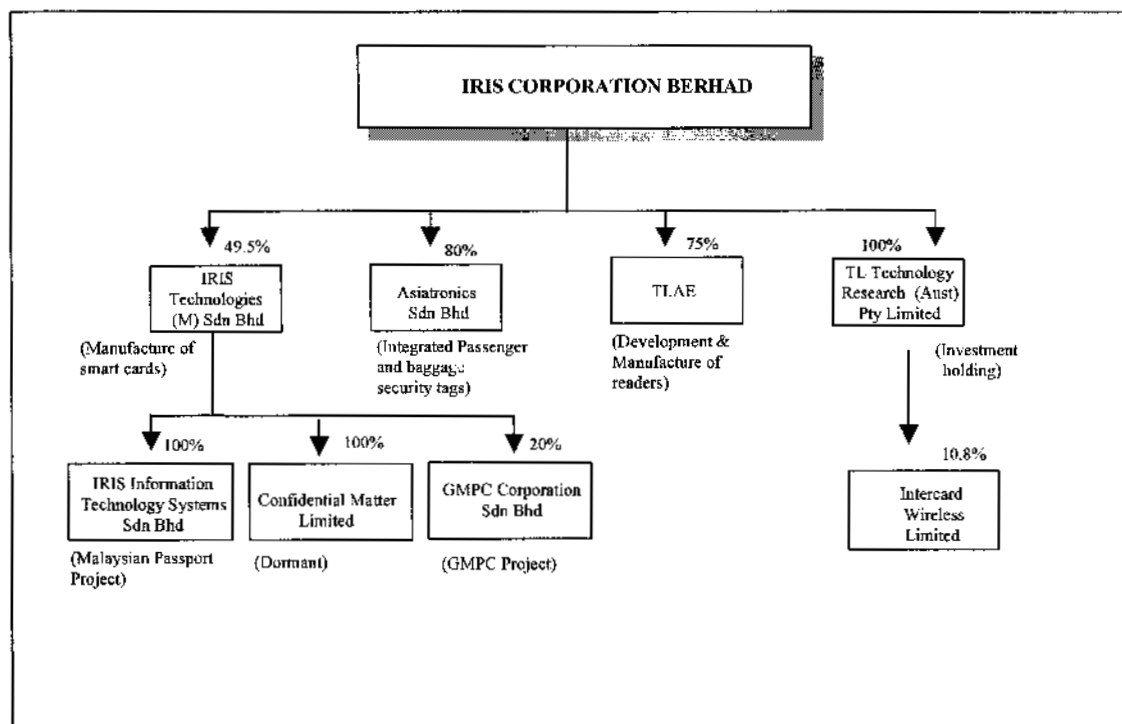


7. BUSINESS OVERVIEW

7.1. Group Structure

The ICB Group consists of ICB as the holding company, three (3) subsidiary companies namely, Asiatronics, TLAE and TLTR (Aust) and four (4) associated companies, namely IRISTech, IITS, CML and GCSB.

TLTR (Aust) a wholly owned subsidiary of ICB, is incorporated in Australia which holds an investment in Intercard, a company currently seeking re-quotations on the Australian Stock Exchange. Intercard. Details on the Group's subsidiaries and associated companies are disclosed in Section 6.6 on "Information on Subsidiaries and Associated Companies". A graphical description of the Group is depicted below.



Notes:-

1. 20% of Asiatronics is held by Tirai Ombak Sdn Bhd, which is owned by the estate of the late Dato' Dr Wan Adli bin Wan Ibrahim and Wan Hamdy bin Dato' Wan Ibrahim.
2. 25% of TLAE is held by an individual, namely Sin Hock Kean.

7.2. Principal Activities

The ICB Group is principally involved in the provision of smart card based security solutions. Identification is the basis of all high security applications. The conventional document/manuscript type identification leaves much to be desired in terms of security, leaving room for global fraud and terrorism to prevail in today's society. Therefore, a forge-proof method of identification has always been a highly sought after commodity.

In this age of information technology and paperless society, microprocessors are seen to be better alternatives for storing security-sensitive information, based on the rationale that the information stored cannot be read by the human eye and thus better protected from attempts to tamper with the stored information. Moreover, microprocessor chips like those developed by the Group, are difficult to be tampered with, as any attempts to do so could render the microchip useless. Smart cards are one of the many, though more ubiquitous of the variety of mediums used to house a microprocessor chip.

7. BUSINESS OVERVIEW (CONT'D)

Today, computerized identity verification takes the form of either a Personal Identification Number ("PIN") or password, but lately, human biometrics e.g. finger prints, iris patterns, voice, facial recognition etc. are creating a huge impact on electronic identification systems. Without contest, the latter provides higher security and is thus a preferred reference of a person's identity. Nevertheless, the problem arising from storing voluminous biometrics data into a limited space on a microchip is greatly underestimated.

ICB Group's solution to security issues concerning card and document based crimes is an electronic identification technology called the "I.R.I.S" solution. I.R.I.S or also known as the Image Retrieval Identification System, is copyrighted with the Patent and Copyright Office in Washington, USA. The I.R.I.S technology was developed by Yap Hock Eng, one of ICB's Directors, a Malaysian residing in the UK who subsequently transferred the technology back to Malaysia in 1994. More information on the technology transfer is detailed in Section 6.5 on "Historical Information on the ICB Group".

The key feature of the I.R.I.S. is its ability to capture live images and human biometrics and compress this information into the limited space available in a microchip and is able to later decompress these images/data without any discernible loss in resolution. By maintaining the image integrity, this technology is particularly suitable for high security applications which require distinct image and precise biometrics verification. Examples of such application include national identification cards, passports, electronic travel documents, electronic baggage tags, computer network access, pay TV, electronic commerce or any other application which emphasize on security. ICB has to date made seven (7) patent applications to the US Patent/Copyright Office in Washington D.C, USA in relation to the I.R.I.S technology three (3) of which have been approved. ICB also has one (1) patent approved by the South Africa Patent Office and a patent application has also been filed with the EU Patent Office, which is still awaiting approval to-date. ICB has not filed any patent application in Malaysia or any other countries other than the USA, South Africa and the EU.

The Group conducts in-house research and development to ensure continuous product development. Research and development activities are focused on technology integration to develop unique smart card solutions for the ever changing demands of high security applications. The Group also conducts extensive research on a myriad of emerging technologies including Radio Frequency Identification, Silicon Polymerisation and Ferro-electric Random Access Memory. Access to patented technology is done through technology transfer, acquisition, licensing agreements and global technology partnerships.

Based on the notion that a full-proof identification is a never ending quest by any government in the world, the Group's core technology, the I.R.I.S, presents an opportunity for the Group to enter the high technology world of electronic or non-document based identification for security purposes.

The Group's earliest achievement to date is being awarded the contract for the M&P project. The electronic passport comes with a microprocessor chip embedded in its cover, which electronically compresses and stores the photograph and biodata of the passport holder. ICB believes the MEP is the first of its kind in the world. The project was launched by the Prime Minister Datuk Seri Dr. Mahatir Mohamad on 23 March 1998 and is expected to replace all the conventional passports currently in circulation. The Group is also a member of a Consortium with a 20% equity stake in GCSB i.e. the company which has been awarded the contract for the MyKad project. The MyKad was launched on 5 September 2001 by the Deputy Prime Minister.

7.3 Products

The Group's forte lies in security-based products designed around smart cards. The I.R.I.S technology is the underlining technology for all smart card-security applications developed by the Group as it provides a secure method for identification that is difficult to forge. Depending on the application, innovative technologies such as Biometric Verification, Radio Frequency Identification, FRAM etc. are integrated with the I.R.I.S. technology to provide customised security solutions to meet the highest security requirement.

7. BUSINESS OVERVIEW (CONT'D)

The Group's first achievement is designing and implementing what ICB believes to be the world's first electronic passport. The Group's existing product range includes the following:

7.3.1 Electronic Passport

The MEP was launched by the Malaysian Government on 23 March 1998, which the Directors of ICB believe to be the first of its kind in the world.

