





Cambridge Display Technology Limited

Business Plan

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A.

Executive Summary

The following information should be read in conjunction with the full text of this document, from which it is derived:

Cambridge Display Technology Limited (CDT) was established in 1992 to commercialise a new technology based on light emitting polymers (LEP).

LEP technology offers the potential of low cost light emitting devices, primarily flat panel displays, with full colour and very high resolution coupled with form factor capabilities such as large area, extreme aspect ratios and light weight.

Development undertaken to date has resulted in operating lifetime believed to be acceptable for targeted first products. A significant amount of work is required to implement the manufacturing process and to develop and introduce commercial devices. CDT has targeted the end of 1996 for the introduction to market of the first LEP products.

CDT has been granted a patent which it believes is the first in the field of LEP light emission technology. and other patents covering aspects of the implementation of LEP technology. The company's technical team, established in April 1994, has met its first technical goals and the intellectual property value of the company is being increased through this continuing work.

CDT's objectives are to establish LEP as the technology of choice for flat panel graphics displays and to establish CDT as the partner of choice for companies seeking to implement LEP product solutions.

The business strategy is focused on strategic partnerships, alliances and joint ventures as means of leveraging CDT's technology and capabilities. By combining CDT's entrepreneurial drive and focus with larger companies' access to markets and product and manufacturing capabilities, the technology can be established in markets faster than by CDT alone. In addition, CDT will be concerned with the full range of LEP technology, from materials science to applications, in order to optimise the applications solutions and to share in the maximum available added value.

The marketing strategy is to concentrate on applications where LEP offers clear advantages over existing technologies. LEP development will be prioritised, so that new and increasingly higher value applications can be addressed, as the technology is developed to meet the company's long term target market of large area high pixel count flat panel graphics displays. CDT's market analysis has suggested a number of potentially interesting initial and longer term product targets which are currently being progressed.

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CDT is a young company with an immature technology of enormous potential. The market for large area high pixel count flat panel graphics displays is growing and will continue to grow as technologies enable more needs to be met. CDT believes that its LEP technology offers an opportunity to capture a significant share of this market by focusing on those applications which best match the technologies strengths.

The risk to founder and seed round investors has been reduced with the granting of early patents, recruitment of technical and management teams, and considerable development progress, particularly on lifetimes and manufacturability with the demonstration of operating lifetime of over 1,000 hours.

The next phase in the development of CDT, for which funds are now sought, involves establishing commercial partnerships, developing and bringing the first product to market, and developing and demonstrating full colour graphics display capabilities. The Board plans to increase staff numbers from 10 to over 50 by mid 1997, and grow aggregate annual capital and operating expenditures from £850K currently to over £4.5m in 1996/7 in order to achieve these next phase targets.

The Board is seeking to raise approximately £10m to provide funding for the next two years. It is planned to raise this amount through a Rights Issue and subsequent offers to investors.

1.0. Marketing Strategy

LEP technology addresses the world market for electronic information displays, estimated to be in excess of \$22bn in 1995. The marketing objective is to establish LEP as the technology of choice for flat panel display applications. In order to achieve this, the potential benefits of LEP will be leveraged by concentrating on applications where LEP offers clear advantages over existing technologies. Market introduction and development will be focused on significant market segments where LEP has a sustainable competitive advantage.

CDT has targeted 1996 for first products and revenues in markets able to utilise the early implementation of LEP - backlights are an example.

CDT has identified large area high pixel count flat panel graphics displays as its long term product development goal. These are the highest added value LEP devices that CDT believes may be made over time. This judgement is based on CDT's experience of the rate of improvement in LEP performance since first discovery and knowledge of the fundamental physics and chemistry of the technology.

Selected market segments will be addressed by means of a business strategy focused on alliances, partnerships and joint ventures. Partners will be sought based on their market access, and product design and introduction capabilities. By these means, the technology can be developed for and established in markets faster than by CDT alone. Initial products will most likely be supplied to markets under licensing arrangements through partners' existing distribution channels. Ultimately, CDT expects to supply some product directly to Original Equipment Manufacturers (OEM's), but not end-users.

