. There is also a fourth section for approved monitoring centres.

To achieve NACOSS recognition, a firm must prove its technical ability to install and maintain equipment to relevant British Standards and NACOSS codes of practice. The financial status of the firm is assessed, its senior personnel vetted and the standard of its communication with its customers is regulated. The suitability of the company's premises, vehicles, insurance, training procedures and protocols on customer service are all assessed. Every NACOSS recognised firm must have, or gain within 2 years, a system of quality management meeting the BS EN ISO 9002 standard. NACOSS compiles quarterly statistics on the number of installations its listed companies have carried out.

The Security Systems and Alarms Inspection Board

The Security Systems and Alarms Inspection Board (SSAIB) is the second of the two larger regulatory bodies for electronic security system installers. In terms of number of approved installers, it is as large as NACOSS, although it tends to attract the small- and medium-sized installers.

To be approved by the SSAIB, firms must comply with the relevant British Standards or European Standards. They are regularly inspected and must offer a comprehensive maintenance service. The SSAIB aims to encourage and promote high standards of ethics, service and equipment among the security systems industry and to procure protection of purchasers, hirers and users against defective installations and equipment. It inspects intruder alarm installers, CCTV installers, access control installers and alarm receiving centres.

The European Association of Security Equipment Manufacturers

The European Association of Security Equipment Manufacturers (EASEM) is the leading association for Europe's security equipment manufacturers. In 2000, EASEM announced an alliance with the SIA, the Security Industry Association of the US. The two associations plan to collaborate in establishing connections, improving standards and creating business opportunities.

2. Market Size

THE TOTAL MARKET

The leading manufacturers and suppliers have tended to show strong sales growth in recent years. The BSIA's 29 access control members reported combined turnover of £160m for 1999. The BSIA estimates that this accounts for 60% of industry turnover, which would give a total industry turnover of £267m. However, this does not equate to the UK market value, as it is based on a mixture of manufacturers' distributors and installers, and on sales in the UK and export markets. Taking into consideration also other published market research and the figures of the leading manufacturers, Key Note estimates the 1999 market at £200m, rising to £210m in 2000. These figures are at end-user prices, taking into consideration installation and maintenance costs.

Key Note's estimates for the development of the market from 1996 to 2000 are shown in Table 5.

Table 5: The UK Market for Access Control Products and Systems by Value (£m at current end-user prices and %), 1996-2000

	1996	1997	1998	1999	e2000
Value (£m)	148	169	180	200	210
% change year-on-year	-	*14.2*	*6.5*	*11.1*	*5.0*

e — Key Note estimates

Source:Key Note

SECTOR TRENDS

Audio and Video Entry Systems

The audio entry systems sector is very mature in the UK and any growth is coming from the trend from audio-only to combined audio and CCTV systems.

Keypad Systems

This is another very mature sector and the market and card systems are gaining shares from keypads. There are opportunities for keypads as added security in dual systems. They are also popular with schools and are used in many residential locations.

Card Systems, Proximity Systems and Long Range/Hands-Free Systems

Swipe card and Wiegand systems have been showing growth, partly at the expense of keypads, but now they in turn are losing some share to proximity systems, which are is current high growth sector. Smart cards, both contact and proximity types, are starting to make an impact and are expected to show very strong growth in the next few years. The major advantage of smart cards, apart from their increased security, is that they can be used for many other functions as well as allowing access. For example they can provide identification in a library. They can be used for paying for photocopies and they can be used for cashless vending.

Biometric Systems

Although several manufacturers are targeting the UK market and this technology is starting to become accepted, growth in this sector is still gradual. Prices have fallen but they are still high and will fall much further as the demand develops. At present Biometric systems account for only a very small fraction of all systems sold and are still used mainly for high security locations. Two-factor systems have been developed for extra high security. These use biometrics alongside another method of identification.

Access control systems incorporating radio frequency identity (RFID) tagging of assets have been selling strongly in 2000.

OVERSEAS TRADE

Both imports and exports are high in this market. Measurement is not possible because access control products are not identified in the overseas trade statistics and not all of the leading maufacturers break down their sales to indicate exports. PAC International derives about 40% of its sales from exports and has consistently been a high exporter.

3. Industry Background

INTRODUCTION

Recent History

Mergers and acquisitions are beginning to affect the very fragmented access control industry.

In 1998, Bewator, an important Swedish-owned manufacturer of access control products based in the UK, acquired Cotag International, which was a UK access control manufacturing division owned by Amtech Corporation. Bewator merged with Cotag to form Bewator Cotag, which now ranks second among UK access control manufacturers.

Assa Abloy AB of Sweden, strengthened its dominance of the world lock market in 2000 when it bought Yale Intruder Security from Williams PLC. Assa Abloy is already also a substantial player in the access control market in the UK and globally, and this acquisition will add to its range. Tesa, a Spanish subsidiary of Williams PLC which is very important in hotel locks and access control devices, is also to become part of Assa Abloy.

Number of Companies

The industry is very fragmented, both nationally and globally. At least 300 companies compete in the UK market for access control products and systems. These include companies with local manufacturing activities and UK sales operations of overseas manufacturers. The largest of the UK manufacturers, PAC International Ltd, had a turnover of £14.6m in 1999, including UK sales and exports. Its share of the UK equipment market is probably in the region of 7% to 8%.

The companies involved in this market are a mixture of access control specialists, large lock manufacturers that have widened their range to include access control, biometrics specialists and specialists in control systems and systems integration. At the high tech end of the market there are opportunities for new entrants. The main barriers to entry are the need to invest in product development and product testing to comply with standards and regulations. The lower tech end of the market, including products such as entryphones and simple keypad systems, is becoming oversupplied and many imported products are available so this does not offer much attraction for new UK market entrants.

The BSIA has 30 members classified as engaged in manufacture and/or installation of access control systems and it estimates that these companies account for 67% of industry turnover. The NACOSS list of April 1998 includes 37 approved access control installers.

Employment

Key Note estimates that the access control manufacturers and distributors in the UK employ around 1,700 staff. The market leader, PAC International Ltd, employed 128 staff in 1999. The access control members of the BSIA, which tend to be the larger companies, accounted for 1,500 jobs in 1999. BSIA figures suggest some growth in the industry, although some of this apparent growth is the effect of acquisitions by the larger companies.

Table 6: Employment by BSIA's Access Control Manufacturers, 1995-1999

	1995	1996	1997	1998	1999
Number of members	28	29	30	28	29
Employment by members	1,200	1,200	1,500	1,500	1,500

Source:BSIA

The industry also helps to provide employment for the security installers and for the manufacturers of the physical security products, such as turnstiles.

REGIONAL VARIATIONS IN THE MARKETPLACE

There is no evidence of any intrinsic regional characteristics to the access control market, except that areas where there is a high level of new development, especially in the industrial and commercial sectors, provide more opportunities for electronic security of all kinds. Large access control contracts can come from many types of customer, including universities and hospitals, around the UK.

The manufacturers and suppliers of access control equipment and systems are dotted around the country but tend to be located in technology-based areas; several of the relatively important companies are located in the South East. This is in marked contrast to the traditional mechanical lock industry, which has its roots in the Midlands. Overseas lock manufacturers, which have become important in this market, such as Assa and Kaba, have not set up implants in the Midlands but have tended to locate in the South.

DISTRIBUTION

Most of the manufacturers of access control equipment sell direct to the larger security installers and via electronic security distributors to large and small installers. Another channel is via resellers who re-badge the equipment under their own brands to complete their equipment ranges. In some cases, manufacturing and installation is offered through the same company or corporate group.

Most of the installers belong to the BSIA or are approved by National Approval Council for Security Systems (NACOSS) or the Security Systems and Alarms Inspection Board (SSIAB).

The number of access control systems installed by NACOSS-listed firms increased sharply in 1999 to 2,166. These include systems of all sizes. Figures for the first half of 2000 show a further rise.

Table 7: Number of Access Control Systems Installed by NACOSS Approved Installers, 1994-June 2000

1994	988
1995	1,398
1996	1,533
1997	1,393
1998	1,571
1999	2,166
2000†	1,431

† — figures for 6 months from January to June

Source:National Approval Council for Security Systems (NACOSS)

HOW ROBUST IS THE MARKET?

There are no obvious threats to the access control market, although some sectors have reached maturity. Crime is ever-present, a fact which gives the security industry some resilience in times of economic recession. In fact, times of economic hardship and high unemployment provide more temptations to property crime and the crime statistics tend to bear this out. On the other hand, a strong market driver is the level of investment in new business properties and refurbishments, so the industry is not recession-proof.

Because most of the access control suppliers are small- to medium-sized companies, one or two large contracts can make a lot of difference to their sales figures and turnovers can fluctuate from year to year. Those companies which are part of larger corporate groups have more chance of support during leaner periods.

LEGISLATION

The British Security Industry Association (BSIA) is very influential in maintaining quality in the access control industry. It publishes 'Code of Practice for the Planning, Installation and Maintenance of Access Control Systems'.

The European Standards for access control systems are:

- BSEN501331-1: Access Control Systems Part 1: System Requirements
- BSEN501331-7: Access Control Systems Part 7: Application Guidelines.

Under the European Standards, access control systems are classified in terms of the level of protection they offer.

All electronic security devices must comply with the Electromagnetic Compatibility Directive, which ensures that they do not introduce electromagnetic interference which could affect the functioning of other equipment in the environment, also that the alarms themselves are free from interference from other equipment. Manufacturers are responsible for having each product certified and tested and installers are responsible for ensuring they use only EC marked devices complying with the EMC Directive and that they are suitable for the environment into which they are being installed. The BSIA publishes 'EMC Guidelines for Installers of Security Equipment'.

Two of the four recognised alarms inspectorates, NACOSS and the SSAIB, have extended their activities to inspection of access control installation. NACOSS and the SSAIB are described in Chapter 1 — Market Definition.

Membership of the BSIA is entirely voluntary, so too is inspection by NACOSS or SSAIB. Compulsory regulation of the security industry, which seems certain to come about quite soon, is likely to be confined to the manned security sector, at least initially.

4. Competitor Analysis

THE MARKETPLACE

The market supports a wide variety of companies. Several of the lock manufacturers, such as Assa Abloy and Kaba have, over the years, moved into electric strike locks and keypads and then into card systems and other access control products. Other companies specialise in access control or in one sector of the access control market. Companies offering control systems need up-to-date expertise in computing and networking as there is increasing demand for systems integration, for user-friendly software and for networking across different buildings. This is an area into which more broadly-based building control specialists and systems integration companies could expand.