The MEP contains an I.R.I.S. microchip with 8KB of memory embedded in the back cover. The chip can store a digitized photograph, a thumb print, digital signature and several pages of information about the passport holder. The I.R.I.S. solution is equipped with a highly secure encryption technique that prevents the stored data from being read illegally or tampered with. This information can be retrieved within seconds using proprietary readers that will decrypt and decode the information stored in the microchip, enabling the authorised immigration officers to compare and verify the image stored in the microchip with the person bearing the passport. The real security features found in the I.R.I.S. chip acts as an effective deterrent to global fraud, terrorism and forgeries.

The Group as at mid May 2002 has supplied over 4.3 million substrates and is expected to receive continuing purchase orders to supply approximately 100,000 substrates per month to PKN, the current supplier of Malaysian passport to JIM to be inserted into the back cover of the new passports. The Group believes there are currently 7 million passports in circulation. IRISTech was awarded the Asian Technology Awards Bronze Medal by the Far Eastern Economic Review in its 22 October 1998 issue for its MEP where it declared that "Iris' new passport marks a giant technological leap from the current electronic passports...". The MEP was on 21 March 2001 awarded the Best of Electronic Government Applications under the Asia Pacific Multimedia Super Corridor Information Technology and Telecommunication Awards. In 2001, the MEP has also emerged as the winner for the Information and Communications Technology ("ICT") Product of the Year 2001 awarded by the Association of the Computer and Multimedia Industry of Malaysia ("PIKOM").

This application can also be modified to facilitate border access control for frequent travelers. For this purpose, an automatic facial recognition method would be incorporated in the I.R.I.S. to replace the task of an immigration officer who currently has to do a visual verification of the passport holder.

7.3.2 MyKad

The inconvenience of owning a multitude of single-purpose cards and the increasing need to tighten security measures in card-based applications have given rise to demand for a single card for multiple applications which is also forge-proof.

The GMPC is one of the seven (7) MSC flagship applications. The multi-purpose smart card initiative of the MSC consist of two (2) cards - the **payment card** for applications like debit, credit, e-cash and ATM transactions and the **government card**, which will carry details such as national identification card ("ID"), driving license, immigration and medical records. The GMPC was awarded the World Quality Commitment International Star Award (Gold Category) by the Business Initiative Directions Committee based in Spain in May 2001. The award recognizes unique projects around the world showing outstanding commitment to quality and excellence. The government card initiative now manifest in the form of the MyKad.

The Group's core competitive advantage lies in its proprietary electronic identification technology which has been already tried and tested in the MEP. Just as important, the Group, via IRISTech has its very own fully integrated smart card manufacturing facility already in operation in Malaysia. The Group teamed-up with Motorola Inc. to develop a specially designed silicon chip which provides a platform to enable multiple applications to be run on a single microprocessor chip. This division of Motorola Inc. was subsequently acquired by Atmel Sarl, a company incorporated in France. This combination is expected to deliver a

7. BUSINESS OVERVIEW (CONT'D)

highly efficient system that will not only support multiple-applications efficiently but also ensures a high level of security based on the I.R.I.S. technology. The GMPC pilot project has been successfully completed and the Company is expecting the national rollout of the project to take place in the near future.

From its participation on the GMPC project, IRISTech expects the project to generate revenues for the ICB Group since the Group possesses the essential technical and manufacturing capability required for the successful implementation of the project. Nevertheless, there are apparent risks involved. Please refer to the Section 4 on "Risk Factors"

7.3.3 I.R.I.S. Integrated Passenger and Baggage Security System ("IIPBSS")

IIPBSS is an airport security system which aims at making air travel safer and more organised by a computerised method called "positive bag matching".

When a passenger presents himself at the check-in counter his image and biometrics e.g. palm print are captured and stored together with his flight details in a microchip located in the boarding pass and baggage tag. The baggage tags are channeled through the airport's conveyor system which is equipped with a radio frequency smart card reader. The reader identifies the destination of the luggage and directs it to the proper location. Before boarding the aircraft the passengers' image and biometrics are captured once again to be compared with those stored in the microchip on the boarding pass. Only upon positive verification is the baggage released onto the aircraft; therefore the baggage is not allowed on board the aircraft unaccompanied. In the event a passenger who has checked-in his luggage but does not board the plane, the aircraft should not be allowed to take off unless his baggage is removed from the aircraft. Flights are usually delayed because of the onerous task of locating the identified baggage. To counter this delay, the IIPBSS uses Radio Frequency Identification ("RFID"), whereby each baggage tag is equipped with a radio frequency antenna, which makes it possible to easily detect and retrieve the baggage from the hold. The IIPBSS helps airlines to minimise flight delays, reduce baggage handling, improve passenger and baggage reconciliation and enhance passenger security.

In the US, the Federation Aviation Administration ("FAA") have started test-runs of similar "baggage matching" security devices in airports throughout the Continent, due to increasing public pressure to tighten airport security after the terrorist bombing of the PAN AM Flight 103 and TW Flight 800.

Governments worldwide recognise terrorism as a global threat and that airlines are most vulnerable to terrorist bombings, more so subsequent to the events of 11 September 2001. Positive bag matching is seen as one of the more effective means of preventing bombs that are not detected during passenger check-in, from being left on board an aircraft. The IIPBSS underwent a test run at the Langkawi International Airport in November 1997. The innovation of the IIPBSS has received media attention from as far as the UK. On 3 December 1997, the British Broadcasting Corporation ("BBC") featured the IIPBSS system in the documentary "Tomorrow's World". However, this product requires further enhancement before it can be introduced commercially and is currently only at prototype stage.

7.3.4 Digital Conferencing System ("DCS")

The DCS is the Group's achievement in conference management and security. The DCS provides an advanced mechanism for VFD display, voting, personal identification and microphone management. The patented stethoscope-like head set combines both headphone and microphone in a single unit to allow speakers to talk in a more relaxed and comfortable position. The DCS also offers up to twelve (12) different interpreted languages. This system facilitates both "open" and "secret" voting. The DCS will automatically compute the results of the voting exercise and display the results on the individual screen. For security access control, the smart card, holding information on personal identification of the authorised person

7. BUSINESS OVERVIEW (CONT'D)

is incorporated into this system to avoid any unauthorised participation. The smart card also acts as an attendance checklist.

The DCS works as a stand alone system with the ability to cope with up to 28 delegate units. The delegate units are connected to the distribution module which is connected to the group control. If the need arises for anything exceeding 28 delegate units, the DCS can be supported by an additional central control unit.

The DCS was used at the Group of 15 Summit and Association of South East Asian Nations informal summit hosted in Kuala Lumpur in October and November 1997 respectively. The DCS was also used at the Asia Pacific Economic Conference meetings held in Kuala Lumpur in November 1998.

7.3.5 Smart Lock

Smart Lock is a computer keyboard with a smart card interface as a more secure measure to prevent unauthorised access into a personal computer, compared with the conventional passwords routine.

With the Smart Lock, keystrokes are channeled directly from the keyboard into the smart card via the built in card reader. This process bypasses the central processing unit ("CPU") preventing keystroke sniffers and "Trojan Horses" from capturing the passwords. The Smart Lock uses encryption and electronic signature for applications where high security becomes priority. A comprehensive development kit is provided to allow users to customise their applications. These unique features of the Smart Lock provides positive user identification, log-on automation, internet prepaid-access and account-roaming and e-mail privacy. To-date, several units of Smart Lock had been sold.

7.3.6 Smart Sentry

Smart Sentry is an electronic identification system carried in a smart card which can be used in a variety of applications from providing cash, to opening doors or access to information, i.e. for security access control.

Designed around the I.R.I.S. technology, the Smart Sentry can store a complete database of information from access privileges, personal biodata, photo image, transaction log to biometrics in a microchip to ensure a positive and secured identification of the cardholder even if the system is not connected to a central database.

Applications for the Smart Sentry can be seen in the IIPBSS.

7.3.7 Contactless Cards and Electronic Tags

The Group believes IRISTech is a forerunner in employing a 8-bit CPU and 8 Kbyte memory together in a contactless substrate. The contactless cards has broader applications compared with contact cards due to the enhanced user convenience since the information from the card can be read from a distance instead of requiring direct physical contact. The MEP is similar to a contactless card except that the microchip lies in the passport instead of a plastic card. Contactless cards are suitable for highly secured access control into restricted areas, buildings, and across borders. As it can also be used for loyalty cards, electronic ticketing and automated toll payment, the potential of contactless card application is deemed limitless.