A significant amount of work is required to move from the present level of LEP technology to CDT's development goal. Some work will involve both the development of existing ideas and the creation of new approaches. Other requirements will be capable of being met by translation from existing electronic technologies. Development will be prioritised and undertaken in a way that is consistent with CDT's marketing strategy. Each step will take the technology closer to the long term product development goal. This process will facilitate a series of increasingly higher added value applications as the technology matures.

2.0. Business Model

CDT plans to leverage its technology and capabilities by working with others. This will involve Strategic as well as enabling and applications partnerships, and licensing as follows:

2.1. Strategic Partners

Strategic Partnerships involve establishing long term relationships with several major companies whose commercial interests are complementary both to CDT's and one another. This approach aims to combine the strengths of CDT and its partners by making CDT an attractive vehicle through which the Strategic Partners can concentrate their development and exploitation of LEP technology. These Strategic Partners will be invited to take an equity stake in CDT and it is intended that in aggregate, they will hold a maximum of 30% of CDT's stock.

CDT, with a new technology of global potential, needs to access markets, manufacturing and finance on a large scale. Achieving this can be difficult acting alone. CDT does however, offer the small company benefits of focus, strong entrepreneurial and team spirit and drive.

Large companies can find it difficult to move quickly, particularly where new technologies are involved, and are generally unable to motivate entrepreneurs. They do however have market access, product design, manufacturing and, increasingly, experience of partnering. In addition the development of a small company in partnership with large companies can offer additional credibility and access to independent finance.

Strategic Partnership with CDT can provide a faster route for commercial exploitation of LEP technology than large companies could achieve by themselves. In this connection, CDT expects to licence Strategic Partners as enabling and early applications partners for the exploitation of LEP in specific materials/sheet manufacture and core applications areas, respectively.

2.2. Enabling Partners

CDT plans on forming enabling partnerships with fine chemicals and coatings companies to develop and ultimately manufacture under licence the materials and LEP sheet required for applications specific devices. It is possible that a Strategic Partner will also be one of CDT's enabling partners

2.3. Applications partners

Whilst CDT plans to sell some products directly, a majority of products are likely to be supplied via applications partners. These partners would be offered CDT product designs or shared development of product designs in core market

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segments, with sales licensing and joint manufacture as CDT's objectives. It is likely that most Strategic Partners would also be applications partners

2.4. Non Core Licensing

A consequence of CDT's focus on particular market segments is that not all potential applications for LEP will be addressed by CDT. For these non core market segments, CDT plans to offer licenses and support packages to companies wishing to adopt LEP technology. The licenses would be for specific markets, applications or territories and CDT would provide LEP technology support, as it is in CDT's interest to ensure that licensees are successful.

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3.0. Markets

3.1. The Electronic Displays Market

Electronic displays have become of strategic importance in global equipment markets. This view is shared by industry analysts and the US National Critical Technologies Panel. In their March 1991 report, the panel identified high definition imaging and displays as one of two dozen "critical technologies" that will dominate the 21st century.

The electronic displays market is the largest current market potentially available to CDT. This market is served by cathode ray tube displays (CRT) and flat panel (FPD) technologies. Stanford Resources Inc., a specialist market research firm has predicted world-wide CRT and FPD markets sizes in 1995 of \$15bn and \$6bn, respectively. FPD are displays where the depth (thickness) is only a small fraction of the viewing area. It is widely believed that this attribute makes FPD a more attractive alternative to CRT displays, subject to the price of FPD being no more than two times the CRT price. A market analysis and forecast by display type published by Stanford Resources Inc. is shown on the following page:



Source: Stanford Resources Inc.

CRT displays are used mainly in desk-top computers, workstations and televisions which are essentially non-portable applications where low cost is more important than CRT's bulk.

Flat panel graphics displays are most commonly found today in portable and notebook computers. They also find application in a wide range of instrumentation (factory, medical, aeronautical and military) and in portable televisions and as view-finders for camcorders.

