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## *IRS Ltd – Pre-seen material*

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### **Historical overview: IRS Ltd as a sideline**

Intelligent Refrigeration Systems (IRS Ltd)<sup>1</sup> was founded in 1992 by three friends, Charan Dill, David Thomas and Alex Watt, all of whom had worked with the same family-owned electronics company based in Glasgow – CE Ltd. This company was beginning to show signs of running into difficulties, and David had recently been made redundant from CE Ltd. Charan and Alex also saw that their future employment was in jeopardy. IRS Ltd was set up initially to provide an additional source of income and potential security for the three friends, and operated from Alex Watt's home.

At the outset, work was sourced from a family contact that Charan had in Malaysia, Mohammed Khan. IRS Ltd designed and manufactured (through a sub-contractor) burglar alarm systems and energy-saving devices for hotels, on behalf of Khan. The income from this business quickly became sufficient to support the founders. Charan and Alex then left CE Ltd to work full-time at IRS Ltd. David resigned from his post with a local engineering company to join them full-time.

### **IRS Ltd takes off**

Charan saw an opportunity to take advantage of the problems that their former employer was having and to pick up work from its existing customer base. IRS Ltd concentrated its efforts in this area and on one sector: temperature controls for most of the major refrigeration Original Equipment Manufacturers (OEMs). The approach that Charan took was to work at developing a strong relationship with potential customers, so that IRS Ltd was seen, not merely as a supplier, but also as a partner who was able to work on joint developments and act as a solution provider. However, it took until 1994 to get the first order from one of the large OEMs, which was then followed by orders from many of the other OEMs, who were customers of CE Ltd.

At the stage where this new business began to take off, the founders decided to withdraw from the sub-contract work for Khan. Nevertheless, Khan continued his support for IRS Ltd, maintaining his investment in the company and continuing to guarantee the bank facilities. By 1995, IRS Ltd was achieving sales of just over £1 million from the refrigeration case OEMs that supplied UK supermarkets. In essence, what IRS Ltd had achieved was the replacement of traditional electromechanical temperature controls in refrigeration cases, with electronic temperature controls. However, IRS Ltd was not alone, as four competitor companies were also operating in the UK market.

### **The birth of Innate**

Charan, however, saw that there was scope for developing more sophisticated control mechanisms because of the electronic content of the new generation of temperature controllers. He foresaw an ability to link each refrigerated case electronically to provide a centralised monitoring function, but to do this IRS Ltd would need to be independent of the OEM case manufacturers. IRS Ltd would still supply the temperature controllers to the case manufacturers, but could potentially benefit from developing a relationship with the end user – the supermarket.

Charan Dill was introduced to the technical manager of one of the large supermarket groups by a contact within a major US supplier to that supermarket. In the course of a discussion with the technical manager, Charan was made keenly aware of the extent of market dominance achieved by one of his main competitors, CML, the established leader for control systems – "it was the

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<sup>1</sup> The company was originally registered as Intelligent Systems (IS) and changed its name to Intelligent Refrigeration Systems (IRS Ltd) at the end of 1993.

brand leader of control systems". However, the control systems were supplementary to the controllers built into the original cases. IRS Ltd began to develop an alternative alarm and control system using existing controllers, which the supermarkets had already bought and installed. A similar concept had been tried successfully by another rival, JKL, but was specific to another large supermarket group.

Charan saw an opportunity to create for IRS Ltd, as a specific branded product, a system capable of being used by any supermarket, and so the IRS Ltd Innate system was born. He chose the name "Innate" to signify the nature of the electronic alarm and control system. The system would be dormant until it detected a fault and would then activate itself only to warn of a temperature problem.

IRS Ltd would design and manufacture its own alarm and control system capable of working with the existing controllers installed by supermarkets. To do this, Charan entered into an agreement with the supermarkets so that IRS Ltd could be provided with sample controllers, around which IRS Ltd could design a system for each customer. This meant a great deal of varied development and engineering work to suit each supermarket group but it gave IRS Ltd the opportunity to sell to the whole supermarket business sector rather than to a single supermarket group. The first Innate sale was made in 1997 and over the next two years, IRS Ltd successfully sold Innate to almost all of the major supermarket groups in the UK, resulting in rapid growth for IRS Ltd.

## **Rapid growth through product development**

The Innate system rapidly became the main part of the business of IRS Ltd although the manufacture of controllers for OEMs still continued. Its major competitor JKL was taken by surprise as it had held its dominant position for so long. However, JKL could not respond quickly because of the significant investment in its client-specific control system. Charan's obsession with customer service led to the creation of separate account managers for each customer. He explained to customers that *"every time you fall there will be an IRS Ltd person to catch you"*.