Electronic tags are principally used for tagging purposes using RFID to read and write information in the tag from a distance. The size of the data stored in the tag may be as little as 64bits of memory. However, even such modest memory offers scope for numerous unique applications that require tagging. Most things can be tagged: animals, vehicles, goods and even individuals. The wire-less, non-contact nature of the RFID tags is ideally suited for

7. BUSINESS OVERVIEW (CONT'D)

providing low cost, short range, high speed, identification of moving objects. The key benefit offered by the RFID is the ability to automate processes among others, automatic highway tolling, vehicle and personal access control, article sorting and tracking such as required for airline baggage, courier parcels, library books etc., logistics management, theft detection systems and much more.

7.3.8 Contact Cards

The Group manufactures 2 types of contact cards i.e. 16bytes to 1KByte memory cards and 1Kbyte to 32Kbyte CPU cards.

Besides developing products from in-house R&D as described above, the Group also manufactures smart cards for customer-specific applications providing customer satisfaction through excellence in service and manufacturing. The Group also manufactures modules and smart cards for pay-phones. Through local distributors/agents the Group's pay-phone card customers include the Philippines Long Distance Telephone Company.

7.3.9 Smart Card Readers

A reader is a hardware device that functions as an interface media to enable communication between cards and terminal or application. In general, its function is to read and verify data from a card or even write on or update the card.

To enhance the security of the I.R.I.S. smart card applications, ICB Group provides its customers with proprietary readers which are customized according to the applications.

There are two (2) types of readers: Stand-alone Desktop/PC Integrated Reader and Portable/Handheld Reader that can be used for any application e.g. National ID, Immigration and Health Care.

ICB has also developed a 3-in-1 reader, which can read and write contact cards, contactless cards and I.R.I.S. embedded substrates (e.g. travel documents). The 3-in-1 reader is a personal computer ("PC") type reader which interfaces with an asynchronous RS-232. A security application module chip is placed in each reader to increase the security feature of the readers.

The MEP project, utilises a 2-in-1 reader which is able to read and write (optional) contact cards and travel documents. The contact cards are used to identify the immigration officer in charge and to access the immigration online database.

To-date ICB has supplied some 13,000 key ring readers for the GMPC project.

The readers could be a stand-alone unit i.e. need not be connected to a central database giving rise to the possibility of hand held readers for user convenience. For contactless smart cards readers, information on the smart card can be read from a distance ranging from 10mm to 600mm using radio frequency. In the case of electronic baggage tags, the readers not only read the information stored in the microchip embedded in the tag but also powers-up the microchip.

The reader technology used by the Group provides high speed encoding, decoding and retrieval of data from the substrate which facilitates fast and efficient verification. It takes approximately 4-5 seconds to read the standard data for a passport.

The Group is also looking into making readers which are compatible to different types of cards, as well as signature biometrics, which enhances the consistency of readings unlike fingerprint or facial verification.

7. BUSINESS OVERVIEW (CONT'D)

7.3.10 Immigration Autogate System ("IA System")

The IA System is an automated immigration clearance system for pedestrian travellers at immigration entry and exit points. The IA System consists of the following:-

- (a) Autogate Barrier; and
- (b) System and Application Software.

Each immigration entry or exit point will consist of one or more Autogate Barriers linked to the JIM system. Therefore, each immigration clearance site will consist of one IA system for entry clearance and another IA system for exit clearance. As at to-date, 36 units of the IA System has been installed throughout Malaysia.

7.4 Core Technology - Image Retrieval Identification System

The I.R.I.S. solution is a result of a complex and unique integration process comprising the Group's proprietary I.R.I.S. technology and other generic technologies to produce a fully operational computing solution for high security applications. It encompasses real security features that the Company believes to be effective in combating global fraud, terrorism and forgeries prevalent in most document and card based crimes.

I.R.I.S. technology is an electronic identification technology which counters forgery by storing a complete set of identification details of a person i.e. images, biodata and biometrics, in a microchip using a proprietary compression technique. The microchip can then be inserted into documents, cards, or any other choice of convenient medium which transforms the card or document into an intelligent, portable, external data storage ready to be retrieved by proprietary contact or contactless readers developed by ICB Group to identify the card holder. The data is electronically stored in a manner unique to I.R.I.S. and completely invisible to the human eye, limiting the chance of document tampering.

The technology also enables data stored in the microchip to be searched and retrieved speedily and simplifies checking and updating of data. The compression/decompression algorithm can retrieve textual data and a color photograph in one (1) second and four (4) seconds respectively. The process of electrically encoding and encrypting provides the additional security on the verified data that is stored in the chip.

Application for the I.R.I.S. technology is highly marketable for any high security smart card application where compression of information is of key importance.

The five (5) elements of the I.R.I.S. technology are (i) ICOS, (ii) image digitizing, (iii) proprietary encryption/decryption algorithms, (iv) proprietary compression/decompression algorithms and (v) silicon masking.

The Group's proprietary compression/decompression algorithm, is the underlining technology of I.R.I.S.. The compression/decompression algorithm is able to compress and store images, including biometrics such as thumb print, palm print, retina patterns etc in the EEPROM of a 8Kbyte microchip. The compression/decompression algorithm can achieve a compression ratio of 160:1 for color photographs. Although the proprietary compression/decompression algorithm is a *lossy* data compression algorithm, which reproduces an approximation of the original image, the replica has no discernible loss in image quality. By maintaining the image integrity, it is well suited for identity authentication applications as it assures distinct image and precise biometric verification. Based on a technological assessment, the level of compression ratio achieved by the compression/decompression algorithm exceeds that of widely accepted compression algorithms such as JPEG, EPIC and Fractal Image Encoding/Compression.

The Group's proprietary operating system, the ICOS, is designed in compliance with ISO 7816 standards. The ICOS is masked onto the ROM code of the processor, while the data/files reside in the EEPROM. Communication between applications and the operating system is via the serial port and always encrypted. A file manager within the operating system converts all logical addresses into the

7. BUSINESS OVERVIEW (CONT'D)

card's physical ones. It also supervises the address range and checks the access conditions in the relevant file.

For enhanced security, the ICOS system uses a dual smart card system instead of the conventional single card system. One card being the "enabler" and the other termed as "interrogator". In the dual smart card system, an enabled card is employed to authorise the interrogated card to access highly confidential information, eliminating reliance on multiple passwords for various operations. Proprietary encryption keys are used for communication between two modules. The compatibility of the enabler card and the interrogated card is done through the process of "hand shaking". After which, the authentication of the enabler is verified by means of a challenge-and-response routine initiated by the interrogated card, as opposed to the use of passwords. The dual card method also liberates smart card readers from the requirement of being on-line or to store passwords and therefore reduces the risk of "eaves-dropping".

The biometrics digitizing process involves transforming visual images/biometrics into digitised images that can be stored in EEPROM located in the chip. The I.R.I.S. solution, depending on the type of application, may also incorporate biometrics verification software which allows personal biometrics to be verified and the users identity authenticated automatically or electronically. Presently, for the MEP project, image verification is done visually. Nevertheless, for future applications, ICB Group has built a technology partnership with Dermo Trade Manufacturing and Trading Company Limited, a Hungarian company to use its finger printing verification software/hardware and a licensing agreement with Visionics Corporation for its facial recognition technology to enhance the I.R.I.S. technology.

The Group has identified several silicon manufacturers such as Atmel Sarl, Hitachi, Motorola, NEC, Philips, Siemens, Toshiba and Rohm Co Ltd to mask the ICOS onto their respective wafer fab. By making the ICOS widely available to major silicon manufacturers it is hoped that the ICOS would soon be accepted as an industry standard and subsequently the I.R.I.S. solution would be adopted by software giants to enhance the security features of their products.