MARKET LEADERS

The Equipment Manufacturers and Suppliers

The two leading access control manufacturers in the UK are PAC International Ltd and Bewator Cotag, a division of Bewator Group Ltd. Table 8 shows these and some of the other important players, indicating their positions in the supply chain. As the industry is so fragmented, it is not possible to offer a strict ranking of the market leaders.

Table 8: Selected UK Companies and Divisions Involved in the Access Control Market, Showing Their Principal Roles in the UK Supply Chain, 1999

Manufacturer	Importer	Distributor
Abloy Security Ltd	-	Y
Assa Ltd	-	Y
Bewator Group Ltd	Y	-
Cardkey European Holdings Ltd	-	Y
Group 4 Technology Ltd	Y	Y
Guardall Ltd	Y	Y
Kaba Holding (UK) Ltd	Y	Y
Motorola Ltd	-	Y
Newmark Technology Ltd	Y	-
PAC International Ltd	Y	-
Paxton Access Ltd	Y	-
TDSi Group Ltd	Y	-
Yale Intruder Security Ltd	Y	Y

Source:Key Note

Abloy Security Ltd

Company Structure

Abloy Security Ltd is a subsidiary of Assa-Abloy AB of Sweden. It imports and distributes locks and access control products manufactured by Abloy in Finland.

Current and Future Developments

Abloy's access control products include keypads, magnetic stripe card readers and proximity systems.

Financial Results

Turnover, including locks and access control, was £5.4m for 31st December 1999 and pre-tax profit was £605,000.

Assa Ltd

Company Structure

Assa Ltd is a UK subsidiary of the Swedish lock manufacturing group Assa Abloy AB. The UK company has a specialist access control division, Assa Access Control, which supplies products made by the parent group.

Current and Future Developments

Access control products include the Solicard Windows-based access control system for small- to medium-sized installations. This can use card readers, proximity readers or keypads. Solicard 6300 is a security management and access control system.

Financial Results

Turnover of Assa Ltd reached £9.8m in the year ending 31st Decmber 1999. Pre-tax profit was £1m.

Bewator Cotag

Company Structure

Bewator Cotag is the access control division of Bewator Group Ltd, which has recently entered the CCTV market. Bewator Group is owned by Bewator AB of Sweden. Bewator Cotag operates through resellers and has distributors in over 40 countries.

Current and Future Developments

Bewator Cotag specialises in access control systems which use hands-free and proximity cards and readers, also tags for vehicle access control. It also offers codelocks, entryphones and video entryphones and the Cameo-Plus video badging system. Granta is the brand used for its Windows-based access control systems and security management systems. Bewator Cotag also offers special products for healthcare security such as tags for babies.

In 2000, Bewator-Cotag launched two contactless smart card readers aimed at the company's OEM customers. These smart card readers use Mifare brand reading technology from Gemplus. One of the readers also has a keypad for PIN entry to provide an extra layer of security. Bewator-Cotag has also launched the SM65 and SM568 contactless smart card programmers and software to program the smart cards.

Financial Results

Bewator Group Ltd reported turnover of £10.5m for the year to 30th June 1999. Pre-tax profit was £530,000. This business was largely derived from access control. Exports accounted for £6m of sales.

Cardkey Systems/Cardkey European Holdings Ltd

Company Structure

Cardkey Systems is a division of Cardkey European Holdings Ltd (formerly known as Amtech Europe Ltd), which in turn is owned by Johnson Controls Inc of the US. Johnson Controls claims to be the world's leading supplier of integrated security managemnt solutions and services. Cardkey Systems has 17 offices around the world, including in the UK.

Current and Future Developments

Cardkey Systems designs, supplies, installs, maintains and monitors access control and full security systems. It also offers time and attendance systems, Photo-ID, and alarm monitoring.

At Ifsec in May 2000, Cardkey launched its new Pegasys 2000 system. Pegasys 2000 is an integrated security management system based on the Windows NT 4.0 operating system. It allows central management of different security devices at different sites. Cardkey also launched version 7 of its Pegasys 1000 security management system.

Other access control management systems offered by cardkey are Pegasys 90, for use with up to 16 doors, and Pegasys 900, a small to mid-range system.

Access control solutions available from Cardkey include proximity, magnetic stripe, Wiegand, barcode and dual function card systems.

Financial Results

Cardkey European Holdings Ltd recorded turnover of £12.4m for the year to 31st December 1998, including access control and other activities. Pre-tax profits were £1.4m and no separate turnover figures are made available for Cardkey Systems.

Group 4 Technology Ltd

Company Structure

Group 4 Technology Ltd designs and manufactures access control systems, via its Group 4 Systems division. It is also an installer of security systems, including CCTV and alarms systems as well as access control. It is a subsidiary of Group 4 Falck, a major international security group.

Current and Future Developments

The company produces complete access control systems, including software, local multi-NODE controllers, card readers and keypads. multiMAX is a range of control software for access control solutions. multiMAX350 is Windows 95/98 based software offering integrated access control and alarm monitoring for up to 128 readers on a single-user site. multiMAX450 uses Windows 95/98 or Windows NT operating systems. It is suitable for a multi-company site and can manage up to 256 card readers and 4 additional workstations. The multiMAX500 range of systems run under Microsoft NT. They are suitable for multi-user, multi-site applications and can support up to 1,024 readers and 16 workstations. The multiMAX 625 system was launched in 2000. This is the top of the range system and allows users to control remote sites using the Microsoft SQL 7.0 enterprise database server.

Financial Results

Turnover for the year ending 31st December 1999 was £21m and pre-tax profit was £3.3m. This includes exports as well as UK sales.

Guardall Ltd

Company Structure

Guardall Ltd is a manufacturer and supplier of electronic security equipment. It was a Chubb company under Williams PLC but when Williams demerged in November 2000 into Chubb Security PLC and Kidde PLC, Guardall became part of Kidde PLC. Guardall Ltd sells to distributors and large installers and some security specifiers. As well as selling to the UK, Guardall exports to other European countries, South Africa, Hong Kong, China and other Far East countries. It has sales subsidiaries in France and Italy.

Guardall North America was a sister company under Williams PLC but is now part of Chubb Security PLC.

Current and Future Developments

Access control products include magnetic stripe cards and readers, MiniProx proximity tokens and readers and the Inova range of card readers and door controllers. Inova Master for Windows 95 is an access control and reporting software package. Inova Central Manager is a system for multi-site control. The Inova range of products is manufactured for Guardall Ltd by Guardall North America in Ontario, Canada, but fully supported by Guardall Ltd.

Financial Results

For the year to 31st December 1999, Guardall recorded sales of £10.6m, down 17.5% from the previous year. Pre-tax profit was £642,000 compared to £390,000 the previous year.

Guardall does not break down its financial figures into UK sales and exports or show how much of the business is from access control.

Kaba Holding (UK) Ltd

Company Structure

Kaba Holding (UK) Ltd is part of a leading Swiss-owned locks group, Kaba. It sells locks, access control products and time and attendance systems some of which it manufactures in the UK and some of which it imports from Kaba Benzing in Germany.

Current and Future Developments

Access control products include the Kaba Legic contactless smart chip, the Kaba macs proximity system, the Kaba bio verification reader and the Kaba delta motorised door release, also digital keypads and motorised strikes. Exos 8000 Benzing Terminals is a Windows-based access control administration system which can be used for single site or multiple site security. Echelon hardware and software integrates into LON building management systems.

Financial Results

For the financial year to 30th June 1999, Kaba Holding (UK) Ltd recorded sales of £6.1m for locks and access control products, with pre-tax losses of £24,000.

Newmark Technology Group PLC

Company Structure

Newmark Technology Group PLC group is one of the world's leading manufacturers of access control and asset tagging syetms, as well as offering other kinds of security products. The group comprises Newmark Technology Ltd, Newmark Security Products Ltd, Vema in the Netherlands and Drion, a physical security company in Belgium. Newmark Technology Ltd designs, manufactures and supplies access control systems and security management systems, selling via a network of dealers in the UK, as well as exporting. Newmark Security Products is a supplier of electronic locking systems, distributing for EffEff of Germany and Locknetics and Brink of the US.

Current and Future Developments

Newmark offers access control solutions based on a choice of several technologies. It also produces several access control management systems and is a leading supplier of integrated security management systems. OMNI 4 Windows is an online security management system integrating access control, asset protection and sophisticated alarm handling features. Access control decisions are made at the local controller, allowing instantaneous response. ParSec is a long range RFID personnel and asset tagging system which can be read from a range of up to 75 metres.

In 2000, Newmark technology set up an operation to sell Parsec in the US market. In the UK, a new dealer scheme is being set up and this will be announced at the end of 2001.

Financial Results

The access control manufacturer, Newmark Technology Ltd, reported sales of £2.5m for the year to 30th April 1999. This represents 38% growth over the previous financial period, after correcting for a difference in the number of weeks included. Newmark Technology Ltd made a loss of £241,000.

For Newmark Technology Group PLC as a whole, turnover for the year ending 30th April 2000 was £9.9m and there were pre-tax profits of £90,000.

PAC International Ltd

Company Structure

PAC International Ltd designs, develops and manufactures access control products and systems, including systems which integrate other security and building control functions. It is owned by Blick PLC, which is a group offering security, time management and communications systems. Following a reorganisation at Blick, PAC International is no longer involved in the manufacture of pagers. PAC International Ltd sells to installers and distributors in the UK and exports to Europe, Asia and North America, as well as supplying products and systems for installation by its sister company Blick UK Ltd.

Current and Future Developments

PAC International specialises mainly in systems cards based on proximity cards or tokens and readers. It also offers other technologies, such as Wiegand, infra-red and magnetic stripe, also infra-red for vehicle detection.

Manufacturing takes place at an automated modern factory in Stockport. Modern Just In Time (JIT) techniques are used and the factory offers next day despatch for simple items and next week despatch for more complex products.

Products include digital keypads, card readers and cards, proximity readers and tokens, automatic vehicle recognition (AVR) transmitters and readers. Easikey is a simple, two door controller which can cope with up to 999 users. Easikey 1000 can cope with up to 1,000 users. PAC for Windows is PAC's PC administration software. This comes in six versions, according to the size of the system to be managed. The maximum version can cope with up to 30,640 doors. PAC for Windows can be used to control building functions as well as security.

Products launched in 2000 include KeyPAC Solo, a single door proximity system, which can recognise up to 2,000 users, and Easykey Manager software for remote administration in housing.

Policy is to increase PAC's share in the world market by the selection of dealers on a country by country basis. Substantial attention has been given recently to increasing penetration of the South East Asian markets.

In January 2000, a new Managing Director, Michael Price, was appointed.

Financial Results

PAC International Ltd reported turnover of £14.6m for the year to 30th September 1999, showing growth of 11.9%. Exports grew by 42% to £6.1m, while UK sales decreased 2.9% to £8.5m. Pre-tax profits, at £4m, were down by 1.1%.