Each supermarket group supplied IRS Ltd with one of its cabinets fitted with temperature controllers. IRS Ltd project teams then developed a specific Innate alarm and control system for that cabinet system, which could then be fitted to all of the cabinets used by that supermarket. This process, while giving IRS Ltd its principal competitive advantage, did mean that a number of production issues arose. Each project team had to source the components needed for the Innate system it was developing to match the controllers used by the various supermarkets. Sourcing of components by the purchasers within the production department took place, not only in the UK, but also in Malaysia and Japan, helped by the contacts of Mr Khan.

Quality issues emerged, based on the continued prototyping of systems and parts for the various cabinet systems used by supermarkets. Forward buying of parts was difficult, as prototypes had to be tested on site before any major order was placed by the supermarket. In addition, specifications were always being changed, as the supermarkets sought ever more sophisticated monitoring of their cabinets. Each Innate system comprised a wide range of bought-in components complemented by specific alarm and circuit designs developed by IRS Ltd engineers. Once the client had approved the prototype Innate system, it would then be moved into the production area for large volume assembly. This assembled equipment then became the Innate system "box" which would then be connected on site, by IRS Ltd engineers, to the refrigerated cabinet.

The activities that related to selling the Innate system (which generated the need for very detailed specifications) coincided with the decisions taken by supermarkets to downsize their engineering functions – even though supermarkets were becoming more complex. Through the use of account managers, IRS Ltd was in continuous contact with the end user and able to determine customers' changing needs.

In order to demonstrate its commitment to developing Innate with its customers, IRS Ltd set up its own engineering development and support function, with both hardware and software engineers. This commitment, while relatively expensive (4% to 5% of turnover) enabled IRS Ltd to work so closely with its customers that it became an integral part of the store design and refit

planning teams. This resulted in IRS Ltd products being specified by the supermarkets. The main refrigeration contractors were forced to come straight to IRS Ltd at the outset of any new-build or refit and the company's growth continued apace.

The company's product range has successfully grown to comprise:

- Innate – the supermarket control system;
- GDS – a gas detection system – an add-on to Innate to detect leaks in refrigeration systems;
- "Plastic chicken" – an add-on to Innate used to monitor conditions in chiller cabinets;
- OEM controllers – individual controllers and panels for case manufacturers.

As indicated, the Innate system had quickly become the mainstay of the revenues of IRS Ltd. Sales of Innate systems now represented approximately 80% of IRS Ltd total sales. Each Innate system fitted in a store would cost a supermarket between £40,000 and £50,000 depending on whether any additional systems were fitted such as the gas detection system (GDS) or the "plastic chicken".

## **A failed opportunity**

However, not all new product developments have been successful. In 1997, IRS Ltd invested in the Sato Corporation, to develop and market stand-alone thermometers for the consumer and gift markets in Japan. This was based on a modification to existing thermometers used in refrigeration cases. Charan was a keen traveller to Malaysia for meetings with Mr Khan and to Japan where Khan had many business interests. The Japanese are very conscious of quality and innovation and like all kinds of "electronic gadgets". Charan thought he could use his recently-developed technology in a synergistic way and gain, not only additional business, but also a foothold in this major market. However, it quickly became apparent that the company had no experience of selling in consumer markets, local management was ineffective and not controlled to any extent from Glasgow. The business was abandoned in late 1998. IRS Ltd lost the original investment of £120,000 and a further £135,000 owing for products supplied for this unsuccessful venture.

## **Moving on**

Charan continued to have plans for IRS Ltd. He envisaged IRS Ltd developing in the direction, not just of energy-efficient refrigerator cabinets, but also towards "intelligent systems" of all kinds, that involved the operation and monitoring of electric motors.

## **The Founders**

### ***Charan Selvarai Dill***

Charan helped found IRS Ltd when he was 31. Born in Malaysia, he followed a well-trodden educational path, coming to the UK to attend university after leaving school. Charan graduated with an Electrical Engineering degree from Glasgow University in 1984. During summer vacations, he worked for a family business in Largs, on the West Coast of Scotland, servicing and repairing refrigeration equipment. After graduating, he was offered a place at university to study for a MSc in Refrigeration. He did not take up this place, joining instead a Glasgow-based family-owned electronics company, CE Ltd. Here he met his co-founders David Thomas and Alex Watt.