Key features of the I.R.I.S. based solution

- i. The operating system for the substrate can be individually tailored to meet the highest level of security.
- ii. A single substrate/ silicon chip can be software-partitioned to provide multiple applications for multiple use (All-In-One Identity Card).
- iii. Unique retrieval design architecture makes I.R.I.S. a truly flexible verification system in that it can be made portable, stand-alone, or part of a network environment, either nationally or internationally.
- iv. Open hardware and software interface architecture of I.R.I.S. provide ease of interconnections with third-party systems.
- v. Intrinsic intelligence in the substrate provide verification procedures during a retrieval operation which alleviates the necessity for costly communications links to host computers.
- vi. High speed writing and retrieval of data to/from the substrate makes an efficient verification process.
- vii. I.R.I.S. based solutions can be easily implemented to complement currently applied security technologies.
- viii. Every I.R.I.S. solution is configured and customised to individual user specifications, making I.R.I.S. solution unique.

7. BUSINESS OVERVIEW (CONT'D)

7.5 Intellectual Properties**7.5.1 Patents and Copyrights**

ICB has three (3) patents approved by the United States Department of Commerce, Patent and Trademark Office, Washington D.C. ICB has a further four (4) patents applications filed with the abovementioned authority on 14 October and 14 November 1997 and is currently awaiting their approval. ICB also has one (1) patent approved by the South Africa Patent Office and a patent application has also been filed with the EU Patent Office, which is still awaiting approval to-date. ICB has not filed any patent application in Malaysia or any other country other than the USA, South Africa and the EU. The patents cover the ICOS, proprietary techniques and applications commercialised by the Group. Please refer to Section 4.12 of this Prospectus for the risk involved in any patents filings by ICB being disapproved.

The I.R.I.S. technology was procured via a Technology Transfer Agreement entered into by ICB and MCS on 13 January 1995 to acquire the I.R.I.S. technology and the related substrate for a consideration of RM4,200,000. ICB later onward transferred the same to its associated company, IRISTech, on 13 January 1995 for a purchase consideration of RM4,500,000. IRISTech holds the copyright to the I.R.I.S. technology. Description of the patents and copyright, and their respective status are as follows:-

Copyright held by IRISTech

I.R.I.S. Copyright (Registration No. TXu 653-151) (approved on 4 February 1995)

The I.R.I.S. Copyright was filed by MCS on 3 October 1994 and later transferred to IRISTech and has been approved on 4 February 1995 by the United States Department of Commerce, Patent and Trademark Office in Washington D.C. The Copyright is held by IRISTech which effectively gives the company the right to manufacture and market products using the Image Retrieval Identification System ("I.R.I.S.").

Patents owned/applied by ICB in the USA

- a. *Apparatus and Method For Providing Access to Secured Data or Area - Serial No. 08/970,689 (approved on 21 March 2000)*

This patent describes the I.R.I.S. Chip Operating System. It describes the Group's proprietary method of controlling access to information stored in a smart card/document by using another smart card to provide access clearance to limit the human element in the process. This method requires a specialised reader that is able to read both cards simultaneously.

- b. *Improved Security Identification Document Including Contactless Communication Insert Unit - Serial No. 08/950,0059 (pending approval)*

This patent covers contactless applications with biometric data stored in a non-alterable device and printed on any document used for identification purposes.

- c. *A Method Of Making An Improved Security Identification Document Including Contactless Communication Insert Unit - Serial No. 08/950,057 (approved on 29 August 2000)*

This patent describes the process of making a smart security document by inserting a plastic contactless substrate attached onto a paper based document in a tamper proof manner using a special adhesive. The integrated circuit of the substrate is protected against mechanical damage by first using a metallic ring to strengthen the module and the second layer of protection is provided by a thin layer of epoxy adhesive. The final document is durable to at least 5 years with normal usage.

- d. *A Security System Using An Improved Security Identification Document Including Contactless Communication Insert Unit. Serial No. 08/950,0058 (pending approval)*

7. BUSINESS OVERVIEW (CONT'D)

It describes the proprietary encryption and compression algorithm used to protect the biometrics data stored in the integrated circuit from forgery or data tampering.

- e. Airport Security System Using An Improved Security Identification Document Including Contactless Communication Insert Unit - Serial No. 08/950,398 (pending approval)*

Describes an automated personal identification and verification system including luggage handling and identification, matching airplane passenger with one or more secured personal identification documents, i.e. a luggage tag, travel document and boarding pass.

- f. Method For Controlling Access To A Secure Area Using An Improved Security Identification Document Including Contactless Communication Insert Unit.- Serial No. 08/950,399 (pending approval)*

Describes data encryption and decryption techniques used to discriminate between "write-once" and "write-many" memory areas. "Write-once" memory areas are used to store biometric data, so any attempts to alter the information stored in the memory of a contactless document or card will render it useless. Meanwhile other variable information can be altered by authorised personnel.

- g. Improved Luggage Handling And Reconciliation Including Security Identification - Serial No. 08/950,013 (approved on 22 August 2000)*

This patent describes the use of a contactless insert used as a luggage identification tag which contains the personal biometrics of the owner, flight details and destination which are read using a radio frequency reader. This is to facilitate reconciliation between flight passenger and luggage upon arrival or before departure in case of changes in flight plans. This is in accordance with the IATA ruling where a passengers' luggage must be removed from the aircraft in the event its owner fails to board the aircraft.

Patent owned by ICB in South Africa

Apparatus and Method For Providing Access to Secured Data or Area - Serial No. 2000/1386 (approved on 31 January 2001)

This patent describes the I.R.I.S. Chip Operating System. It describes the Group's proprietary method of controlling access to information stored in a smart card/document by using another smart card to provide access clearance to limit the human element in the process. This method requires a specialised reader that is able to read both cards simultaneously.

Patent applied by ICB in the EU

Apparatus and Method For Providing Access to Secured Data or Area - Serial No. 2001/35 (Pending approval)

This patent describes the I.R.I.S. Chip Operating System. It describes the Group's proprietary method of controlling access to information stored in a smart card/document by using another smart card to provide access clearance to limit the human element in the process. This method requires a specialised reader that is able to read both cards simultaneously.

7.5.2 Licensing Agreements and MOUs

In its effort to enhance applications on the I.R.I.S. technology, ICB Group has entered into various Licensing Agreements and MOUs with global technology proprietors. Details are as follows:-

7. BUSINESS OVERVIEW (CONT'D)

a. Dermo Trade Manufacturing and Trading Company Limited ("Dermo Trade")

Dermo Trade, a Hungarian based company is the designer and manufacturer of finger print capture and verification device.

On 13 November 1997, ICB Group through IRISTech signed an OEM Agreement with Dermo Trade, whereby Dermo Trade has agreed to provide its finger printing verification software and hardware for smart card applications developed by the ICB Group. The agreement will continue until mutual consent to terminate or upon termination notice served by a party to the agreement in the events of breach of agreement, receivership or liquidation or material adverse change in the ownership, management or control of the parties to the agreement.

Dermo Trade is to supply the OEM version of the finger print verification devices to IRISTech. The agreement also outlined provisions for technical support and development tools to enable the Group to undertake software integration between the I.R.I.S. technology and Dermo Trade's finger and palm printing technology. With the provision of the development tools, it would enable ICB Group to develop the software locally for its range of smart card applications.

b. Dermalog Afis Asia Sdn Bhd ("Dermalog")

ICB entered into a teaming agreement with Dermalog, on 30 June 2000 to collaborate in research and development activities involving Dermalog's fingerprint verification technology i.e. for the MEP and GMPC projects. Dermalog's Automatic Fingerprint Identification System is produced and distributed by Dermalog GmbH, a company based in Hamburg, Germany.

Dermalog will provide the necessary consultation for the technology transfer with regards to these projects.

The agreement was valid for a period of 60 months until 30 June 2005.

c. Visionics Corporation ("Visionics")

Visionics, based in New Jersey, US is a developer of face recognition technology worldwide. Visionics has developed a software known as FaceIt™ for automatically locating heads, capturing faces, normalising faces and performing identification.

On 16 June 1997, TLTR (N.A.), a company owned by Yap Hock Eng, entered into a license agreement with Visionics. In essence, the agreement grants TLTR (N.A.), its affiliates and subsidiaries the right to use, reproduce and distribute copies of the FaceIt™ for applications which involve airport security i.e., airport passenger check-in and luggage systems (located within an airport or at any airport terminal) and/or Haj pilgrimage systems (whether or not located at an airport) for use in Malaysia. The agreement is effective until Visionics no longer has any intellectual property rights in or to FaceIt™. The Directors of ICB believe that this term represents the life of the intellectual property protection filed for by Visionics. A license fee of US\$400,000 was paid by TLTR (N.A.) and was subsequently sublicensed to the Group for an equal license fee. TLTR (N.A.) is permitted to do so under the said license agreement.