Paxton Access Ltd

Structure

Paxton Access Ltd designs and manufactures access control systems. These include branded products and products for the OEM sector.

Current and Future Developments

Branded products include TOUCHLOCK keypads, the CARDLOCK stand-alone card access system, the PROXIMITY system and range of readers the Switch2 control unit for stand-alone systems and the Net2 network access control system. It also supplies the Handkey II biometric system, which has been configured to work with Net2.

Financial Results

Turnover and profit figures are not available for Paxton Access Ltd, as the company submits a modified balance sheet to Companies House.

TDSi Group Ltd

Company Structure

TDSi Group Ltd is an independent UK company which derives most of its business from the development and manufacture of access control equipment. It has an office in Paris and uses a network of distributors and dealers in 30 countries.

Current and Future Developments

TDSi’s products are card readers, stand-alone solutions and networked solutions. The card technologies used are proximity, magnetic stripe and TDSi’s own Microcard technology. This Microcard technology is based on the transmission of infra-red light through the card. Each card has a strip which is optically black but transparent to infra-red. The TDSi coding system measures the amount of infra-red which passes through the card. TDSi manufactures the codes, guaranteeing there is never a duplicate card and it is almost impossible to create a card knowing only its number because the information is encrypted. TDSi says its Microcard reader is considered the smallest, neatest card reader on the market. Microcard readers come with or without added push button keypads.

Ultraguard 2000 is TDSi's most sophisticated control software. It can control doors over multiple sites, has a graphical user interface and runs under the Windows NT operating system. Ultraguard can work with proximity, magnetic stripe or Microcard readers and there is the option of adding a photoID badging function.

Financial Results

Turnover rose by 1.8% in the year to 30th September 1999, reaching £4.7m. Pre-tax profit was £426,000, compared to a £22,000 loss the previous year.

Yale Intruder Security

Company Structure

In 2000, Williams PLC took the decision to concentrate mainly on fire protection and on security services and to split into Kidde PLC and Chubb Security PLC. It sold Yale Intruder Security, a division covering the manufacture and sale of locks and other security products, to Assa Abloy AB, with effect from August 2000. The Spanish subsidiary Tesa, which manufactures access control products and hotel locking systems would have been included in the original package sold to Assa Abloy but regulatory matters delayed the transfer of this part of the business.

Current and Future Developments

Access control products include keypad systems, magnetic card systems, systems using two card readers or card reader plus keypad for added security and an access control management system.

Financial Results

Separate information on access control products is not available.

Other Leading Suppliers to the UK Market

Motorola Ltd

Motorola Ltd markets in the UK products of Motorola WSSD (Worldwide Smart Card Solutions Division). Motorola WSSD produces smart card systems for access control, automated fare collection, identification/network security and payment systems. It also offers toolkits and platforms for developing smart card applications. Access control products include contactless smart cards and readers, dual interface smart cards and the BiStatix RFID technology. BiStatix offers a system for printing smart labels onto paper or other materials using carbon based conductive ink. This brings down the cost of RFID and makes the disposable labels suitable for many applications, such as baggage handling and parcel tracking as well as access control. Motorola WSSD also offers a full design and implementation service for creating integrated systems based on smart card solutions.

Honeywell WSE

Honeywell WSE (Westinghouse Security Electronics) is based in the US and Germany and sells in the UK via Honeywell Control Systems Ltd, which offers a full range of building control systems. Honeywell WSE produces proximity access control solutions based on Westinghouse technology and offers cards, readers, controllers and complete management systems for integrated security systems. Its range also incorporates magnetic stripe, bar code, keypad Photo-ID, smart card and biometric technologies.

Recognition Systems Incorporated

Recognition Systems Incorporated of the US is the world leader in biometric access control, time and attendance and personal identification products. It concentrates on hand recognition. Technology and its Handkey system is installed worldwide in tens of thousands of locations, including prisons, laboratories, health clubs and day care centres. HandKey II, launched in 1999, is a lower priced, more aesthetically pleasing version of the product.

Remsdaq Ltd

Remsdaq Ltd is a UK company which is a major supplier of integrated security management systems.

Bell Group PLC

Bell Group PLC, which is an important security installer, also offers its own access control software, called Access32. The entry level option is for systems with up to 200 users and 16 readers. The enterprise version can cope with 6,000 to 100,000 users and 64 readers and cascading enterprise versions allows unlimited numbers of users and readers to be served. Access 32 can also be integrated with Bell's Pacom backbone system for integrated security signalling and management for multi-site organisations.

Codelocks Ltd sells imported digital keypad locks. Its Codelock is claimed to be the UK's best selling digital door lock.

The Installers

There are several large security installers which are important in designing, installing and maintaining access control systems, as well as other types of security systems and integrated systems. The largest of these is ADT Fire & Security PLC, which is owned by Tyco International Ltd, and which reported turnover of £284.1m in the year to 30th September 1999.

Other installers which are important in the access control market include Bell Group PLC, Initial Elecronic Security Systems Ltd and Chubb Electronic Security Ltd.

OUTSIDE SUPPLIERS

Lock Manufacturers

An essential component of an access control installation which receives little publicty is the hardware which locks the door. The amount of mechanical protection needed depends on the risk of attack and whether it is for an internal or external door. A wide range of products exist. Electric strikes allow speedy locking and unlocking of doors and can allow emergency escape and security over-ride functions to be used. They are available in mortice lock and rimlock models. Other types of hardware are electric solenoid bolts, electromagnetic locks and electromechanical locks.

Many of the leading lock manufacturers offer these types of products. Overseas suppliers are important and many of the products used in the UK are imported. Some of the suppliers, such as Kaba and ERA Security, also manufacture their own access control products.

Manufacturers of Turnstiles and Barriers

Access control installers may also have to use turnstiles, gates or traffic barriers. There are numerous specialist small- to medium-sized companies supplying these products, including several important UK manufacturers. An alternative to the turnstile is an entrance protected by an infra-red beam which operates an alarm and/or closes a barrier. If the person entering inserts a valid card in the reader or is otherwise authorised for entry, the beam is switched off. Because there is a clear entrance path a system like this can cope with a high volume of traffic and avoids the inconvenience sometimes experienced when people try to pass through turnstiles carrying baggage or parcels.

Manufacturers of Smart Cards

Smart card access control is becoming a high growth sector. These cards are produced by a number of companies competing on a global level, of which Gemplus is the leader.

ADVERTISING AND PROMOTION

Advertising is mainly in the security magazines and in publications such as the BSIA's Security Direct annual directory but many of the access control manufacturers are small and cannot invest heavily in advertising. Trade shows are very important and there are many of these in the UK and overseas.

Exhibitions

- Ifsec, the International Fire, Security and Safety Exhibition and Conference, is probably the world's biggest security exhibition and conference. It is held each May at the NEC, Birmingham, and takes place alongside Security Solutions, International FIREX and the RoSPA Health & Safety Exhibition.
- Securex, is held annually in London. It last took place from 19th-21st September 2000 at Olympia and was held alongside the facilities management exhibition, FM Expo. Securex 2001 will be held at the new ExCel venue in London Docklands.
- The UK Security Show includes a conference and exhibition focusing on the UK market. This is next due to take place in February 2001 at Wembly.
- The Scottish Security Association holds an annual exhibition and conference. Scotsec 2000 took place from 9th to 11th October 2000 at Hamden Park.
- The Biometrics Exhibition and Conference took place during November 2000, in London.
- Smartcard 2001 is scheduled for 20th-22nd February, at the ExCel centre in London Docklands.
- Security Essen is held every 2 years, each October, in Essen, Germany.
- Expo Protection and Fire 2000 are next due to be held from 7th to 10th November 2000, at the Villepointe Exhibition Centre in Paris.
- The Middle East Industrial Security Conference and Exhibition took place in October 2000, in Bahrain.
- The ASIS International Exhibition and Conference was held in Orlando, Florida in September 2000.

5. Strengths, Weaknesses, Opportunities and Threats

THE TOTAL MARKET

Strengths

- This is an established security sector, relevant to many kinds of organisations.
- The residential sector, especially flats, sheltered housing and similar buildings, provides a large demand for inexpensive access control products.
- Restrictions on access can be important for reasons of safety as well as for protection against crime.
- If mechanical keys are lost or stolen, the organisation may need to change one or more locks and issue new keys to other staff. This is not only expensive and inconvenient but the building may be exposed to risk while it is being organised. Lost or stolen access control cards or tokens can be invalidated very simply and quickly as soon as the loss is reported. The readers do not need to be changed and other users of the system are not affected.
- High security sites, such as prisons, nuclear power plants and military establishments demand the most secure and advanced access control solutions.
- New building work and building extensions provide a continued demand for new access control systems or extension of existing systems.
- The installers can derive some ongoing income from maintenance and the supply of extra cards and tokens.

Weaknesses

- Many access control systems can be cheated by following an authorised person through the door. This is known as tailgating. It may happen with or without the connivance of the authorised person.

Opportunities

- Intelligent access control systems have many added benefits. They allow managers to check on the attendance of staff at particular locations and they can be used to ensure that guard patrols have toured at the appointed times.
- Asset tagging systems can be combined with access control to record who takes equipment away and whether they have returned it.

- There is continued growth in demand for integrated solutions combining some or all of the functions of building management, security, fire protection and staff attendance.
- Online systems can provide information on who is in the building at any particular moment. This is important in an emergency but also very useful when staff need to be contacted.
- There are opportunities for provision of multi-site systems to replace or link existing solutions.

Threats

- The market is vulnerable to fluctuations in demand for new buildings.
- Security guards can be used to guard entrances in some locations. Although this is an expensive option, it may be suitable in some situations, as when the security officers can undertake other duties.

AUDIO AND VIDEO ENTRY SYSTEMS

Strengths

- People living in flats and communal buildings may find it inconvenient to go to the door in person.
- The disabled and less mobile may find it especially difficult to let visitors in.
- These simple systems are also convenient for many small offices.
- These entry systems are relatively cheap and easy to install.
- They require no training to manage and are familiar to nearly everyone.

Weaknesses

- They are only useful if the visitor can be recognised or provide an ID which can be examined adequately via a video system.
- They require human operation and so interrupt people at work.
- These systems are less suitable where there are multiple entrances.
- There are situations where trusted visitors need to enter unstaffed buildings and audio/video systems are no use in these cases.
- There is no way of knowing whether the visitor has any companions as these can hide from a camera until the door is opened.
- There is a tendancy for unsuspecting visitors to hold the door open for others, allowing ’tailgating’.

Opportunities

- New customers are increasingly choosing video entry systems in preference to audio-only.
- Some specially designed systems are now available for locations where users have special needs because of disablement.