Charan "always had ambition for achievement", although not necessarily to have his own business. His father had moved from India to Malaysia and, as well as pursuing a career in the Civil Service, had created significant wealth as a property developer. The influence and support of Khan, a family friend in Malaysia and a very wealthy businessman, has also been significant. Charan is married with two children and his wife accepted the long hours that he had to work as

IRS Ltd became established. For Charan, the business is twenty-four hours a day, seven days a week. In the early days of IRS Ltd, Charan drove between 70,000 and 100,000 miles a year developing relationships with clientele.

As the sales force became established, this reduced to 30,000 miles and subsequently to an average annual mileage of 12,000. However, he now flies some 250,000 miles a year: twice a week to London to see customers and once a month to the Far East to develop new business ideas. *"I don't waste time on the road any more"*. Charan says that he has never had a sleepless night and *"can switch off from IRS Ltd at will"*. However, as soon as he gets up in the morning he is thinking about IRS Ltd, using his "showertime", which can be anything up to an hour, to plan out his day in response to the previous day's events.

### **Alex Watt**

Alex Watt was 38 when IRS Ltd was established. Son of a Glasgow bank manager, Alex was educated at Grammar School, and he too obtained an Electrical Engineering degree. He entered the Scottish Electrical Training Scheme and joined EP Group Ltd as a designer. After a year, he went to South Africa with an EP Group company where he worked for four years as an electrical engineer. After getting married, he returned to Glasgow in 1984 to work for CE Ltd as a designer. Over the next few years, Alex was involved in the design of a very wide range of electronic devices and also trained Charan, who had subsequently joined CE Ltd.

In contrast to Charan's desire for achievement, Alex had no such ambitions. *"I would have been happy to retire at CE"*, Alex reported to David Thomas at the time that the three founders were thinking about starting IRS Ltd. When David was made redundant, Alex began to worry about his own position and agreed to set up IRS Ltd. Early operations were based in his son's bedroom, to carry out work for Khan, while he and Charan were still employees of CE Ltd. Both Alex and Charan could see the problems growing with their employer and Charan persuaded Alex that they should take IRS Ltd seriously.

Alex finally had a major disagreement with CE Ltd's family board members about the way the company was run, and resigned. Alex decided to pursue the IRS Ltd opportunity, as it was *"easier to do than to hawk myself round the marketplace"*.

He also believed that having his own business could make him rich.

### **David Thomas**

An engineering and economics graduate of Cambridge in 1978, David Thomas joined Siemens AG in Germany as Project Engineer, where he was involved in the design of electrical equipment including motors, drive control systems, and switchgear. David was seconded to Siemens (India) in 1987, to manage a contract with a state-owned electrical company. His role became less technical and more commercial and he became responsible for customer liaison and commercial negotiation, as well as technical support and training. In 1989, he returned to the UK and joined CE Ltd as a senior hardware design engineer.

His role developed to include responsibility for all new product design, and management of the design team, which included Alex Watt and Charan Dill.

David was made redundant by CE Ltd prior to the formation of IRS Ltd, and worked as a design engineer for another small electrical engineering company before agreeing to join Alex and Charan at IRS Ltd. He was then 36.

## **Development of IRS Ltd**

At the start of IRS Ltd, the three founders were equal partners and shared in the management of the company. They naturally tended towards their areas of experience and interest: Charan took on the sales and customer service role; Alex the technical design role; and David the production and administration role. This very democratic management process lasted until 1998 when, following a review by a national firm of management consultants, Charan was formally appointed Managing Director, with David as his key lieutenant and Production Director.

With the growth of the company, Charan had moved from being involved in almost everything and doing a lot of detailed work, to being more of a strategist: *"I do the thinking and someone else will do the work"*. Within a year, Charan was thinking on a grander scale, and his more immediate plans now covered a two-year period rather than a two-week period. However, he felt that as the company was successful and growing at a faster and faster rate, the rest of the team was not keeping pace with him. He was inevitably becoming more dictatorial in style – *"there was no time to bring everyone along"*. Alex and David seemed to accept this change in Charan – *"we trusted him"*.