TLTR (N.A.) has on 24 April 1998 authorised its affiliate, ICB Group to use FaceIt™ on similar terms. The authority remains effective as long as TLTR (N.A.) has the rights to FaceIt. Please refer to the Section 7.3.3 on IPBSS for details on the use of Visionics' FaceIt™ technology in this application.

7. BUSINESS OVERVIEW (CONT'D)

d. Sun Microsystems, Inc. ("Sun")

ICB entered into an agreement with Sun Microsystems Inc. on 13 September 1997, to license its Java™ technology for smart card applications, i.e. the Java API. Under this agreement, the Group is given the right to manufacture and distribute products based on Sun's Java™ Technology (which would carry the Java-compatible logo) in 147 specified countries around the world such as Canada, France, New Zealand, Australia, Hong Kong, UK, Taiwan and Singapore. The licensing agreement shall expire on 3 September 2002 and shall automatically be renewed for another 5 years after the initial five years, unless terminated by ICB.

Essentially, ICB Group has subscribed to three (3) licenses for development of its smart card application and its derivatives as follows:-

- Java Card Environment
- Java Applet Environment
- JavaCard Post Processor

The partnership will commence with Sun providing Java core classes and open classes, which will enable the operating system that resides in the chip to interact with any Java application. ICB Group is expected to send the modified version of the open class in the binary form to Sun for future testing. Only when the executable library has been tested, can it then be distributed to I.R.I.S. and others.

The Java API provides smart card vendors a uniform way to build Java applications for their smart cards. This move would create a common platform between smart card manufacturers, enabling Java Cards manufactured by IRISTech to communicate with readers from other Java-compliant manufacturers, and vice versa. Among other features, Java Cards also supports secure "interapplet communication", i.e. two applets can exchange payment transaction information. Java applets can provide calculating capabilities, sophisticated security checks, customised interface, and other kinds of onboard intelligence.

By virtue of Java's technological ubiquity, the Group believes that Java API would offer a more secure and inexpensive infrastructure for smart cards in general.

e. Bull CP8

IRISTech, on 13 April 1999, entered into a MOU with Bull CP8 (France) to cooperate in developing, customising, manufacturing and marketing a variety of smart cards and smart card based solutions. Principally the MOU was entered into to address the GMPC requirements by supplying Proton compliant products (being products which comply with certain minimum international standards certified by Proton World International B.V.) for integration into the project. The MOU encompasses the marketing and customisation of GSM cards and installation of personalization cards.

According to the MOU, Bull CP8 will make available the Bull Proton CC for use in the initial roll out of the GMPC and IRISTech will introduce Bull CP8 as the E-Cash supplier to the GMPC consortium. Bull CP8 and IRISTech will jointly commercialise Bull's existing GSM products and Bull CP8 will license IRISTech to manufacture Bull's GSM cards once CP8 quality label is granted to IRISTech.

ICB had on 24 November 1999 entered into a collaboration agreement ("CA") with Bull CP8 to formalise the abovementioned MOU. Under the CA, IRISTech will pay Bull CP8 a royalty of USD0.964 per card for the first 2,055,000 GMPC cards to be supplied to the Malaysian Government. After the initial 2,055,000 cards supplied to the Malaysian Government, Bull CP8 and IRISTech will jointly commercialise the cards to other countries. In the event that IRISTech sells in Malaysia, Indonesia, the Philippines, Bangladesh and Thailand, Bull CP8 will receive 20% of gross margin from IRISTech's sales and vice versa. For sales in China, Hong Kong, Taiwan, India, Pakistan, Sri Lanka, South Africa and South Korea, the party who secured the

7. BUSINESS OVERVIEW (CONT'D)

projects will take the sales leadership and the other party will be entitled to 20% of sales' gross margin. For projects which are secured on a joint basis, the sharing of margins will be determined on a case by case basis.

7.5.3 Strategic Alliances

In keeping ahead of competition in the security business, the Group is continuously seeking business partners for strategic alliances that will give it leverage in the market. One of the examples of these alliances is through its interest in Intercard.

Intercard is an Australian incorporated company currently seeking re-quotations on the Australia Stock Exchange. It is involved in contactless communication systems and has recently developed a radio frequency identification system used to automate the sorting and control of conveyor fed articles.

On 18 June 2001, a Distribution Agreement was signed between Intercard and IRISTech for marketing and distribution rights for products and systems manufactured and marketed by IRISTech. The agreement is for a period of two (2) years from the date of equipment commissioning. As at the date of this Prospectus, the equipment per the agreement has yet to be commissioned. As consideration, IRISTech will receive USD250,000 for reimbursement of development cost and also guaranteed royalty payments over the 24 months for another USD250,000 from Intercard. This agreement is renewable for another three (3) years with corresponding royalty payments. The marketing and distribution rights are limited within the boundaries of New Zealand, Australia, Saudi Arabia, Iran, Kuwait and United Arab Emirates.

7.6 Market Coverage/Segment/Target

The Group believes the global market potential and opportunities for the I.R.I.S. solution are innumerable. However, in line with the Group's vision to make I.R.I.S. the de facto standard in target markets, the Group believes it has carved a niche in high-security identification applications for smart cards. Riding on the success of the MEP project, the Group has also identified similar target markets with demanding security requirements such as the USA, UK, South Korea, Indonesia and Ireland. The Group is also supplying in the regional telephone card market in anticipation of the demand for smart cards when payphone companies switch from magnetic strip cards to chip cards. Besides manufacturing of telephone cards for local telecommunication companies, the Group also supplies such cards to similar companies in the region, e.g. the Philippines.

The Group is also targeting the transportation industry as a potential area for smart card application. The Group also produces contactless cards based on the Mifare System (Philip's Proprietary Contactless Smart Card Operating System) for transportation based applications such as payment of toll charges and transport ticketing systems in Malaysia. The Group has since October 1998 commenced supply to Rangkaian Segar Sdn Bhd the Touch 'n Go cards for the highway toll fare in Malaysia. It is also hoped that the integrated ticketing system for all public transportation in Kuala Lumpur which allows commuters to use one smart card for different public transportation may be a potential application for the Group's smart cards.

As mentioned earlier, the I.R.I.S. technology offers a unique solution with its high security and multifunctional feature. The I.R.I.S. Solution can be applied to any application that requires identity verification and control. All over the world, especially after the event of 11 September 2001, as security issues become increasingly important as elements of fraud, forgeries and terrorism become apparent, the I.R.I.S. solution is expected to fill the void of providing solutions that require greater security, and higher efficiency and cost effectiveness.

7. BUSINESS OVERVIEW (CONT'D)

7.7 Types, Sources and Availability of Raw Materials/Input

All manufacturing activities in the Group is carried out by IRISTech, which is focused on manufacturing smart cards and smart card related products. Below is a list of raw materials required in the production of smart cards and the corresponding suppliers.

As for a majority of raw materials, IRISTech has at least two (2) alternative suppliers, which would limit dependence on any one supplier. However, some materials are sourced from one supplier either because alternative suppliers are either currently non-existent or are unable to offer competitive pricing.

As one of the key players in the smart card manufacturing business in this region, the Group believes that it has the potential to exert strong bargaining power over its suppliers. Other key global players in the smart card manufacturing industry are companies such as Gemplus (France), SchlumbergerSema (France) and Bull Smart Cards & Terminal (France), all of which are diversified IT solutions providers with global businesses and market coverage.