Threats

- This is a fairly mature sector.
- The main competition comes from keypad systems.

KEYPAD SYSTEMS

Strengths

- These systems are relatively inexpensive and there are no supplies to replace.
- There are no keys, cards or tokens to be lost or stolen.
- It is quick, easy and cost free to change the code.
- Access is automatic; they do not have to be manned.
- These systems can be used in either of two ways. The same code can be given to everyone and changed regularly or a system of personal identification numbers (PINs) can be adopted. PINs can be cancelled without affecting other users and a PIN system can provide information on who has entered which doors.
- Keypads are often provided on card reader units for an added layer of security.

Weaknesses

- A keypad alone offers a fairly low level of security. Users may divulge the code or PIN or be observed entering the number.
- PINs are not usually more than four digits long because they have to be easy to remember. If a very large number of PINs have been authorised, there is some risk of an intruder finding a valid combination by trial and error.
- Some disabled users may find keypads hard to use.
- This is relatively slow method and not suitable where there is a very heavy flow of traffic.

Opportunities

- This is a popular access control measure in schools because it is cheap and familiar.

Threats

- The main competition comes from card-based systems and proximity systems.

CARD READER SYSTEMS

Strengths

- Access can be time controlled; the system determines not only who is allowed to go where but also at what times.
- Several card technologies are available, offering different advantages.
- Cards can also offer a photo ID function.
- They are easy to use.
- There is no need to remember a PIN, although systems incorporating a key pad are available where extra security is needed.

Weaknesses

- Cards can be lost, stolen and borrowed and losses may not be noticed immediately.
- Some types of cards are subject to wear.

Opportunities

- Smart cards provide a growing sector because they offer many additional functions besides security.
- Card based systems are taking market share from keypad-only systems.

Threats

- The main threat comes from proximity systems.

PROXIMITY SYSTEMS AND LONG RANGE/HANDS-FREE SYSTEMS

Strengths

- There is no wear as the card or token does not have to be inserted in the reader.
- Cards can be printed with photo-ID information.
- Proximity systems allow a fast throughput of people.
- Proximity tokens are very difficult to duplicate.
- Hands-free systems are useful for people carrying equipment and people who have to pass back and forth frequently, as well as for control of vehicle barriers.
- Hands-free systems can be used for people whose disabilities prevent the handling of cards.

Weaknesses

- It may be harder to spot tailgating with a long range system.
- Loss, theft and lending of tokens can occur.

Opportunities

- Proximity and hands-free systems are gaining shares from key pad and swipe card reader systems.
- Contactless smart cards are available.

Threats

- Biometric systems will compete with this sector.

BIOMETRIC SYSTEMS

Strengths

- It is difficult to cheat these systems because impersonation of characteristics such as fingerprints is not possible.
- Biometrics systems eliminate the inconveniences and risks of lost or stolen cards and tokens and forgotten codes.
- They are fast and simple to use.

Weaknesses

- The systems are still expensive compared to other access control technologies.
- People are not very familiar with these systems and some people may feel they are intrusive or not trust their accuracy.
- The databases involved are quite demanding of computer space.
- Each system has to be set to give the optimum balance between the possibilities of false acceptances and false rejections.
- Photo-ID and the additional functions which can be added to smart cards are not offered by biometrics. This may mean that the organisation goes to the extra expense of having a card system alongside the biometric system.

Opportunities

- This type of technology may be ideal for many high security sectors, such as prisons.
- Prices are already starting to come down and will fall as the market develops.
- Demand from the commercial sector is growing.

Threats

- No threats have emerged as yet.

6. Buying Behaviour

RESIDENTIAL LOCATIONS

Blocks of flats, student accommodation, sheltered housing and other residential locations provide a substantial demand for keypad systems and audio and video entry systems and simple digital locks. In blocks of flats, the use of conventional keys for the outer doors can present security risks, as they are often lost, copied or not returned as people move. Changing the lock is a major upheaval and everyone needs a new key. Keypad systems offer more flexibility. Card-based systems offer very good security and flexibility as individual cards can be invalidated without affecting other users. In selecting access control equipment it is necessary to take into account the needs of disabled residents.

LARGE OFFICE DEVELOPMENTS

Some of these systems have to cope with thousands of employees. Data security can be one of the priorities and there are opportunities for asset tagging.

Credit Suisse First Boston Bank's European Headquarters is in London. It has 6,000 employees and spreads over three large buildings in Canary Wharf. The three separate and incompatible access control systems were replaced by a single system of cards and turnstiles costing about £2m. The system was supplied by Casi-Rusco Inc and installed by B&P Security Services Ltd. Traditional Wiegand technology was selected for the card system. Cards incorporate ID and a magnetic stripe for use in vending machines. The system is controlled centrally at the London headquarters but is also networked to access control systems at the bank's offices throughout Europe. The London Office can manage the access control at these remote locations.

Nedap Security Ltd won a £1m contract to supply access control for Compaq Computer Ltd. The new system controls 400 doors in 27 buildings on multiple sites and 6,000 staff are catered for.

Fastlane optical turnstiles from Integrated Design are used at Computer Associates' European Headquareters in London. The infra-red beam systems were used instead of traditional turnstiles to allow speedier throughput.

Interflora's head office in Sleaford and its call centre in Nottingham use a Siteguard Access Control system installed by ADT Fire & Security PLC. This is linked to a staff time and attendance system. Magnetic stripe cards are used for access control and these double for the time and attendance functions.

SMALL OFFICES

The risk level is generally low. Keypad systems and audio and video entry systems are popular.

BANKS AND FINANCIAL SERVICES COMPANIES

The traditional banks have closed many branches but new opportunities are coming from call centres.

AIRPORTS

These present a high risk level and large and complex sites with large numbers of personnel.

PRISONS

These provide a market for the highest level security products. Verifying the identity of visitors can also be a requirement. Biometric systems have many advantages for this sector. Many of the prisons are very overcrowded and further building is needed.

POLICE STATIONS

Internal access control systems may be needed to protect certain areas. Lancashire Constabulary has installed the PEGASYS 900 access control system from Cardkey Systems at several of its police stations. The largest stations have 4 or 5 card readers and the smallest have one reader. Some of the stations have also interfaced their systems with the police garages. At least one of the divisional headquarters has linked its system to the fire protection system so doors are unlocked if a fire alarm sounds.

Within the police stations, access is restricted not only with regard to who can go where but also with regard to the times allowed for access. For example, cleaners may enter only at certain times of day.

POWER STATIONS

Power plants are high security locations providing opportunities for high level security systems.

In January 2000, Blick PLC announced it had won a contract worth over £3m with National Grid Group PLC. The work is to design and install integrated access control and lone worker network solutions to remote substations across the UK. Security and safety monitoring will be carried out remotely by the National Grid staff in its regional headquarters in Warwickshire. Personnel will be able to activate and deactivate the security fencing around each of the National Grid's remote sites and only allow access to authorised engineers. Blick subsidiary PAC International will supply the access control equipment, Blick Communications will supply the radio paging equipment and Blick UK Ltd will carry out the installation.

INDUSTRIAL SITES

Safety can be as important a factor as crime prevention for some sites. Many industrial sites are spread over a large area with several buildings. There are also car parks and delivery bays to protect.

The Shotton Paper Company has complex security needs and a huge, 150-acre, site to protect. It has replaced its previous use of key operated locks and a stand-alone access control system with a PEGASYS access management system from Cardkey Systems, linked to 61 card readers and allowing at least 125 different levels of access authorisation. The entrances to the site are protected with a card operated turnstile and a car park barrier. Secure areas within the buildings include the stores area, the medical centre various plant rooms. Computer equipment in the training rooms has been radio-tagged and PEGASYS authorises and logs is movements. Because of this protection, the company has been able to allow 24-hour use of its training facilities. The fire alarm system is also linked into PEGASYS, so that in the event of a fire the locations of all staff can be ascertained. The existing company IT system is used to monitor the PEGASYS system from Windows NT workstations at eight locations.

UNIVERSITIES

Universities can have quite complex security needs, involving the protection of residential accommodation, research facilities and libraries.

SCHOOLS

School security has received considerable media attention in recent years and some extra funds have been made available for improving security measures. Nevertheless, shortage of money is still a problem for many schools. Another factor is the need to welcome parents, who may visit the school infrequently. Although access control in many cases relies on keypad systems, some schools have been quite adventurous in the introduction of biometric systems.

All 33 schools on the Shetland Islands are to be protected by Multi-Scan Proximity tag systems from BPT Security Systems (UK) Ltd.

At the Royal Grammar School in Guildford a simple biometric access control system was installed in 1999 to restrict access to two particular rooms. The

Indentix system is based on finger scanning. It is used for the sixth form common room and for the music room.

HOSPITALS

Hospitals have special security risks because they need to be open throughout the night and many are spread over different buildings on large sites. Drug addicts and mentally disturbed people can pose a threat, as well as potential thieves. People entering the casualty departments need to be prevented from having free access to the whole hospital. There have also been a few well publicised cases of baby snatching from maternity wards, so many access control systems now integrate baby tagging technology.

In 1999, Chubb Ireland won the contract to supply the largest integrated security system for any hospital in Europe. The Royal Victoria Hospital in Belfast covers a 26-acre site with 13 buildings. The security system includes 230 proximity card readers, as well as CCTV, intruder detection and alarms, baby tagging, asset tagging and mobile attack alarms for nurses.

COURTS

The numerous courts around the country provide a market for secure access control systems.

An integrated access control, intruder security, CCTV and physical security system has been installed at Hinckley Magistrates Court in Leicestershire. This uses PAC for Windows control system with proximity card readers to control 20 doors, including the prison cell doors. Automated gates for vehicle access are controlled by CCTV. 200 staff are issued with proximity tokens.

FOOTBALL GROUNDS AND OTHER SPORTS STADIA

Sports stadia, especially football grounds, have adopted various high technology security sytems to protect themselves against aggression by troublemakers. Systems can include issuing members with access control cards or tokens.

HOTELS

Specialist locks and access systems have been developed for the hotel industry.

An example of a recent installation is the Victoria & Albert Hotel in Manchester, which has installed smart card access control for 200 bedrooms and for other facilities.

There are many other customers for access control systems, including museums and art galleries, temporary exhibitions, leisure clubs, historic buildings and transport systems.

7. Current Issues

GROWTH IN WORLD DEMAND FOR SMART CARD ACCESS

Access control and related identity functions are estimated to form the second-largest market for smart cards, after payphones. The Smart Card Industry Association put the 1998 world smart card market at 1.6 billion cards and forecast it would rise to 2.8 billion units by 2000. By 2000, pay phones are expected to account for 1,500 million smart cards, access control and identity applications for 300 million and banking for 250 million. The demand from access/identity applications is expected to have grown by 280%, from only 20 million cards in 1996 to 300 million in 2000. Ovum has forecast that the world market will be £2.7bn by 2003.