## Management structure

Gradually, key managers were appointed and made directors of the company. The board now comprises:

Charan Dill	<i>(Chairman and Managing Director)</i>
David Thomas	<i>(Production Director)</i>
Alex Watt	<i>(Projects Director – no functional responsibility)</i>
Andrew Wilson	<i>(Technical Director)</i>
Paul Hunter	<i>(Marketing (Sales) and Customer Services Director)</i>
M H Khan	<i>(Director – Non-executive)</i>

There is also Ian McCallum, Customer Service Manager, who reports to Paul Hunter, and a non-executive Financial Consultant, Joe Halley, who helps to advise on financial matters, although Khan, who is himself an accountant by training, provides most of the advice on finance. Indeed, from the very start of IRS Ltd, he has insisted on proper management accounts as part of a formal management process within the company. The management structure is shown as Exhibit 4 (*on page 12*).

The organisational structure at IRS Ltd is based on a combination of a functional structure with an enabling framework which allows staff to move across functions into project teams. Teams were essentially created in a matrix format across functional lines, with individuals free to move within and across teams and functions, based on project requirements. Basically, a project team is formed to deal with the development of an Innate system for a supermarket client. The majority of the members of a project team will come from engineering led by Andrew Wilson, and production led by David Thomas, with direct involvement from the Marketing and Customer Service department led by Paul Hunter. In this system, Alex Watt has responsibility for the "critical path" management of each project. Charan worked within the marketing element of the project as required, helping to motivate the project teams towards completion.

Charan was proud of this system. For him, it was the modern way of doing things. He wanted the workforce to have a flexible attitude to tasks. He did not want them to see themselves as engineers or production people solely, but as members of a team working to give clients the solutions they paid for. This approach was in line with Charan's anti-union views and in the way he rewarded his employees. Although his hourly rates were not as high as those offered by some of his competitors, many of his workers, who had left for a higher hourly rate, returned to IRS Ltd on the basis of higher level of pay determined by bonus and overtime payments. Charan was happy to welcome back these employees.

## Financial profile

The financial profile for IRS Ltd for the period 1996 to 2000 is provided as Exhibits 1, 2 and 3 (*on pages 8 to 11*).

## IT systems

IT systems in place included:

- a financial accounting system, incorporating integrated sales and purchase ledgers, running in DOS and storing data in a non-relational database;
- relatively new computer-aided management (CAM) systems to help control the production of Innate products;
- basic human resource/personnel database management systems running in Windows;
- customer contact database accessible from head office providing dial-in access.

The focus by IRS Ltd on customer service tailored specifically to each supermarket's requirements meant that each project team tended to purchase and install hardware and software specific to the requirements of that project.

By the end of 1999, many of the IT systems were relatively old and in need of replacement.

### **The next stage of development**

Charan was excited about the prospects for IRS Ltd and he was eager to tell David and Alex and other members of the management team about these during their next scheduled meeting.

*Profit and loss account information (unpublished) for year ended 31 December*

	2002 Draft budget UK only	2001 Latest estimate	2000	1999	1998	1997	1996
	£000	£000	£000	£000	£000	£000	£000
Turnover	15,200	13,100	10,343	7,000	5,965	4,408	2,767
Cost of sales	<u>11,250</u>	<u>9,850</u>	<u>8,004</u>	<u>5,223</u>	<u>4,351</u>	<u>3,287</u>	<u>2,004</u>
Gross profit	3,950	3,250	2,339	1,777	1,614	1,121	763
Administrative expenses	3,100	2,800	1,952	1,340	1,147	765	675
Other operating income	<u>30</u>	<u>30</u>	<u>30</u>	<u>27</u>	<u>12</u>	<u>28</u>	<u>19</u>
Operating profit	880	480	417	464	479	384	107
Exceptional items (Note 1)	Nil	100	48	149	255	Nil	Nil
Interest payable	<u>250</u>	<u>230</u>	<u>150</u>	<u>128</u>	<u>156</u>	<u>77</u>	<u>29</u>
Profit before taxation	630	150	219	187	68	307	78
Taxation	<u>200</u>	<u>50</u>	<u>84</u>	<u>74</u>	<u>24</u>	<u>96</u>	<u>38</u>
Profit after taxation	430	100	135	113	44	211	40
Dividends	<u>Nil</u>	<u>Nil</u>	<u>Nil</u>	<u>Nil</u>	<u>Nil</u>	<u>Nil</u>	<u>Nil</u>
Retained profit	<u>430</u>	<u>100</u>	<u>135</u>	<u>113</u>	<u>44</u>	<u>211</u>	<u>40</u>
Number of employees	200	182	130	102	87	67	42

*Notes to Exhibit 1*

1. Exceptional items in 2001, 2000 and 1999 relate to obsolete stock being written off. The exceptional item in 1998 is the cost of the failed investment in Sato Corporation.
2. **New data for 2001 and 2002 has been added in the shaded columns. The information for 1996 to 2000 is unchanged.**