CATEGORY	SUPPLIER	Length of Relationship	Annual Purchases (RM'000)
PVC Monolayer	(i) Lucchesi, Italy	3 years	330
ABS Resin	(i) Bayer (M) Sdn Bhd	3 years	236
Surface Printing UV Ink	(i) SICPA Malaysia Sdn Bhd	4 years	102
Wafer/Dice - memory/CPU	(i) MCS Microsystems, UK	3 years	19,246
	(ii) MCS Microsystems Sdn Bhd	3 years	16,142
	(iii) Infineon Technologies (Asia Pacific) Ltd	5 years	605
PC Core Film	(i) Bayer AG	2 years	627
Module Tape	(i) Gul Tech, Singapore	3 years	730
Atmel Module	(i) Atmel Sarl	2 years	31,025
Ag Capacitor	(i) Syfer Technology Ltd	4 years	3,115
Coil	(i) Qdos Flexcircuits Sdn Bhd	4 years	5,460
PET Sheet	(i) GTS Flexible Materials Ltd	4 years	1,228

7.8 Production/Operating Capacities and Output

The manufacturing facility of the Group, operated by IRISTech, is one of Asia's first fully integrated manufacturing facility for the design, development, and manufacturing of contact and contactless smart cards, contactless substrates, assembled module in tapes and reels or even blank/printed cards.

7. BUSINESS OVERVIEW (CONT'D)

The production capacity and current output are given below:-

<u>Product Description</u>	<u>Average Production (‘000 units/month*)</u>	<u>Production Capacity (‘000 units/month*)</u>
IRIS Module Production	895	1,000
IRIS Contact Card Production	540	800
IRIS Substrates & Contactless Cards Production	110	150
L.R.I.S. Card Production		
1. Injection Moulding	500	1,000
2. Card Puncher	1,100	1,200

* Note: Based on a single work shift of 8 hours a day.

7.9 Quality Control Procedures

The procedures and methods employed by the Group in its operations are as follows:-

7.9.1 Receiving Inspection

Inspection of in-coming material is carried out by trained inspectors in accordance to inspection specifications and acceptance criteria and recorded on an inspection sheet. The inspection specifications state the sampling plan, items to be measured, measuring equipment used and tests to be done. Any non-conforming material is referred to the Material Review Board for disposition.

7.9.2 In-Process Inspection and Testing

The production manager exercises control on all production processes, in accordance to procedures and work instructions written for critical processes. Critical processes are monitored using statistical techniques or other suitable methods. The production manager ensures personnel involved in production are well trained. Equipment used is properly and regularly maintained.

The Quality Assurance Department (“QA”) monitors the effectiveness of process control at the manufacturing line through process audit. All employees are responsible for the quality of their work and must be in accordance with written procedures and specifications at all times. All appropriate inspection, measuring and test equipments used are calibrated periodically. Non-conforming parts are identified, segregated and refer to the Material Review Board for disposition.

7.9.3 Final Outgoing Inspection and Test

Outgoing inspection and test are performed by QA to assure that finished products conform to customer’s specification. Inspection is carried out as per the outgoing inspection procedures and acceptance criteria. Non-electrical and electrical inspections and tests are performed at Acceptable Quality Level of 0.65% and 0.01% respectively. Status of inspection is identified with the use of rubber stamping or appropriate document on the packaging. Products which fail final outgoing inspection and test are referred to the Material Review Board for appropriate action.

7. BUSINESS OVERVIEW (CONT'D)

7.9.4 Customer Complaints

Sales and Marketing Department ("SM") liaises with customers pertaining to product non-conformities and co-ordinate in-house investigation with the production manager and QA. A "Customer Complaints Form" is initiated by SM and forwarded to QA to facilitate determination of root cause and countermeasures. Once the root cause is determined, a corrective action will be taken accordingly. QA shall audit the effectiveness of the corrective action taken.

7.10 Location of Operations

Most of ICB's commercial activities are centered in Malaysia. The manufacturing arm of the Group is IRISTech. The manufacturing facility is housed in a 4 storey IRIS Smart Complex built on a 4.5 acre leasehold land located at Technology Park Malaysia, Bukit Jalil, Kuala Lumpur.

All intellectual property rights are held by Malaysian incorporated companies i.e ICB and IRISTech. The Group's overseas operation in Australia consists of an investment in InterCard (10.8%). The Group's administrative activities are also based in Kuala Lumpur.

There has been no interruption in the business which has significant effect on the operations of the Group for the past 12 months from the date of this Prospectus.

7.11 Research And Development

The ICB Group places strong emphasis on R&D to achieve technology and production innovation. The Group's R&D efforts are focused on improving the efficiency and capabilities of its production process and on developing new proprietary systems by improvising on existing commercially available materials and technology.

Presently, the R&D team consists of more than forty five (45) professional staff with expertise in electronics and telecommunication, electronic manufacturing, and product design and development.

Details of the Group's on-going research and development program are described below.

7.11.1 Smart Card Technology – Image Retrieval Identification System

For the smart card technology, the ICB Group is currently researching the following: -

- a. To incorporate FRAM technology into I.R.I.S. technology

Briefly, the advantages that FRAM offers non-volatile (i.e. the information stored in memory cell does not disappear when power is off), higher read/write speed, low internal operating voltage and low power consumption. ICB intends to exploit these attributes by incorporating FRAM technology.

- b. To develop and adapt Facial Biometrics and Voice Pattern Recognition processing to the I.R.I.S. technology

These enhancement of the technology is being developed. These two unique recognition features further add to the generic security aspects of the IRIS technology, making the overall I.R.I.S. solution more marketable in the global market place in terms of enhanced security.

The above development work is targeted to ensure the I.R.I.S. products are applicable for a wider spectrum of the market usage and be accepted globally.

7. **BUSINESS OVERVIEW (CONT'D)**

In addition, current development projects cover the proprietary manufacturing process in the production of: -

- Contactless substrates which are being used in the MEP project
- Electronic Visas for use by Immigration Departments, Foreign Embassies
- Paperised Baggage Tags using FRAM for the airport baggage security
- Battery and Display Technologies for wearable PC

7.11.2. Smart Card Product Designs

The IRIS Technology Development team ("ITD") is developing I.R.I.S. proprietary contactless hybrid cards, (which are contact as well as contactless cards). These are being designed for manufacturability ("DFM") while conforming to the quality and reliability standards per ISO as well as I.R.I.S. quality specification. The ITD defines its own set of design rules that meets high volume manufacturability requirements (i.e. defects immunity).

The developed products with its inherent technologies are tailored to meet the ever increasing security requirements demanded by the market. The wide range of applications include banking, transportation, mass telecommunication and areas that call for high level security controls such as access to high security areas etc.

The continuous development of I.R.I.S. operating system involves the development of the I.R.I.S. Chip Operating System II ("ICOS II") to enable the I.R.I.S. operating system to be more adaptable, as an open platform with multi security features. In addition design and development of the MCOS, will enable multiple applications to be interoperable with a single chip operating environment.

ICB's commitment to research and development will be the driving force of the Group to progress into technologies which would otherwise be difficult to acquire under a competitive and dynamic environment in the smart card industry.

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7. BUSINESS OVERVIEW (CONT'D)

7.12 Employees

As at 6 June 2002, the ICB Group has more than of 270 employees, all of whom are Malaysian. By virtue of its smart card manufacturing activity, IRISTech has the highest number of workers in the Group by comparison with 194 employees. On the other hand, TIAF, Asiatronics, CML, IITS and TLTR (Aust) currently have no employees. The breakdown of employees according to company and professional levels are as follows:-

	No. of Workers					Total
	Managerial/ Professional	Executive	Technical	Clerical	General Worker	
ICB	55	8	6	6	5	80
IRISTech	32	19	36	25	82	194
GCSB	1	2	-	-	-	3
Average Length of Service (Years)						
ICB	3.3	3.3	2.5	2.5	1.9	
IRISTech	3.2	3.4	4.1	3.5	2.6	

ICB Group believes that its relations with its employees are good. Staff turnover is minimal, which the Directors of ICB believe is attributed to good industrial relations within the Group. None of the Group's employees are represented by a union. There is no industrial dispute in the past.

ICB Group believes in training and development through on the job experience and external courses. The IRIS Smart Technology Complex, provides its employees with first hand experience of a full scale manufacturing facility equipped with high precision equipment. Machinery ranges from high speed injection molding, card printing, plastic sheet laminator to semiconductor component assembly including wafer saw, die attach, wire bond, encapsulation and test handler. The Group is currently grooming a pioneer team of multi-skilled engineers who will be proficient in all the different processes in smart card manufacturing. ICB has from time to time sent its employees for external courses, both technical and managerial, to complement the on-job training and to keep abreast with the latest development.