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The flat panel segment of the market is predicted by Stanford Resources Inc. to grow at over 13% pa, higher than CRT because flat panels have and will enable new applications e.g. portable computing. The reason that CRT is predicted to remain the dominant technology for non-portable applications well into the next century is because of lower manufacturing cost and the proven reliability of a mature technology. Stanford Resources Inc. CAGR predictions are shown below:



Source: Stanford Resources Inc.

The current leading flat panel technology is Liquid Crystal (LCD) with approximately 80% of the flat panel market. In order to achieve comparable performance with CRT, LCD has had to adopt an Active Matrix format. This means that every pixel on the display is individually switched by a transistor fabricated on the glass. For a normal resolution computer display this means nearly 1 million or more transistors. This, together with colour filters has made these devices very expensive to produce. Price projections by the Nomura Research Institute still have complete LCD displays at an estimated \$500 for a 10" diagonal unit beyond 2000. This compares with an average OEM price for a complete CRT display in the region of \$80-\$100 in 1994.

CDT believes that the rate that CRT is replaced by FPD in existing CRT applications will significantly increase when the price of flat panel comes down to two times that of CRT.

The market may also be analysed by application type. The analysis shown on the following page predicts that consumer applications will continue to be the major segment, followed by computer applications.



Source: Stanford Resources Inc.

CDT expects to have made simple flat panel full colour graphics display demonstrators by 1997. In line with the marketing strategy, development will be prioritised so that simple initial products lead to increasingly higher value products, towards the target of large area high pixel count graphics displays. Therefore, prior to demonstrating graphics displays capabilities, CDT will concentrate initially on simple backlight products, subsequently introducing other products of increasing added value, as enabled by the development programme.

A number of potentially interesting other markets offering initial product candidates, have been identified and are discussed below.

3.2. Other Markets

There are several other markets where LEP products could offer advantages over existing technologies. These markets include simple uniform light emitters (backlights), combined backlights and displays, and other nondisplay emissive applications such as printing where high resolution and form factor advantages could be deployed. A selection of these other markets, in order of possible implementation, together with an estimate of market sizes, where available, is shown below:

<u>Market</u>

Backlights Safety lighting applications Composite devices - backlight plus display Backlights for chip on glass packaged LCD's Printer heads Facsimile/scanner heads (a- Specific business opportunities. (b- Source Dataquest. Estimated Size Being evaluated-a) \$19M -b) Being evaluated-a) Being evaluated-a) \$450M -b) \$330M -b)

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3.3. The Impact of LEP on the Market

CDT believes that over time LEP will take a significant share of the flat panel segment of the electronic displays market. On the basis of current information, CDT believes that LEP based graphic displays will have a cost advantage and will offer a number of potential benefits, primarily in the areas of resolution and form factor (light weight, thinness, etc.) over existing and other new technologies. These potential benefits, which are discussed in more detail in Section 4.2, may help to more rapidly displace CRT as the dominant display technology and enable the flat panel market share to increase beyond the projections for FPD shown above.

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4.0. LEP Technology

4.1. Description

CDT is the first company in the world set up to exploit a new technology based on Light Emitting Polymers (LEPs), which was discovered at Cambridge University in 1989 by a multi-disciplinary team of physicists and chemists.

The technology is based on the semiconducting properties of certain conjugated polymers, a class of plastic materials. Whilst conjugated polymers have been known for a long time, their ability to conduct electricity and that some of them behave as semiconductors was disclosed more recently.

It was while investigating the semiconducting properties of one of these materials polyphenylenevinylene (PPV) that the first light emission was seen. A light emitting diode is made by putting a layer of PPV between two electrodes with work functions that allow injection of charge carriers (holes and electrons) into the polymer. Charge carriers from the opposite two electrodes meet and combine in the polymer, decaying to emit light

The net result of this is a way of forming light emitting diodes from a material which is plastic and can be solution processed like other plastics. LEPs can be formed on top of a carrier electrode by spin or dip coating, or even by a continuous coating process (e.g. bead coating) which offers the possibility to form large area displays. The materials are intrinsically semiconductive and therefore do not need doping and are self-isolating, pixels can be formed simply by the formation of upper and lower electrode layers on the area(s) where emission is required. This offers the possibility of simple matrix addressing of graphics displays and forming displays with pixels of varying shapes and sizes.