Balance sheet information (unpublished) at 31 December

	2002 Draft budget UK only £000	2001 Latest estimate £000	2000 £000	1999 £000	1998 £000	1997 £000	1996 £000
Fixed assets:							
Tangible assets	1,745	1,545	1,363	886	840	305	153
Investments	<u>5</u>	<u>5</u>	<u>5</u>	<u>Nil</u>	<u>Nil</u>	<u>120</u>	<u>Nil</u>
	<u>1,750</u>	<u>1,550</u>	<u>1,368</u>	<u>886</u>	<u>840</u>	<u>425</u>	<u>153</u>
Current assets:							
Stocks	1,800	2,000	1,341	989	964	608	348
Debtors	2,800	2,750	1,999	1,508	629	1,149	461
Investments	Nil	Nil	70	46	23	Nil	Nil
Cash	<u>Nil</u>	<u>Nil</u>	<u>38</u>	<u>1</u>	<u>41</u>	<u>Nil</u>	<u>11</u>
	4,600	4,750	3,448	2,544	1,657	1,757	820
Creditors: amounts falling due within one year	<u>(4,068)</u>	<u>(4,448)</u>	<u>(3,288)</u>	<u>(1,983)</u>	<u>(1,295)</u>	<u>(1,487)</u>	<u>(651)</u>
Net current assets	<u>532</u>	<u>302</u>	<u>160</u>	<u>561</u>	<u>362</u>	<u>270</u>	<u>169</u>
Total assets less current liabilities	2,282	1,852	1,528	1,447	1,202	695	322
Creditors: amounts falling due after more than one year	(1,000)	(1,000)	(764)	(818)	(698)	(230)	(70)
Provision for deferred taxation	<u>Nil</u>	<u>Nil</u>	<u>(12)</u>	<u>(12)</u>	<u>Nil</u>	<u>(5)</u>	<u>(3)</u>
	<u>1,282</u>	<u>852</u>	<u>752</u>	<u>617</u>	<u>504</u>	<u>460</u>	<u>249</u>
Capital and reserves:							
Share capital	50	50	50	50	50	50	50
Profit and loss account	<u>1,232</u>	<u>802</u>	<u>702</u>	<u>567</u>	<u>454</u>	<u>410</u>	<u>199</u>
	<u>1,282</u>	<u>852</u>	<u>752</u>	<u>617</u>	<u>504</u>	<u>460</u>	<u>249</u>

**Note:** New data for 2001 and 2002 has been added in the shaded columns. The information for 1996 to 2000 is unchanged.



*Exhibit 2 (continued)*

*Notes to balance sheet information*

- 1 There were significant fixed asset additions during 1998, principally new premises at a cost of approximately £570,000. Total tangible assets in 2000 are now £1.36 million and include the value of premises, plant and equipment owned by the company and all finance leases.
- 2 Shareholding in 1996 reflects changes in 1995 when a further 20,001 shares were allotted as fully paid as a bonus issue out of reserves.

	<i>1996</i>	<i>1995</i>
Charan Selvarai Dill	11,667	7,000
Alex Watt	11,667	7,000
David Thomas	11,667	7,000
M H Khan	<u>15,000</u>	<u>9,000</u>
	<u>50,001</u>	<u>30,000</u>

Financing information (unpublished) at 31 December

	2002 Draft budget UK only	2001 Latest estimate	2000	1999	1998	1997	1996
	£000	£000	£000	£000	£000	£000	£000
Bank overdraft	1,268	1,998	1,156	542	518	393	Nil
Bank loans	1,000	1,000	635	737	665	163	Nil
Other loans	Nil	Nil	Nil	Nil	Nil	150	41
Finance leases are included in bank loans in 2001 and 2002	—	—	<u>291</u>	<u>154</u>	<u>61</u>	<u>100</u>	<u>55</u>
	2,268	2,998	2,082	1,433	1,244	806	96
Less cash	<u>0</u>	<u>0</u>	<u>38</u>	<u>1</u>	<u>41</u>	<u>Nil</u>	<u>11</u>
Net external finance	<u>2,268</u>	<u>2,998</u>	<u>2,044</u>	<u>1,432</u>	<u>1,203</u>	<u>806</u>	<u>85</u>

**Notes:**

1. The split between bank overdraft and bank loans in 2001 and 2002 is an estimate.
2. New data for 2001 and 2002 has been added in the shaded columns. The information for 1996 to 2000 is unchanged.

IRS Ltd Management Chart