The Group's dedication to research and development presents an opportunity for its engineers to continuously develop their technical expertise. More importantly, employees are always abreast with the latest developments in smart card technology by virtue of the Group's continuous search for new emerging technologies to enhance its products. Today, the ICB Group's research and development team consists of more than 45 professionals in electronics and telecommunication, electronic manufacturing, and product design and development.

7.13 Customers

Being relatively new, the Group is beginning to make its presence felt in the market with its first success being the MEP Project. The ICB Group is the sole supplier of the I.R.I.S. contactless substrates and readers for the MEP Project since 1998. The total sales for the year ended 31 December 2001 amounts to approximately RM37.8 million. The Group, through its associated company GCSB has been awarded the contract for the GMPC project for the supply of GMPC system and cards to the Ministry of Home Affairs since 1 June 1999. The total sales for the year ended 31 December 2001 amounts to approximately RM49.2 million.

The ICB Group is also currently actively marketing its memory cards and modules that are used in the assembly of telephone cards. Telephone cards are supplied to the Philippines Long Distance Telephone Company.

Thus it is evident that the Group is making headway in diversifying its customer base and is trying to secure revenue from its catalogue of products. The Group is confident that the quality of its product and service will be its strongest competitive advantage to secure a wide and loyal customer base.

7. BUSINESS OVERVIEW (CONT'D)

An apparent risk to the Group's customer profile would be the reliance on the Government as a customer in respect of the MEP and the GMPC contracts. At present, these project represent the largest contributors to the Group's results. ICB is actively marketing its security solutions to overseas markets.

There are two main components to the MEP project and they are the hardware and software supply agreement and the agreement for the supply of substrates which is embedded in the electronic passports. The agreement for the supply of the hardware and software was signed on 13 March 1998 between the Government of Malaysia and IITS (a wholly owned subsidiary of IRISTech) for a total contract sum of approximately RM24 million. As at the date of this Prospectus, the substrates supply agreement between the Group and PKN has not been finalised. The above is such as PKN, the supplier of the electronic passports to JIM, and the Government have not finalised the electronic passport supply agreement.

The Group believes that there are no other locally incorporated company presently which possesses the technological acumen to develop a better if not similar substrate or the MyKad. It is believed that it may be difficult for foreign competitors to penetrate these market since the projects concerns national security and the Malaysian government may be more reluctant to award such sensitive projects to foreign enterprises. Therefore, the absence of competition secures the Group's position with respect to the MEP and the GMPC projects.

Changing supplier at this juncture, especially in respect of the MEP, may also prove to be inconvenient. As the infrastructure is customized and specially designed to accommodate the I.R.I.S. technology, alternative substrates would be rendered useless unless it was I.R.I.S. compatible. Further, as JIM has invested up to RM24 million for the new infrastructure, it is unlikely that JIM would request a change in infrastructure in the foreseeable future.

Although JIM/ PKN and GCSB are presently ICB's major customers with contribution of more than 85% to Group turnover, the Group is confident that it will be able to expand its customer base in the near future. This will be possible by virtue of the various endeavors undertaken by the ICB Group to market its main products to foreign markets.

7.14 Modes of Marketing/ Sales/ Distribution

To date, the Group has only conducted limited marketing activities, most of which are carried out directly through its Marketing and Sales Division in Malaysia. This is because smart card based security solutions require direct selling efforts. For the overseas market, the Group has a distribution agreement with Intercard of Australia for the distribution of its products in New Zealand, Australia, Saudi Arabia, United Arab Emirates, Kuwait and Iran (Refer to Section 7.5.3. on "Strategic Alliances - Intercard"). The Group believes it is only appropriate that the overseas market is dealt with together with the respective local partners.

In future the Group expects to establish more extensive strategic marketing alliances and licensing or other arrangements with systems integrators, value-added resellers and other smart card vendors world wide and will continue to retain the services of current sales representatives and marketing and other consultants.

7.15 Smart Card Industry – Future Prospects**7.15.1. Brief Introduction on Smart Cards****a. Microprocessor Based Smart Cards**

Microprocessor ("MP") based smart cards carry an embedded MP-chip, which has the same configuration as a personal computer. With its own operating system software, the MP-chip securely controls access to information stored on the card. The MP-based smart card has a higher level of information security such as the

7. BUSINESS OVERVIEW (CONT'D)

secure storage of a private encryption key, which makes it very useful for high value transaction and information sensitive applications. Two basic types of microprocessor cards are contact cards and contactless cards. The former requires an external power source and clock to drive the microprocessor chip and an input-output path for transmission of data. Data transmission occurs when the card makes direct contact with an external card reader, thus the name, contact cards. On the other hand, contactless cards do not have to make direct contact with an external card reader, providing more end user flexibility.

b. Memory Cards

The simpler version of a MP-based smart cards are the memory cards. Memory card are typically used to store and dispense monetary value. These stored-value cards are confined to straight-forward applications such as loyalty cards, pay-phone cards and vending machines. Memory cards are single-purpose cards, and are disposed off once the stored value has been depleted.

c. Magnetic Stripe Cards

The predecessors of the smart cards, the magnetic stripe cards, commonly used in credit cards and ATM applications are sometimes confused or generalised as smart cards, though by definition they are not. It is envisaged that before long, magnetic ATM cards would soon be replaced by smart cards in line with increasing consumer demand for tighter security in cash related transactions.

At a glance, ICB seems to be involved in the mainstream smart card manufacturing business dominated by the likes of Gemplus and SchlumbergerSema. On the contrary, the Company has designed for itself a niche market, where high security solutions are designed through the integration of numerous smart card technologies. Nevertheless, the company's future is highly linked to the growth of the smart card industry.

7.15.2 Industry Overview

Smart card use has proliferated and the spread of smart cards into financial services and telecommunication markets has been one of the most significant areas for growth for the smart card industry in recent years. Other vertical smart card markets that have mushroomed over the past five years have been health services, multifunctional cards, transport, pay-TV and retail. Future opportunities are virtually limitless.

The good sales in the end user markets have had a knock on effect for the demand for smart cards in 2000 according to Frost & Sullivan. The increased sales of GSM mobile phones and strong demand in the payphone cards sector, transportation sector and government services sector resulted in approximately 1.56 billion smart cards shipped in the year 2000. This is a 13.8% increase from the estimated 1.37 billion cards shipped in 1999. The new sectors have given impetus for growth for smart card manufacturers, away from the traditional sectors of smart card demand such as banking. It is estimated that smart card production will increase by 25.6% in 2001.

The latest breakthrough for the smart card industry is advancements in biometric identification technology. Biometric identification which includes among others finger/palm prints patterns and voice recognition is a boon compared with less secure means of identification such as conventional script identification documents. Moreover, generic differentiation is undoubtedly more secure than passwords. Smart card, on its own, is a highly secure means of identification simply because information stored in a chip is less likely to be tampered with due to requisite technical appreciation. The winning combination is expected to give end-users peace of mind. Similar technology advancements are expected to unleash the hidden potential of the smart cards in more diverse markets.

7. BUSINESS OVERVIEW (CONT'D)

The development of contactless cards over the last year has opened up significant opportunities for the smart card industry. Contactless cards lend themselves particularly well to applications in the transport and Personal Identification ("ID") sectors where growth potential is highly anticipated. Mass transit schemes in Seoul and Hong Kong and electronic road pricing in Singapore are already using contactless technology. ID schemes where high throughput of card holders are desirable, such as conferences, corporate campuses, and even for government projects such as the immigration department has done in Malaysia. Contactless cards undoubtedly gives an added convenience.