The materials can switch at very fast rates (>1MHz) and the speed is relatively unaffected by temperature. Furthermore, LEPs have been made on flexible lightweight substrates which, when combined with high resolution could have great utility for head mounted displays.

Since the early discovery, research has focused on materials and structures improving efficiency and extending the spectrum. The emission from PPV itself is yellow/green, but other conjugated polymers produce light from the near infra red to deep blue. Light emitting polymers are therefore an appropriate technology for multi-colour and full colour displays.

The LEP materials are synthesized from commonly available starting materials in a few steps. Although a lot of know-how is involved in producing materials of the correct grade for use in electronic devices, the materials themselves are low cost. The films used in LEPs are also only about 100nm thick, so that 1g of material can be used to form about 100 ft² of LEP.

LEP devices may be made in single and bi-layer forms and the essentially simple nature of such devices is shown in bi-layer form below:



4.2. Potential Benefits

The ultimate target market for CDT is large area high pixel count flat panel graphics displays. In significant segments of this market, LEP's potential for high resolution and low cost can be combined with potential form factor advantages such as large area, extreme aspect ratios, thinness and light weight to deliver potentially useful benefits.

In other significant market segments available in the short and medium term, LEP's potentials of high resolution and low cost can be combined with potential form factor advantages such as thinness, robustness and light weight to deliver potentially unique benefits to users.

The properties of LEP devices are summarised below and on the following page:

Emits light Photovoltaic effect in reverse bias High resolution Any size/shape pixel

High switching speed (>>1MHz)

Lambertian emitter

Potential Benefit

Does not need backlight Can detect light Very fine pixellation Innovative design opportunities, composite function displays Video rate, better than LCD Rugged (shock/temperature resistance) Potentially more reliable in service with wider operating range Wide 180 degree viewing angle

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Property (cont'd)	Potential Benefit (cont'd)
Large area capability	Able to construct very large area displays using either single "screens" or tiling without visible joints
Small area capability	Potential benefits when combined with very high resolution
Extreme (aspect ratio) area capability	Wide-screen, wrap around dynamic display potential
Low cost	Provides margin opportunity
Formable	Non linear devices may be made
Flexible devices	More reliable in use, enables credit card format displays
Low voltage	Suitable for some battery driven portable applications
DC drive	Low cost drivers
Thin	Assists miniaturisation
Light weight	Suitable for portable applications, enables eye-glass type displays
RGB emissive	No filters required, lower cost

Combinations of these properties provide LEP devices with potential competitive advantages in selected segments of the flat panel and other markets.

4.3. Performance

A table setting out the LEP's current and potential performance is shown below:

Attribute	<u>Units</u>	<u>Dec 1994</u>	<u>Potential</u>
Power efficiency, electrical power in,			
light power out	%	1%	10%
Internal quantum efficiency,			
electrons in, photons out	%	10%	20%
Driving voltage	Volts	3.0	3.0
Brightness	cd/m ²	5,000	10,000
Colour Range	λ	480 - 1,000	400 - 1,000
Patterning	No of		
	colours	2	3
Resolution	μ	1	1
Area	diagonal		
	inches	4.5″	Any
Operational life to 50% decay	Hours	>1,300	100,000
Shelf Life -a)	Months	6 -b)	60
Operating frequency	MHz	>1-c)	>100

(a- Exposed to normal atmosphere and daylight.

(b- Current test conditions, accelerated tests indicate >30 months.

(c- Capacitance (not intrinsically) limited.

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4.4. Potential Products

CDT's primary target market is the flat panel graphics display segment of the electronics displays market. The matrix shown below plots increasing information density against display area for the overall electronic displays market. In addition, a selection of potential LEP applications areas ranging from those of short term interest to those of long term interest is shown on the matrix.



The likely boundaries of interest for CDT are indicated by the two arrows. The optimum route from simple non-pixellated backlights to large high pixel count flat panel graphics displays is to concentrate first on increasing the resolution and then secondly, expand the display area. CDT believes that added value is most likely to be found in exploiting high resolution capabilities before large area. Indeed, large area, low information displays frequently require high brightness and long lifetimes which are features of a mature technology. An outline of initial and later product candidates is given below.