Gemplus SA is the world's largest provider of smart cards. Access control is just one of the applications. Two types of smart card can be used for access control; these are contact smart cards and contactless smart cards. The contactless type allows a faster throughput of people. There is no European standard for smart card technology but Gemplus's Mifore technology for proximity smart cards has become accepted as the de facto standard for these contactless cards.

PRODUCT DEVELOPMENT

Integrated Design Ltd offers a system for preventing tailgating with access control systems. The Fastlane Door Detective sends an infra-red field across the doors so it is possible to know how many people went through the door and at what times and is used with a card system.

Chem Systems Ltd of Belfast has developed the InfoProx reader, which is thought to be the smallest proximity card reader. It has an LCD backlit display which gives an explanation of the reason a card is rejected and it incorporates a keypad. It uses HID proximity technology and is manufactured under licence for HID Corporation.

Unican Electronics has launched the Oracode 610 electronic push button lock for hotels, university halls of residence and similar locations where rooms are booked. When a room is booked, the new visitor or resident can be sent their PIN in advance with the booking confirmation. On arrival, they are able to gain immediate access to their room without the need for a key, card or token. Because the system has been designed to be time sensitive, the validity of the PIN automatically ceases at the end of the period booked, so there is no need for staff to remember to change the number.

A novel form of access control has proved popular in the crowded Hong Kong underground rail system. Commuters have the choice of buying conventional tickets or a special SmartCard wristwatch, which doubles as an electronic ticket. The watch operates as a proximity token, opening access barriers when the face is held near a reader. This allows speedy entrance to the platforms. The watch holds a certain value of fares and the price of each journey is debited electronically from the watch each time. The commuters were already familiar with payment using a proximity token because SmartCard proximity cards were introduced in 1998. The wristwatch appears to be popular because it avoids having to search wallets and handbags for a token and there is a novelty appeal to it.

INSURANCE INDUSTRY ACCEPTANCE OF ACCESS CONTROL SOLUTIONS

The British Security Industry Association (BSIA) is producing a draft guide grading different types of access control systems according to the level of security they can offer. The guide is aimed at insurers to enable them to judge which systems are appropriate for particular kinds of locations but it will also be useful for the purchasers of access control systems.

BIOMETRIC READERS FALL IN PRICE

Industry experts have been predicting that when prices of biometric systems fall the market will start to expand to match US levels of penetration. Prices have already fallen considerably but further reductions are expected and thought to be needed to encourage more general use of biometrics.

Bob Myler in *SMT* (Security Management Today), October 2000, provides some figures on the fall in prices. He reports that the average price per biometric access point was as high as £6,000 6 years ago and has fallen to just under £500 in 1999. Voice and signature verifiers now cost under £1,000, while fingerprint and hand geometry readers typically range in price from £200 to £900 and some fingerprint systems can cost as little as £80 per access point. Bob Myler puts the world installed base of biometric systems at over 20,000.

8. The Global Market

A STRONG GLOBAL MARKET

There is a strong world market for electronic access control products. The US and Western Europe together are thought to have accounted for a market of over $2.5bn in 2000 in terms of manufacturers prices and probably nearly twice that amount in terms of end user prices. By 2005, this market will have nearly doubled.

Elsewhere in the world, there is strong growth in demand in the Far East and a large market potential in the relatively under-developed East European markets.

THE US MARKET

Research literature suggests that the US has not only the largest access control market but also one which is still showing strong growth in value, thanks partly to new building activity. In terms of per capita spending, it appears to be slightly ahead of Western Europe. Frost & Sullivan valued the US market for access control equipment at $835m (manufacturers' prices) for 1998 and forecasts that it will reach $2bn by 2005, which means an annual growth in excess of 15%. Earlier research by Frost & Sullivan valued the US market at $542m for 1995, which suggests a growth totalling 54% over three years.

By 1998, card-based systems (including also proximity) accounted for 72.5% of the market value, audio entry systems for 15.6%, keypad systems for 8.4% and biometric systems for 1.8% and other systems for 1.7%. The sectors of keypads, audio entry and swipe card are already very mature and prices are mature. Proximity systems dominated the card sector by 1998. Demand for smart card access control systems in the US has lagged behind that in Europe, but is now starting to show growth, as is demand for biometric sytems.

Another report by Fredonia Group Inc says that US shipments of access control products grew from $589m in 1989 to $1,500m in 1999, an annual growth of 9.8%, and predicts growth by 9.3% to 2004, when the value will reach $2,345m. These figures are less than the market as they do not include imports. Fredonia says that access control sales will be boosted by growth in construction output in industrial and institutional sectors and by the emergence of smart card and biometric based systems as cost effective alternatives to more established technologies.

THE WESTERN EUROPEAN MARKET

Further research by Frost & Sullivan puts the Western European market for access control for industrial and commercial customers at $1.3bn in 1998, forecast to grow to $1.9bn by 2005. Germany is the largest market, followed by France and then the UK. Together these account for more than two-thirds of the Western European market. The UK is the most mature market and is exceeded by that of France, despite having a similar sized population.

THE RUSSIAN MARKET

A paper on the market for access control systems and devices in Moscow was published in 1999 by the US and Foreign Commercial Service Moscow Office. The level of crime in Russia is causing great concern and access control is seen as one method of protection needed. In 1997, Moscow City government decreed that door entry control systems had to be installed in every residential entry in the city. Access control systems are also being installed at car parks and garages. These measures have helped to create an interest in access control in other parts of Russia.

9. Forecasts

INTRODUCTION

The influences on the access control market remain fairly favourable over the next 2 years. The economy is expected to remain in growth and the output of new buildings to remain high.

The Economy

Forecasts for the UK economy show some slowing of gross domestic product (GDP) growth in 2001, athough it is expected to reach 2.5%. Unemployment is expected to fall below one million and inflation to fall to 2.5%.

Table 9: Averages of Independent Forecasts for the UK Economy, 2000 and 2001

	2000	2001
GDP growth	3.0%	2.6%
Claimant unemployed	1.04m	0.99m
Inflation rate	3.2%	2.5%

Source:Forecasts for the UK Economy, November 2000

Building Output

Forecasts suggest that there will be an overall decline in building activity to at least 2002, with the industrial sector being most affected. However, the downturn is not expected to be large over this period and represents merely a slight falling back after very strong growth in the latter part of the 1990s.

Table 10: Forecasts for New Building Work Output (£m at constant 1995 prices), 1999-2002

	Housing	Industrial	Commercial	Public Sector	Infrastructure
1999†	7,030	3,532	10,103	4,187	5,767
2000‡	6,890	3,215	10,505	4,270	5,885
2001‡	6,950	3,085	10,085	4,185	6,180
2002‡	6,880	3,145	9,885	4,100	6,550

† — provisional actual figures

‡ — forecasts

Source:Construction Forecasting and Research Ltd, Construction Forecasts, Summer 2000

FORECASTS

Key Note expects the access control market to grow by 5% to 6% per year in real terms (at constant prices), reaching a value of £275m at 2000 end-user prices by 2005.

Table 11: Forecasts for the Access Control Market by Value (£m at constant 2000 end-user prices), 2001-2005

	2001	2002	2003	2004	2005
Value (£m)	222	235	250	262	275
% change year-on-year	5.7	5.9	6.4	4.8	5.0

Source:Key Note

FUTURE TRENDS

The industry expects that smart card systems will show strong growth over the next few years. Proximity smart cards appear to offer the best advantages. There is general agreement that in the longer term demand for biometric systems will boom and these will tend to take over from card and proximity based systems. However, this growth in the biometric sector has been looked forward to for a few years now and growth has remained gradual, so it may be that card and proximity systems still dominate sales by 2005.

Growth should continue in the use of integrated systems, intelligent networked systems and the use of asset tagging linked to access control systems.

With the market continuing in a growth phase, consolidation in the industry is likely to be only gradual.

10. Company Profiles

INTRODUCTION

The following section contains financial profiles of some of the principal companies identified as operating within the market sector discussed in this report. The financial results of some of the important names within the sector may not be reported if:

- their principal activities are so varied that their results are not considered applicable to the survey
- they are no longer trading as separate companies
- their financial data is very out of date.

DEFINITIONS

A company which has a 'Y' consolidated value has filed consolidated accounts for the relevant year.

† — denotes that the growth rate calculation is invalid, because the figures either move from positive to negative or from negative to positive.

Turnover (Sales)

This includes all income derived from the principal activities of the firm, net of VAT. It encompasses UK sales, exports and overseas and intercompany sales.

Pre-Tax Profits

The net trading profit figure after deduction of all operating expenses, including depreciation and finance charges but before deduction of tax, dividends, subventions or group relief, and other appropriations. Where applicable, it will include the share of profits and losses of associated companies. Items described by the company as exceptional are included; extraordinary items are excluded.

Profit Margin

Pre-tax profits expressed as a percentage of sales.

Average Remuneration

Total employee remuneration divided by the number of employees.

Sales per Employee

Sales divided by the number of employees.

FURTHER INFORMATION

For more detailed financial information telephone *ICC Customer Services* on: +44 (0) 29 2066 0370.

ASSA LTD

Registered Office	75 Summer Road Croydon Surrey CRO 3LN Tel: 020-8688 5191
Company Registration Number	02066014
Date of Incorporation	21/10/86
Holding Company	Assa Abloy Ltd
Ultimate Holding Company	Assa Abloy AB (Sweden)

Previous Name(s) and Date(s) of Change

Futurehigh Ltd (11/12/86)

Principal Activities

The distribution of door security products.

SIC Code

51540, Wholesale of hardware, plumbing and heating equipment and supplies.

Structure

Assa Ltd is one of the UK subsidiaries of the Swedish group Assa Abloy AB, which is the world's largest lock manufacturer and has a substantial involvement in access control products. Assa Ltd has a specialist access control division, Assa Access Control, which supplies products made by the parent group and provides training on their installation.

Brand Information

Assa Access Control offers electric strike locks, solenoid locks and motorised locks, codelocks using the Codoor and Solecode brands, the Solecard 110 stand-alone card reader, the Solecard 4000 access control system for up to 16 doors and the Solecard 630 high performance access control system for multiple sites. This integrates photo-ID, visitor administration and alarm control and response functions. It can also be linked to external CCTV and time and attendance systems.