Table 1 : Total Smart Cards Market : Market Share by Chip Type (World), 2000

	Memory (%)	Micro-controller (%)	Total (%)
Gemplus	38.1	29.0	34.9
SchlumbergerSema	35.2	23.9	31.4
Giesecke & Devrient	9.7	14.8	11.5
Oberthur Cards System	2.4	13.8	6.5
Orga Kartensysteme GmbH	2.7	10.0	5.3
ID Data	5.0	2.5	4.1
Incard	3.1	1.1	2.4
Other	3.7	4.9	4.1
TOTAL	100.0	100.0	100.0

Source: Frost & Sullivan, 2001

The forerunners in the smart card business are Frances' Gemplus and SchlumbergerSema which dominate both the memory card and micro-controller industry with a combined market share of more than 73% and 53% respectively. Market dominance showed by Gemplus and Schlumberger presents a threat to up and coming players in the arena, including the likes of the ICB Group, who although do not compete directly with the smart card manufacturer's but faces anxiety over the possibility of the key players integrating forward to compete in their niche market, e.g. security related applications. Nevertheless the whole market registered an increase in overall amounts shipped of 14% in the year 2000 and estimated to increase by 26% in year 2001. This represents a healthy growth for the industry.

Frost & Sullivan anticipates that by the year 2004, 3.2 billion smart cards will have been issued globally. The industry is expected to move in the direction of multi application cards i.e. cards serving several functions. This is inline with the products offered by the ICB Group namely the GMPC card which not only is a combination of an identification card, driving license, health and immigration card. Western Europe is anticipated to remain as the largest smart card consumer and Asia Pacific is anticipated to be the fastest growing. The Asia Pacific share of the total smart card market is set to increase from 19% in 1999 to 31% by 2004, thus being the second largest market in the world.

Table 2 : Total Smart Cards Market : Unit Shipment by Application (World), 2000-2004

Application	2000 (million)	2004 (million)	Compound Annual Growth (%)
Payphone Cards	1,020	1,779	13
GSM/ 3G SIM Cards	237	708	34
Pay-TV Smart Cards	33	38	6
Health Smart Cards	52	114	23
Transit Smart Cards	37	171	42
Government Smart Cards	4	33	101
Universities Smart Cards	0.5	1	6
Access Control Smart Cards	1	2	6
Other	179	387	21

Source: Frost & Sullivan, 2001

7. BUSINESS OVERVIEW (CONT'D)

It is anticipated that payphone cards will be the main market for smart cards together with GSM/ 3G SIM cards and government smart cards/ applications sectors. Thus it is undeniable that the smart card industry is a growth industry and that the ICB Group being located in the middle of the Asia/Pacific region can take advantage of the anticipated growth in Asia/Pacific region.

7.15.3 Prospects

The smart card industry, which consists of two major sub-sectors i.e. the memory cards and microprocessor, is currently undergoing rapid growth. With the envisaged reduction in costs of putting in place smart card infrastructure like readers and such, it is believed that the use of smart cards will propagate exponentially. The incorporation of smart card readers onto keyboards produced by major computer hardware producers would invariably further reduce infrastructure costs. Further to the above, the advent of e-commerce in everyday transactions will hasten the use of smart cards. One of the major attractions of smart cards is its off-line feature which translates to it being a lower cost alternative to present on-line systems as the card has both processing and storage of data capabilities. Prepaid transactions are also seen to be a major source of smart card demand.

Apart from the above, the enhanced security provided by off-line transactions is viewed as the answer to the financial industry's woes of transaction fraud. The increased use of mobile handphones with the GSM systems, which incorporate Subscriber Identification Modules ("SIM") cards, which are essentially smart cards, would also result in greater demand for smart cards.

As such, it is believed that the diverse range of applications, as well as the more efficient solutions provided by smart cards will naturally increase smart card demand.

However there exists some challenges to the smart card industry which have to be addressed before its use becomes commonplace. There are the issues of establishing a common standard for all smart card applications as well as the conversion of existing systems to the smart card systems. Although the ISO 7816 protocol has defined certain aspects of smart card architecture, the operating system and the Application Programming Language for multiple application interaction have yet to be agreed upon universally. The other obstacle that faces the smart card industry is the inertia of service providers to change from the existing magnetic stripe-card infrastructure to offer smart card based solutions. Nevertheless, it is believed that the more user friendly, improved service and security offered by the smart card alternative would invariably lead to eventual conversion to smart card based solutions.

7.15.4 Incentives For The Smart Card Industry In Malaysia

In 1997, the Malaysian Government introduced the MSC project aimed at grooming Kuala Lumpur to be the next Silicon Valley. Despite the economic down turn then affecting the Asian region, the Malaysian Government was determined to proceed with the IT related projects, in particular the MSC project.

The MDC, a quasi-government agency, which has been given the responsibility to ensure the MSC achieves its objectives, seeks out companies that it feels can contribute significantly to the development of the MSC and grants them MSC status. Both ICB and its subsidiary IRISTech are MSC-status companies. The MSC status comes with it numerous incentives and benefits backed by the Malaysian Government's Bill of Guarantees. The 10-point Bill is as follows:-

- Provide a world-class physical and information infrastructure
- Allow unrestricted employment of local and foreign knowledge workers
- Ensure freedom of ownership by exempting companies with the MSC Status from local ownership requirements

7. BUSINESS OVERVIEW (CONT'D)

- Give freedom to source capital globally for MSC infrastructure, the right to borrow funds globally
- Provide competitive financial incentives, including Pioneer status (100% tax exemption) for up to ten (10) years or an investment tax allowance for up to five years and no duties on the importation of multimedia equipment
- Become a regional leader in Intellectual Property Protection and Cyberlaws
- Ensure no censorship of the Internet
- Provide globally competitive telecommunications tariffs
- Tender key MSC infrastructure contracts to leading companies willing to use the MSC as their regional hub
- Provide a high powered implementation agency to act as an effective one-stop super shop

The MSC-status companies may enjoy the following financial and non-financial incentives. Financial incentives include a five year exemption from Malaysian income tax, renewable up to 10 years. A company may apply to renew the exemption for a second five year term. Renewal of the exemption will depend on the company's performance in transferring technology or knowledge to Malaysia. For companies already operating in Malaysia, MSC tax incentives will apply to the 'value added', defined as the company's additional statutory income above its average income for the past three years, or as the value of new investments made in MSC.

In addition, MSC status companies are allowed to import multimedia equipment duty free, provided that the equipment is used by the company in the operation of its business. The exemption applies to equipment used directly in facilitating the operational processes of MSC status companies, but excluding imports for the purpose of direct sales and trading or use as components in manufactured items. And lastly, MSC status companies that are at least 51% Malaysian owned are also eligible to apply for R&D grants of up to 70% of the total approved cost of the R&D project.

Non-financial incentives include unrestricted employment of foreign knowledge workers. Foreign experts are required to meet minimum prerequisites to ensure this privilege is not abused. Expatriates employed within the MSC must have either more than 5 years experience in the IT business, or otherwise be a degree holder in any discipline or a graduate diploma in IT plus 2-3 relevant experience or a Masters Degree in any discipline. This will ensure that companies do not face a shortage of technical experts which are vital to their operations.

MSC-status companies also enjoy freedom of ownership and can be 100% foreign owned. This would encourage more foreign entrepreneurs to set up business here without being subjected to the New Economic Development requirement of 30% Bumiputera equity rule which non-MSC companies in Malaysia are obliged to comply with.

All MSC status companies are given automatic exemption from the Controller of Foreign Exchange from exchange control requirements. With this foreign currency exemptions, companies will be free to:-

- execute transactions in any currency in Malaysia or else where in the world
- Borrow any amount from financial institutions, associate companies, or non-residents
- Hedge their foreign-exchange exposure
- Remit globally for any purpose
- Open foreign currency accounts in Malaysia or abroad with no limits on the balances, including accounts for the retention of export proceeds.

Other benefits accrued to companies under the MSC are intellectual protection and a world-first comprehensive framework of cyberlaws, world class physical and IT infrastructure, globally competitive telecommunication tariffs and service guarantees, Censorship of the Internet, high quality planned urban developments, excellent educational facilities, including the region's first Multimedia University and a green environment protected by strict zoning.

The operating flexibility, opportunities, benefits and incentives laid out by the Government to make MSC a success will play a major role in promoting the development of technology

7. **BUSINESS OVERVIEW (CONT'D)**

intensive industries including the smart card industry. Nevertheless, in the spirit of globalisation and free-market enterprise, the Government has refrained from imposing barriers of entry to foreign companies which may prove to be a bane for start-ups such as ICB which are being forced to compete in a non-level playing field.

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