4.4.1. Initial Product Candidates

There are a number of interesting initial product candidates which, based on CDT's initial analysis, appear to offer the required sustainable competitive advantage. The initial product candidates include those shown on the following page:

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Initial Product Candidates (cont'd)

- Backlight and composite devices with a European partner
- Safety lighting in partnership with StanTech Inc., a USA company
- Backlights for chip on glass packaged LCD's with a UK systems builder
- Print heads in partnership with a multinational partner

Marketing and technical work is being undertaken to validate these initial product candidates and to map the resultant relationships and development priorities onto CDT's strategic plan.

4.4.2. Medium Term Product Targets

Potential products for the medium term (1999/2000) include high resolution small area displays such as:

- Small (< 3" diagonal) and thin flat panel graphics displays
- Ultra light weight displays for use in:
 - Head-up alphanumeric displays for drivers and pilots
 - Virtual reality applications

4.4.3 . Longer Term Product Targets

The longer term (after 2001) product targets are larger area high resolution displays which include the following types:

- Low cost >30" diagonal flat panel graphics displays
- Very large video wall displays
- Large area (>40" diagonal) flat panel graphics displays, particularly for High Definition Television (HDTV)

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5.0. Development

5 1. Current Status

The initial discovery and early research was carried out at Cambridge University. In April 1994, CDT established a development team of chemists and device engineers. In November 1994, these were supplemented by a manufacturing team leader, a device engineer and a chemist. In addition, an industrial chemist was recruited as team leader . The technical team presently totals 7. The current status of development by area is discussed in the following sections.

5.1.1. Materials

A reproducible process has been defined for production of PPV and derivatives and a characterisation process established for materials quality control. Modified PPV is now produced routinely for low temperature conversion onto plastic substrate and batch sizes are being increased and purity levels raised.

5.1.2. Devices

A laboratory scale manufacturing process has been established for production in a normal atmosphere of small scale devices. These devices are systematically tested for shelf and operational life and failures analysed. Operational lifetime of over 1,000 hours has been demonstrated and is being extended through improved device fabrication, encapsulation, electrode materials, polymer/metal interfaces and improvements in the purity and consistency of materials.

5.1.3. LEP Sheet Manufacture

A volume manufacturing process has been defined and UK based potential manufacturing partners identified. These are presently being validated as part of the detailed work started following the recent recruitment of the production engineering team leader.

5.1.4. Applications specific development

All development to date has been of a generic nature and focused on demonstrating the technology with useful lifetimes in single pixel (backlight) and alphanumeric display forms. Applications specific work is presently centred on determining initial product requirements and the consequent development programmes.

5.1.5. Summary

The technical team has met their first major milestone in demonstrating operating lifetime of over 1,000 hours. This lifetime, which is potentially suitable for several initial applications, has been achieved using a scaleable manufacturing process. This achievement provides CDT with a platform for developing first products.

5.2. Targets

The key development targets to be achieved by the end of 1997 are the introduction of the first product and demonstration of full colour (RGB) graphics display devices. These break down into key development tasks as follows:

- Produce commercial quality materials
- Scale up and establish manufacturing capabilities for materials, sheet, connectorization and LEP components
- Devise and implement drive schemes for alphanumeric, dot matrix and graphics displays
- Select and demonstrate blue materials
- Define and demonstrate full colour device structures
- Extend operating lifetimes in all colours

5.3. Strategies

The key strategies adopted to achieve the development targets and to grow the intellectual property are shown below:

- Develop LEP specific know-how within CDT
- Build, manage and retain a highly motivated multi disciplinary technical team
- Continue to build on the relationship with Cambridge University
- Use available materials and improve for LEP use
- Use standard manufacturing processes
- Grow and protect the IPR

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6.0. Manufacturing

In the early stages of exploitation, before enabling partnerships are formed, it may be necessary for CDT to establish an initial manufacturing capability for first products up to the pre-production stage. In this event, CDT plans to produce materials internally and to produce LEP sheet by contracting out the manufacture to others. Whilst this does not fit the partnering business model, it will facilitate early market entry and ensure all IPR is retained. CDT's enabling partnerships are envisaged to evolve and operate as follows:

6.1. Materials Development and Production

CDT will scale up its laboratory materials production capability to meet initial volume and purity requirements. However the long term strategy is to secure an enabling partnership with a fine chemicals company. The objective of this would be to improve materials purity to extend operating lifetimes with the marketing target of qualifying and branding materials.