FINANCIAL PROFILE

Year End	31/12/99	31/12/98	31/12/97	31/12/96
Weeks	52	52	52	52
Consolidated	N	N	N	N

Sales

Sales (£000)	9,838	9,820	8,137	8,002
% change year-on-year	0.18	20.68	1.69	7.14
Exports (£000)	-	-	-	-
Exports/Sales (%)	-	-	-	-

Profits

Pre-tax Profits (£000)	1,010	1,437	170	308
% change year-on-year	-29.71	745.29	-44.81	-37.53
Profit Margin (%)	10.27	14.63	2.09	3.85
Operating Profit (£000)	1,018	1,428	204	337

Employees

Number of Employees	47	44	53	54
Av. Employee Remuneration (£)	29,638.3	29,409.09	28,207.55	25,537.04
Sales per Employee (£)	209,319.15	223,181.82	153,528.30	148,185.19
Profit per Employee (£)	21,489.36	32,659.09	3,207.55	5,703.7
Capital Employed per Employee (£)	37,212.77	35,590.91	26,396.23	24,203.70

Balance Sheet/Ratios

Capital Employed (£000)	1,749	1,566	1,399	1,307
Return on Capital (%)	57.75	91.76	12.15	23.57
Net Worth (£000)	1,749	1,566	1,399	1,299
Current Ratio (%)	1.68	1.67	1.70	1.61
Liquidity Ratio (%)	0.93	0.96	0.95	1.07

BEWATOR GROUP LTD

Registered Office	Mercers Row Cambridge, CB5 8EX Tel:01223 321535
Company Registration Number	01856129
Date of Incorporation	16/10/84
Holding Company	Bewator AB (Sweden)
Ultimate Holding Company	Metric Gruppen AB (Sweden)

Previous Name(s) and Date(s) of Change

Bewator Cotag Ltd (03/12/99)
Metric Security Ltd (10/08/98)
Bewator (UK) Ltd (22/01/97)
Majorsheer Ltd (20/11/84)

Principal Activities

The development, manufacture and distribution of access control products.

SIC Code

51650, Wholesale of other machinery for use in industry, trade and navigation.

Structure

Bewator Group Ltd is owned by Bewator AB of Sweden. It has a division devoted to access control, called Bewator Cotag, and has recently entered the CCTV market.

Brand Information

Bewator Cotag produces proximity and hands-free access control systems, cards and readers and tags for vehicle access control. It also offers codelocks, entryphones and video entryphones and the Cameo-Plus video badging system. It offers a range of Windows-based access control systems and security management systems under the Granta brand. Bewator Cotag also offers special products for healthcare security such as tags for babies.

Recent Developments

In 2000, Bewator-Cotag launched two contactless smartcard readers aimed at the company's OEM customers. These smartcard readers use Mifare brand reading technology from Gemplus. Bewator-Cotag has also launched the SM65 and SM568 contactless smart card programmers and software to program the smart cards.

FINANCIAL PROFILE

Year End	30/06/99	30/06/98	31/12/97	31/12/96
Weeks	52	26	52	52
Consolidated	N	N	N	N

Sales

Sales (£000)	10,542	1,013	1,739	1,750
% change year-on-year	940.67	-41.75	-0.63	13.86
Exports (£000)	5,961	132	263	181
Exports/Sales (%)	56.55	13.03	15.12	10.34

Profits

Pre-tax Profits (£000)	530	-16	-238	-125
% change year-on-year	-	-	-	-
Profit Margin (%)	5.03	-1.58	-13.69	-7.14
Operating Profit (£000)	622	5	-213	-107

Employees

Number of Employees	118	15	15	16
Av. Employee Remuneration (£)	18,042.37	24,933.33	25,133.33	21,500.00
Sales per Employee (£)	89,338.98	135,066.67	115,933.33	109,375.00
Profit per Employee (£)	4,491.53	-2,133.33	-15,866.67	-7,812.5
Capital Employed per Employee (£)	17,279.66	4,466.67	4,333.33	3,125.00

Balance Sheet/Ratios

Total Assets less Current Liabilities (£000)	2039	67	65	50
Capital Employed (£000)	2,039,000	67,000	65,000	50,000
Return on Capital (%)	25.99	-47.76	-366.15	-250
Net Worth (£000)	279,000	-94,000	-90,000	48,000
Current Ratio (%)	0.97	0.98	1.00	0.99
Liquidity Ratio (%)	0.73	0.69	0.66	0.72

GROUP 4 TECHNOLOGY LTD

Registered Office	Farncombe House Broadway Worcestershire, WR12 7LJ Tel:01684-850977 Fax:01684-294845
Company Registration Number	02382338
Date of Incorporation	10/05/89
Holding Company	Group 4 Securitas Ltd
Ultimate Holding Company	Ant Secom Investments II (Netherlands)

Previous Name(s) and Date(s) of Change

Group 4 Systems Holdings Ltd (24/03/93)
Securitas Technology Holdings Ltd (01/03/91)
Gulfwork Ltd (25/07/89)

Principal Activities

A group engaged in the development, assembly, marketing, installation, service and maintenance of risk control and employee management systems.

SIC Code

30020, Manufacture of computers and other information processing equipment.

Structure

Group 4 Technology Ltd is owned by the security group, Group 4. It designs and manufactures access control systems, via its Group 4 Systems division. It is also an installer of security systems, including CCTV and alarms systems as well as access control.

Brand Information

The access control products include card readers and keypads, multi-NODE local controllers and the multiMAX range of Windows-based access control and security management software. Between them the multiMAX systems can cope with almost any size of system.

Recent Developments

In 2000, the company launched multiMAX 625 system, its top of the range multiMAX system for remote access control management using the Microsoft SQL 7.0 enterprise database server.

FINANCIAL PROFILE

Year End	31/12/99	31/12/98	31/12/97	31/12/96
Weeks	52	52	52	52
Consolidated	Y	Y	Y	Y
Sales				
Sales (£000)	21,031	17,360	14,595	12,774
% change year-on-year	21.15	18.94	14.26	2.27
Exports (£000)	9,242	6,001	3,880	2,114
Exports/Sales (%)	43.94	34.57	26.58	16.55
Profits				
Pre-tax Profits (£000)	3,298	2,841	2,373	2,100
% change year-on-year	16.09	19.72	13.00	18.78
Profit Margin (%)	15.68	16.37	16.26	16.44
Operating Profit (£000)	3,715	3,204	2,594	2,215
Employees				
Number of Employees	224	206	198	187
Av. Employee Remuneration (£)	24,991.07	23,718.45	22,616.16	22,096.26
Sales per Employee (£)	93,888.39	84,271.84	73,712.12	68,310.16
Profit per Employee(£)	14,723.21	13,791.26	11,984.85	11,229.95
Capital Employed per Employee (£)	15,816.96	26,208.74	24,803.03	16,754.01
Balance Sheet/Ratios				
Capital Employed (£000)	3,543	5,399	4,911	3,133
Return on Capital (%)	93.08	52.62	48.32	67.03
Net Worth (£000)	2,259	4,107	3,778	2,202
Current Ratio (%)	1.04	1.43	1.50	1.21
Liquidity Ratio (%)	0.67	0.88	0.84	0.70

GUARDALL LTD

Registered Office	Lochend Industrial Estate Newbridge Midlothian, EH28 8PL Tel:0131-333 2900
Company Registration Number	SC069196
Date of Incorporation	24/08/79
Holding Company	Williams Security Ltd
Ultimate Holding Company	Williams Ltd

Previous Name(s) and Date(s) of Change

Racal-Guardall (Scotland) Ltd (01/02/93)
Racal Security Ltd (12/04/85)

Principal Activities

The development, manufacture and marketing of electronic security products.

SIC Code

31620, Manufacture of other electrical equipment not elsewhere classified.

Structure

Guardall Ltd, owned by Kidde PLC, is a manufacturer and supplier of electronic security equipment, including access control products.

Brand Information

In the access control market, Guardall offers magnetic stripe cards and readers, MiniProx proximity tokens and readers and the Inova range of card readers, door controllers and access control management software for single or multiple site control. The Inova range of products is manufactured for Guardall Ltd by Guardall North America in Canada.

Recent Developments

As part of the reorganisation and divison of Williams PLC into two automous groups, Guardall Ltd was moved out of Chubb Security into Kidde PLC. The new corporate structure was finalised in November 2000. Guardall North America has remained under Chubb Security.

FINANCIAL PROFILE

Year End	31/12/99	31/12/98	31/12/97	31/03/97
Weeks	52	52	39	52
Consolidated	N	N	N	N

Sales

Sales (£000)	10,596	12,838	9,990	14,438
% change year-on-year	-17.46	28.51	-30.81	-3.15
Exports (£000)	-	-	-	-
Exports/Sales (%)	-	-	-	-

Profits

Pre-tax Profits (£000)	642	390	-1,301	809
% change year-on-year	-	-	-	-
Profit Margin (%)	6.06	3.04	-13.02	5.60
Operating Profit (£000)	641	369	-1,347	770

Employees

Number of Employees	184	161	214	234
Av. Employee Remuneration (£)	17,206.52	21,111.80	16,816.20	16,927.35
Sales per Employee (£)	57,586.96	79,739.13	62,242.99	61,700.85
Profit per Employee (£)	3,489.13	2,422.36	-8,105.92	3,457.26
Capital Employed per Employee (£)	29,809.78	38,559.01	27,686.92	31,341.88

Balance Sheet/Ratios

Capital Employed (£000)	5,485	6,208	5,925	7,334
Return on Capital (%)	11.7	6.28	-29.28	11.03
Net Worth (£000)	5,485	6,208	5,925	7,222
Current Ratio (%)	2.18	2.12	1.98	2.24
Liquidity Ratio (%)	1.64	1.66	1.46	1.53

KABA HOLDING (UK) LTD

Registered Office	14 New Street London, EC2M 4HE Tel:01884-256464
Company Registration Number	00877996
Date of Incorporation	28/04/66
Holding Company	Kaba Holding AG
Ultimate Holding Company	Kaba Holding Ltd (Switzerland)

Previous Name(s) and Date(s) of Change

Kaba (UK) Ltd (12/07/99)
Kaba Locks Ltd (03/04/97)

Principal Activities

The manufacture and marketing of mechanical and electronic security systems for access control.

SIC Code

28630, Manufacture of locks and hinges.

Structure

The company is owned by Kaba Holding Ltd, a Swiss-based international group. The UK company has a local manufacturing plant but also imports some of the products it sells from other parts of the Kaba group.

Brand Information

Kaba's products include mechanical and electric locks, access control products and time and attendance systems.

The access control products include digital keypads and motorised strikes, the Kaba Macs proximity system, the Kaba Legic contactless smart chip, the Kaba bio verification reader and the Kaba delta motorised door release. Exos 8000 Benzing Terminals is a Windows-based access control administration system which can be used for single or multiple sites. Echelon allows integration into LAN-based building management systems.

Recent Developments

Kaba has made several acquisitions in the last 2 years and has expanded into products such as steel doors. These products are sold via four specialist divisions in the UK.

FINANCIAL PROFILE

Year End	30/06/99	30/06/98	30/06/97	30/06/96
Weeks	52	52	52	52
Consolidated	N	N	N	N

Sales

Sales (£000)	6,058	5,759	4,296	3,630
% change year-on-year	5.19	34.05	18.35	7.59
Exports (£000)	488	529	400	342
Exports/Sales (%)	8.06	9.19	9.31	9.42

Profits

Pre-tax Profits (£000)	-24	-427	95	137
% change year-on-year	-	-549.47	-30.66	47.31
Profit Margin (%)	-0.4	-7.41	2.21	3.77
Operating Profit (£000)	166	-251	153	191

Employees

Number of Employees	-	-	106	95
Av. Employee Remuneration (£)	-	-	11,981.13	11,673.68
Sales per Employee (£)	-	-	40,528.30	38,210.53
Profit per Employee(£)	-	-	896.23	1442.11
Capital Employed per Employee (£)	-	-	28,500.00	29,894.74

Balance Sheet/Ratios

Capital Employed (£000)	4,030	2,227	3,021	2,840
Return on Capital (%)	-0.60	-19.17	3.14	4.82
Net Worth (£000)	1,769	1,794	2,261	2,260
Current Ratio (%)	1.39	0.86	1.24	1.66
Liquidity Ratio (%)	0.90	0.48	0.74	0.83

PAC INTERNATIONAL LTD

Registered Office	Blick House Bramble Road Swindon Wiltshire, SN2 8ER Tel:0161-406 3400
Company Registration Number	01363776
Date of Incorporation	19/04/78
Holding Company	Blick PLC
Ultimate Holding Company	Blick PLC

Previous Name(s) and Date(s) of Change

Software Control Ltd (01/03/90)
Assydes Ltd (19/01/83)

Principal Activities

The manufacture of electronic access control and door entry products.

SIC Code

32100, Manufacture of electronic valves and tubes and other electronic components.

Structure

PAC International Ltd is the access control manufacturing subsidiary of Blick PLC.

Brand Information

PAC International concentrates mainly on proximity technology, although it also offers Wiegand, infra-red and magnetic stripe card readers and cards, keypads and infra-red vehicle detection. Easikey is a simple, two door controller.

PAC for Windows access control administration software comes in six versions, according to the size of the system to be managed. It can be used to control building functions as well as security.

Recent Developments

In 2000, PAC International launched KeyPAC Solo, a single door proximity system which can recognise up to 2,000 users, and Easykey Manager software for remote administration in housing.

Michael Price was appointed as the new Managing director in January 2000.

FINANCIAL PROFILE

Year End	30/09/99	30/09/98	30/09/97	30/09/96
Weeks	52	52	52	39
Consolidated	N	N	N	N
Sales				
Sales (£000)	14,566	13,015	11,067	7,028
% change year-on-year	11.92	17.6	57.47	10.56
Exports (£000)	6,093	4,290	4,247	2,686
Exports/Sales (%)	41.83	32.96	38.38	38.22
Profits				
Pre-tax Profits (£000)	4,033	4,079	2,526	1,712
% change year-on-year	-1.13	61.48	47.55	33.44
Profit Margin (%)	27.69	31.34	22.82	24.36
Operating Profit (£000)	3,833	3,976	2,469	1,685
Employees				
Number of Employees	128	114	123	106
Av. Employee Remuneration (£)	21,023.44	21,482.46	18,382.11	16,226.42
Sales per Employee (£)	113,796.88	114,166.67	89,975.61	88,402.52
Profit per Employee (£)	31,507.81	35,780.70	20,536.59	21,534.59
Capital Employed per Employee (£)	26,812.50	33,298.25	18,617.89	13,915.09
Balance Sheet/Ratios				
Capital Employed (£000)	3,432	3,796	2,290	1,475
Return on Capital (%)	117.51	107.46	110.31	154.76
Net Worth (£000)	3,211	3,722	2,290	1,475
Current Ratio (%)	1.95	1.90	1.63	1.25
Liquidity Ratio (%)	1.75	1.72	1.27	0.96

11. Further Sources

Associations

Association of British Insurers
'for insurers authorised to transact insurance business, of any class, in the UK'
51 Gresham Street
London, EC2V 7HQ
Telephone:020-7600 3333
Fax:020-7696 8999
WWW:http://www.abi.org.uk

- Association of Building Hardware Manufacturers
- British Blind and Shutter Association

'represents leading UK manufacturers of interior and exterior window blinds, security shutters and grilles'

- Door and Shutter Manufacturers Association

'represents the leading manufacturers and installers of industrial and commercial metal doors'
Heath Street
Tamworth
Staffordshire, B79 7JH
Telephone:01827-52337
Fax:01827-310827
WWW:http://www.bbsa.uk.com

Association of Police & Public Security Suppliers
'interests of British police and security industry. Provides free assistance to customers seeking to identify UK sources and supply for services and products'
Marlborough House
Headley Road
Grayshott
Surrey, GU26 6LG
Telephone:01428-602627
Fax:01428-604567
WWW:http://www.appss.org.uk

British Retail Consortium
'represents over 90% of members of the retail industry'
5 Grafton Street
London, W1X 3LB
Telephone:020-7647 1500
Fax:020-7647 1599
WWW:http://www.brc.org.uk

- British Security Industry Association Ltd

'representing the private security industry; members have to adhere to certain British Standards and Codes of Practice'

- Inspectorate of the Security Industry

'specialises in inspecting manned security companies to the industry standard and provides certification of their quality management systems'
Security House
Barbourne Road
Worcester, WR1 1RS
Telephone:01905-21464
Fax:01905-613625
WWW:http://www.bsia.co.uk

Confederation of British Industry
'the leading employers' organisation promoting the prosperity of British industry'
103 New Oxford Street
London, WC1A 1DU
Telephone:020-7379 7400
Fax:020-7240 1578
WWW:http//www.cbi.org.uk

Consumers' Association
'independent research and testing of consumer products and services; results published by ACR's trading subsidiary Which? Ltd: campaigning on behalf of consumers'
2 Marylebone Road
London, NW1 4DF
Telephone:020-7830 6000
Fax:020-7830 6220
WWW:http://www.which.net

Electrical Contractors' Association
'covering the whole of the UK and Eire (except Scotland), the Association guarantees work of member firms and that the job will be completed at original price if a member firm should run into difficulties'
34 Palace Court
London, W2 4HY
Telephone:020-7313 4800
Fax:020-7221 7344
WWW:http://www.cca.co.uk

Loss Prevention Council
'to raise the level of understanding and awareness of loss prevention issues'
Melrose Avenue
Borehamwood
Hertfordshire, WD6 2BJ
Telephone:020-8207 2345
Fax:020-8207 6305
WWW:http://www.iod.co.uk

Institute of Directors
'to bring the experience of business leaders to bear on the conduct of public affairs for the common good'
116 Pall Mall
London, SW1Y 5ED
Telephone:020-7839 1233
Fax:020-7930 1949

- International Institute of Security
- International Professional Security Association

'refreshing security personnel at all levels, providing training, advice and support'
Ipsa House
3 Dendy Road
Paignton
Devon, TQ4 5DB
Telephone:01803-554849
Fax:01803-529203
WWW:http://www.ipsa.org.uk

Master Locksmiths Association
5d Great Central Way
Woodford Halse
Daventry
Northamptonshire, NN11 3PZ
Telephone:01327-262255
Fax:01327-262539
WWW:http://www.locksmiths.co.uk

National Approval Council for Security Systems
'maintain and improve standards of installation, service and maintenance of all security services — intruder, CCTV, access control and central monitoring services'
14 Cookham Road
Maidenhead
Berkshire, SL6 8AY
Telephone:01628-637512
Fax:01628-773367
WWW:http://www.nacoss.org

Construction Products Association
'to represent the UK's producers and distributors of construction products, components and fittings'
26 Store Street
London, WC1E 7BT
Telephone:020-7323 3770
Fax:020-7323 0307
WWW:http://www.constprod.org.uk

ROOM, the National Council for Housing and Planning
'to achieve better standards and conditions in housing; to promote effective town and county planning, and improve the built and natural environments'
14-18 Old Street
London, EC1V 9AB
Telephone:020-7251 2363
Fax:020-7608 2830

Security Institute of Ireland
Donnelly Court
Cork Street
Tallaght
Dublin 8
Republic of Ireland
Telephone:00-3531 454 0439
Fax:00-3531 454 0438

Security Systems & Alarms Inspection Board
70-71 Camden Street
North Shields
Tyne & Wear, NE30 1NH
Telephone:0191-296 3242
Fax:0191-296 3242
WWW:http://www.ssaib.co.uk

Periodicals

- CCTV Today
- International Fire & Security Product News
- Security Surveyor

Miller Freeman UK Ltd
Paramount House
17-21 Shenley Road
Borehamwood
Hertfordshire, WD6 1RT
Telephone:020-8207 5599
Fax:020-8207 2598

- Fire International
- International Security Review

DMG Business Media Ltd
Queensway House
2 Queensway
Redhill
Surrey, RH1 1QS
Telephone:01737-768611
Fax:01737-855479
WWW:http://www.dmg.co.uk

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Master Locksmiths Association
Units 4 and 5
The Business Park
Woodford Halse
Daventry
Northamptonshire, NN11 3PZ
Telephone:01327-262255
Fax:01327-262539
WWW:http://www.locksmiths.co.uk

Police Journal
Butterworths Tolley
Anne Boleyn House
9-13 Ewell Road
Cheam, SM3 8JT
Telephone:020-8722 3435
Fax:020-8722 3403
E-mail:jpn@tolleys.co.uk

Professional Security
JTC Associates Ltd
4 Elms Lane
Shoreshill
Wolverhampton
West Midlands, WV10 7JS
Telephone:01922-415233
Fax:01922-415208
WWW:http://www.professionalsecurity.co.uk

Public Security
PMH Publications
PO Box 100
Chichester
West Sussex, PO18 8HD
Telephone:01423-976444
Fax:01423-576456
WWW:http://www.pmh.uk.com

SMT
The Builder Group PLC
Exchange Tower
2 Harbour Exchange Square
London, E14 9GE
Telephone:020-7560 4141
Fax:020-7560 4004

Security Specifier
Specifier Publishing
32 Portland Street
Cheltenham
Gloucestershire, GL52 2PB
Telephone:01242-583222
Fax:01242-222331

- ID
- PSI: Professional Security Installer
- Security & Fire Wholesaler

Pro-Activ Publications Ltd
3 High Street
Chislehurst
Kent, BR7 5AB
Telephone:020-8295 1414
Fax:020-8295 1401