6.2. LEP sheet manufacture

The process flow for sheet manufacture is shown below:



The process may be either continuous or batch and will depend on the volume requirement and the specific product. In general, a continuous process would be used for quantities greater than a few hundred square feet where the economy of scale apparent in a continuous process would outweigh the more complex equipment requirements. In applications where high resolution is required (finer detail than 1mm), it is likely that the batch process, which is more suited to lithographic patterning techniques, will be appropriate. Manufacturing on both batch and continuous processes will be developed, with early production taking place on the batch line, before the volumes are sufficient to justify the continuous process. This has the advantage of starting with essentially off-the-shelf equipment. Eventually the batch process may be restricted to high resolutions.

Volume manufacture of sheet material will require the commitment of a thin film coatings manufacturer in order to assure customers of security of both volume and quality of supply. CDT plans to initially develop the manufacturing process as an in-house pilot line and then, using equipment under contract from potential manufacturing partners, refine and scale-up. On completion of these two phases, CDT would possess a validated production methodology which could be established on one integrated and committed line. CDT could deliver a licensable process and work with the licensee to improve yields and introduce new product variations and developments to the licensee. In return CDT could

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receive a license fee and a royalty on production volumes sold to third parties and favourable prices on supply to CDT.

6.3. Component manufacture

It is important that CDT participates in the design and manufacture of components from LEP sheet because component performance may be improved by optimising the entire process from materials to component. In addition, manufacturing techniques may be useful across several applications areas and may represent an important area of intellectual property. CDT does not plan to establish its own component manufacturing but plans to establish joint ventures with a small number of partners in key areas of the world. Whilst some applications partners will prefer to manufacture LEP components, it is expected that many will operate a buy-in policy for existing components and may prefer to procure LEP components from a manufacturer closely associated with CDT. In the latter case, CDT could introduce designs and customers to its manufacturing joint ventures. By these means, CDT could gain access to existing manufacturing expertise and facilities and would bring LEP experience together with business introductions. The commercial arrangements could be structured to allow CDT to recover a sufficient profit over its costs by a combination of licence and product royalty income. Moreover, CDT could gain access to LEP specific manufacturing techniques which would be made available to all the manufacturing partners.

6.4. LEP Costs

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CDT's evaluation of LEP sheet as potentially low cost is based on the factors shown below:

- Low cost of starting materials
- Simple chemical synthesis processes
- Use of existing large area thin film coating techniques
- The relatively low cost of large area thin film coating equipment

The manufacturing cost of LEP sheet for backlight applications is estimated by CDT to be below £10 per square foot for reasonable initial volumes (500 sq ft per day) and to have the potential to be below £5 per square foot at considerably higher volumes over time.

Other aspects of the technology which will maintain the low cost potential at the device or component level are:

- Passive matrix addressing, no transistors required
- Emissive technology, no backlight required
- Able to build on existing drive schemes

Overall, LEP is potentially a simpler and therefore less costly technology to manufacture than Active Matrix LCD, Plasma, Field Emitter Displays (FED) and

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other flat panel technologies and is capable of being implemented using largely standard processes, equipment and electronics.

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7.0. Business Strategies

In addition to the partnership business model, six strategies have been identified as being key to achieving CDT's business objectives. These strategies, addressing employees, development and scope of business, time to market and financing are discussed below:

7.1. The technical and management team

Employees are key to the success of business generally and this is particularly true in the case of early stage companies. CDT plans to establish and maintain personnel policies designed to continue to attract, motivate and retain first class staff. The main objectives of these policies will be to engender the sense of ownership and commitment required to exploit the technical and market opportunities available to CDT. These policies will encourage personal development through training, challenging assignments and personal responsibility. An open management style where a free flow of information is encouraged and expected and an attractive Share Option Scheme are important elements in managing for success. Control will be exercised though well understood project and financial systems operating to support delegation of authority by disciplined and timely progress monitoring.