Security News
Business News & Media Corporation
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Peterborough
Cambridgeshire, PE1 2GN
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Fax:01733-703905

Which?
Consumers' Association
2 Marylebone Road
London, NW1 4DF
Telephone:020-7830 6000
Fax:020-7830 6220
WWW:http://www.which.net

Directories

- BSIA: List of Members
- The Security Directory

British Security Industry Association Ltd
Security House
Barbourne Road
Worcester, WR1 1RS
Telephone:01905-21464
Fax:01905-613625
WWW:http://www.bsia.co.uk

General Sources

ACNielsen MEAL Ltd
7 Harewood Avenue
London, NW1 6JB
Telephone:020-7393 5070
Fax:020-7393 5088

Ashgate Publishing Co. Ltd
Ashgate House
Unit 2
Lower Farnham Road
Aldershot
Hampshire, GU12 4DY
Telephone:01252-333871
- Sources of Unofficial UK Statistics — D. Mort & L. Siddall

ASLIB: The Association for Information Management
Staple Hall
Stone House Court
London, EC3A 7PB
Telephone:020-7903 0000
Fax:020-7903 0011
WWW:http://www.aslib.co.uk
- ASLIB Directory of Information Sources in the UK

BMRB International Limited
Hadley House
79-81 Uxbridge Road
Ealing, W5 5SU
Telephone:020-8566 5000
Fax:020-8579 9809

British Overseas Trade Board
c/o Arlington Management Publications Ltd
25 New Bond Street
London, W1Y 9HD
Telephone:020-7495 1940
Fax:020-7409 2557
- Market Search

Export Market Information Centre
Kingsgate House
66-74 Victoria Street
London, SW1E 6SW
Telephone:020-7215 4954/4955
- Sources of Statistics and Market Information

Headland Press
1 Henry Smith's Terrace
Headland
Cleveland, TS24 0PD
Telephone:01429-231902
Fax:01429-861403
- Business Information Sourcebook
- How to Access Market Research Information from your Microcomputer

Interstat
IRN
Davis House
129 Wilton Road
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Telephone:020-7416 8107
Fax:020-7828 2030
WWW:http://www.irnxxx.co.uk

Bonnier Information Sources

Bonnier PLC
Field House
72 Oldfield Road
Hampton
Middlesex, TW12 2HQ

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msn:ICC_FRMMGR@msn.com
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London, WC1V 6HB
Telephone:020-7873 0011
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Office for National Statistics
1 Drummond Gate
London, SW1V 2QQ
Telephone:020-7533 5678
Fax:020-7533 5679
WWW:http://www.statistics.gov.uk

Annual Abstract of Statistics
£39.50

Economic Trends
£21.00

Family Spending 2000
£39.50

Financial Statistics
£22.50 monthly

National Food Survey 1999
£28.00

Monthly Digest of Statistics
£12.00

Social Trends Annual
£39.50

UK National Accounts 1999
£39.50

Other Sources

ACNielsen
Nielsen House
Headington
Oxford, OX3 9RX
Telephone:01865-742742
Fax:01865-742222

BSI Standards
389 Chiswick High Road
London, W4 4AL
Telephone:020-8996 7111
Fax:020-8996 7048

Business Information Futures
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Elsevier Advanced Technology
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Kidlington
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Telephone:01865-843000
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Telephone:020-8700 3700
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Infotech Services Ltd
Lenton House
Lenton Lane
Nottingham, NG7 2NR
Telephone:0115-952 4000
Fax:0115-952 4001

- Manufacturers of Intruder & Fire Alarms Annual £195
- Security Installers Annual £195

Understanding TGI Data

TGI Tables, produced by BMRB International Ltd, are generally based on one of the following groups:

- **Households** — a private household consists of either one person living alone or a group of people, usually, but not always, members of one family, who live together and whose food and other household expenses are managed as one unit.
- **Adults** — any person aged 15 or over.
- **Housewives** — a member of a private household who is solely or mainly responsible for the household duties.

Number, Profile, Penetration

Tables used in Key Note reports may give figures for the Number, Profile, and/or Penetration. These terms are explained in the following Table.

The total number of adults, housewives, households, etc.

Across
The % of 15-24 year-olds, etc. who are users.

Table Heading

	Population	Number (000)	Profile (%)	Penetration (%)
All housewives	20,371	13,535	100.0	66.4
Age				
15-24		1,045	7.7	0.03
25-34		2,697	19.9	12.1
Social Grade				
AB			.0	61.5
C1			.0	71.9
Region				
Greater				
London		2,557	10.4	55.2

This is the projected number of people in each subgroup who use the product.

Down
The % of each subgroup who are users. Each subgroup should total 100% vertically.

Source:Target Group Index, © BMRB International, 1995

TGI data used in Key Note reports is broken down by age, social grade and standard region.

Social Grade

This is normally based on the occupation of the Head of the Household, or if the Head of the Household is retired, their former occupation. If this information is not available social grade is based on environmental factors such as type of dwelling, amenities in the home, presence of domestic help, etc.

Social grade is assessed by the interviewer when collecting the information and is, therefore, based on information given personally and verbally by the respondent. Social grade is checked by BMRB's coding and editing office.

The following table broadly defines the six social grades used. The relationship between social grade and net income of the Head of the Household is a complex one and readers should note that **income is not determinant of social grade**.

Social Grade	Social Status	Head of Household's Occupation
A	Upper middle class	Higher managerial, administrative or professional
B	Middle class	Intermediate managerial, administrative or professional
C1	Lower middle class	Supervisory or clerical and junior managerial, administrative or professional
C2	Skilled working class	Skilled manual workers
D	Working class	Semi and unskilled workers
E	Those at lowest levels of subsistence (no other earner)	State pensioners or widows

Standard Region

This is as defined by the Registrar-General.

Key Note Research

Key Note is a leading supplier of market information, publishing an extensive range of consumer, industrial, business-to-business and services titles. With over 25 years' experience, Key Note represents clear, concise, quality market information.

For all reports, Key Note undertakes various types of research:

Online searching is carried out by product code or free search method, and covers the period from the last edition of the report to the current day.

The internal **ICC Juniper database** is used to select company information relevant to the particular report. The financial information extracted may then be backed up by further online searching on particular companies.

Trade sources, such as trade associations, trade journals and specific company contacts, are invaluable to the Key Note research process.

Secondary data is provided by BMRB International (TGI) and ACNielsen MMS for consumer/demographic information and advertising expenditure respectively. In addition, various official publications published by the ONS, etc. are used for essential background data and market trends.

Interviews are undertaken by Key Note for various reports, either face-to-face or by telephone. This provides qualitative data ('industry comment') to enhance the statistics in reports; **questionnaires** may also be used.

Field research is commissioned for various consumer reports and market reviews, and is carried out by either The Gallup Organization or BMRB International (BMRB Access).

Key Note estimates are derived from statistical analysis and trade research carried out by experienced research analysts. Up-to-date figures are inserted where possible, although there will be some instances where: a realistic estimate cannot be made (e.g. the number of disabled people in the UK); or external sources request that we do not update their figures.

Key Note Publishing Manager, 2001

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Airlines	13	2000
Airports	6	2001
Animal Feedstuffs	10	1999
Automatic Vending	15	2000
Automotive Services	2	1998
Autoparts	14	1999
B		
Baths & Sanitaryware	9	1999
Betting & Gaming	13	2000
Biscuits & Cakes	10	2001
Book Publishing	14	1999
Bookselling	10	2000
Bread Bakers	16	2001
Breakfast Cereals	10	1999
Breweries & The Beer Market	19	2000
Bricks & Tiles	12	1999
Bridalwear	2	1999
Builders' Merchants	12	2000
Building Contracting	5	2000
Building Materials	9	2000
Business Press	10	1999
Business Travel	8	1998
Bus & Coach Operators	5	2000
C		
Cable & Satellite TV	8	2000
Cameras & Camcorders	3	1999
Camping & Caravanning	12	2000
Canned Foods	12	2000
Car Dealers	12	1997
Carpets & Floorcoverings	14	2000
Cash & Carry Outlets	15	2000
Catering Equipment	5	2000
CDs & Tapes	2	1999
Chemical Industry	8	2000
Childcare	2	1999
Childrenswear	3	2000
Chilled Foods	10	2000
China & Earthenware	17	2000
Cigarettes & Tobacco	15	2000
Cinemas & Theatres	8	2000
Civil Engineering	7	1998
Closed Circuit Television	4	2000
Clothing Manufacturing	12	2000
Clothing Retailing	3	2000
Commercial Radio	6	2000
Commercial TV	6	1999
Commercial Vehicles	10	1999
Computer Hardware	3	1999
Computer Services	5	1999
Computer Software	3	1999
Confectionery	19	2000
Consumer Internet Usage	4	2000
Consumer Magazines	10	1999
Contract Catering	13	2000
Contract Cleaning	15	2000
Convenience Retailing	11	2001
Corporate Hospitality	2	2000
Cosmetics & Fragrances	14	2000
Cosmetic Surgery	3	1999
Courier & Express Services	11	2000
Credit & Other Finance Cards	12	1999
D		
Debt Management & Factoring	13	1999
Defence Equipment	8	2000
Design Consultancies	3	2000
Digital TV	1	1998
Direct Marketing	13	2000
Discount Retailing	2	2000
Disposable Paper Products	9	2000
Domestic Heating	11	2000
Dry Cleaning & Laundry Services	2	2000

Title	Edition	Published
E		
Electrical Contracting	6	2000
Electrical Wholesale	1	2000
Electronic Component Distribution	11	2000
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Manufacturing	10	1999
Electronic Games	3	2000
Employment Agencies	14	1999
(see Recruitment Agencies)		
Equipment for the Disabled	2	1999
Equipment Leasing	11	1999
Estate Agents	11	2000
Ethnic Foods	9	1999
Exhibitions & Conferences	5	1998
F		
Fast Food & Home Delivery Outlets	16	2000
The Film Industry	3	2000
Finance Houses	11	2000
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Fitted Kitchens	9	2000
Floristry	1	1998
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Footwear	12	1999
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G		
Garden Equipment	9	1999
The Gas Industry	1	2001
Giftware	10	2001
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Greetings Cards	16	2000

Title	Edition	Published
H		
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Household Appliances (Brown Goods)	8	1999
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I		
Ice Creams & Frozen Desserts	7	2000
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Newspapers	14	1999
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O		
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P		
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Power Tools	1	1999
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Private Healthcare	15	1999
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Protective Clothing & Equipment	3	2000
Public Houses	16	2000
R		
Rail Travel	4	2000
Ready Meals	5	2000
Recruitment Agencies (Temporary & Contract)	1	2000
Recruitment Agencies (Permanent)	1	2000
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