7.2. Develop know-how within CDT

CDT is a know-how Company whose value depends on the development and commercial exploitation of its LEP technology. It is intended to build on the present patents and know how through continued development and broadening of the technology. CDT will focus its efforts on LEP specific work in order to add maximum value to CDT and to reduce the opportunity for others to develop implementation techniques that might block CDT's exploitation. In parallel with this, CDT will not "reinvent the wheel" and will buy in, or partner to access required technology.

7.3. Enable Applications

The maximum added value will most likely be available to those who apply the technology to market needs. Consequentially, CDT plans to be market focused, identifying product and applications areas where LEP can enable new applications or where other technologies are unable to meet the requirements. In implementing this strategy, CDT intends developing market entry plans including product concepts, designs and prototypes and to seek partners with market access and product design-in capabilities with whom the risks and rewards may be shared.

7.4. Manufacture of LEP products

Manufacturing techniques will be useful across several applications areas and will represent an important area of intellectual property for licensing and 27

ensuring freedom to exploit the basic technology. It also represents a further area of added value which CDT plans to access through partnerships and joint ventures, rather than directly.

7.5. Early first products

It is important to get the technology out of the laboratory and into the marketplace. First products will make markets more aware of and more comfortable with the technology and represent significant steps in the development of applications and manufacturing techniques. Moreover, they represent an important step in the development and value of the business whilst making some gross margin contribution.

7.6. Funding

CDT plans to enter into a number of commercial relationships and to invite Strategic Partners to take an equity position in CDT. The objectives of these industrial investors will inevitably focus more on commercial exploitation than equity returns. Financial investors providing independent finance will ensure the focus remains on creating shareholder value within the Strategic and other commercial partnerships.

In addition, debt financing will be introduced as soon as it is appropriate in order to leverage equity and enhance shareholders' potential returns.

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8.0. Requirement for Funding

The next phase in the development of CDT, for which funds are now sought, involves establishing commercial partnerships, developing and bringing the first product to market, and developing and demonstrating full colour graphics display capabilities.

Substantial growth in personnel (from 10 to over 50 by mid 1997) and annual aggregate capital and operating expenditures (from £850K to over £6m in 1996/7) is planned in order to achieve these next phase targets.

The Board is seeking to raise approximately £10m to provide funding for the next two years. It is planned to raise this amount through a Rights Issue and subsequent offers to investors. CDT plans first to offer shares with a value of £4.5m to shareholders via the Rights Issue. Subsequent financing rounds are planned to raise the balance of the required financing by early 1996.

Based on current funding and investment plans, the Directors intend to apply at least 70% of CDT's aggregate operating and capital expenditures over the 1995/97 financial years to CDT's research and development of LEP technology and products.

The Directors expect that further equity issues beyond 1997 will be required to finance continuing expenditures on the development of the technology and the commercialisation of its product candidates. It is currently anticipated that any future profits will be reinvested in CDT's business.

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9.0. Financial Record

Since its establishment, CDT has been principally engaged in the research and development of LEP technology. No revenues have been earned to date.

In the year to 30 June 1994, CDT recorded a net loss of £227,339 compared to a net loss of £190,963 for the eighteen months ended 30 June 1993. As at June 30, 1994, CDT had cash balances of £770,064.

As at 31 December 1994 ,the total cash balances of CDT and its wholly owned subsidiary, Advanced Displays Limited (ADL) were £ 773, 093, as shown on statements received from banks.

CDT has management and financial information systems which enable the production of detailed financial information for review by the Board on a monthly basis.

The financial record of CDT is set out in Appendix I.

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10.0. Illustrative Projections

At this stage of the company, it is difficult to determine the rate at which CDT might penetrate its chosen markets. The following illustrative projections therefore can only provide an indication of the possible size and timing of CDT's business potential.

Projected shipment value of products incorporating CDT's LEP technology is shown below:

(Amounts in \$m)	<u>1994/5</u>	1995/6	1996/7	<u>1997/8</u>	<u>1998/9</u>	<u>1999/0</u>	2000/1	<u>2001/2</u>
Licensed Product Sales	0.00	0.00	0.50	20.83	60.88	197.87	443.61	600.95
CDT Product Sales	0.00	0.15	1.78	4.21	21.62	55.39	105.80	148.08
Total LEP Sales	0.00	0.15	2.28	25.04	82.51	253.26	549.41	749.03
-								
Total Available Market \$bn		22.60	24.63	26.85	29.27	31.90	34.77	37.90
Market Share		0.00%	0.01%	0.09%	0.28%	0.79%	1.58%	1.98%
Direct Sales % of Total		100%	78%	17%	26%	22%	19%	20%

First shipments are targeted for 1996 and illustrative shipment values are projected to increase significantly in 1999 with first graphics displays shipments. The total available market shown above represents the Electronic Displays Market, (see Section 3.1.) with overall growth projected at 9% per annum.

In this illustration, most shipments would be made under licence by CDT's proposed applications partners. CDT's revenues would therefore consist of licence income and CDT's direct product revenues. Projected income from licensees consists of one-time licences and royalties (projected at 2%) on licensed product revenues.

The balance between licensed and direct product shipments, and between one-time licence payments and royalties, are target assumptions in CDT's illustrative revenues shown below:

(Amounts in £000's)	<u>1994/5</u>	<u>1995/6</u>	<u>1996/7</u>	<u>1997/8</u>	<u>1998/9</u>	<u>1999/0</u>	2000/1	2001/2
Licence Fees		333	338	1374	1395	2124	2875	3649
Royalty Income		0	6	286	849	2802	6379	8773
Product Revenue		100	1205	2894	15084	39228	76069	108089
Total Revenues	0	433	1549	4554	17328	44154	85323	120511

CDT has set a target of achieving first revenues by mid-1996 and first product revenues by the end of 1996. First revenues are targeted to be earned as a one-time payment under a licensing arrangement. The gross margin on CDT's product sales is projected at 20% in 1996/7 and 25% thereafter. This relatively low margin rate reflects the strategy of having others manufacturing LEP products under licence or joint venture arrangements.

The projected build-up in the average number of employees is shown on the following page:

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Ave. Number of Employees:	<u>1994/5</u>	<u>1995/6</u>	<u>1996/7</u>	<u>1997/8</u>	<u>1998/9</u>	<u>1999/0</u>	2000/1	2001/2
Development	6	17	38	52	73	90	113	128
Marketing	1	3	5	8	12	15	18	20
Management	2	4	4	4	4	4	4	4
Administration	1	3	5	6	7	8	9	10
Total	9	28	52	70	95	117	144	162

The largest functional group will be development, which will include manufacturing engineering and applications design staff. Marketing will consist of applications management, with P&L and market development responsibility, and market analysis and promotions staff. Administration will consist of small personnel, finance and administration sections and a licensing function.

Illustrative margins, costs and trading profits are shown below:

(Amounts in £000's)	<u>1994/5</u>	<u>1995/6</u>	<u>1996/7</u>	<u>1997/8</u>	<u>1998/9</u>	<u>1999/0</u>	2000/1	<u>2001/2</u>
<u>Gross Margin</u>	0	348	585	2384	6015	14733	28272	39445
Development	489	1429	2974	4501	6006	7562	9550	11238
Marketing	108	307	551	927	1426	1853	2379	2732
G &A	310	719	807	923	1019	1148	1324	1468
<u>Total Op. Expense</u>	907	2455	4332	6351	8451	10563	13253	15438
Operating Profit	-907	-2107	-3747	-3967	-2436	4170	15019	24007
Interest	0	44	96	112	69	-12	-196	-193
Pre-Tax Profit	-907	-2063	-3651	-3855	-2367	4158	14823	23814
Taxes	0	0	0	0	0	0	-2115	-8930
Net Income	-907	-2063	-3651	-3855	-2367	4158	12708	14884

In this illustration, CDT is projected to move to profitability once graphics display shipments, projected for 1999, can be made. Operating costs to that point are primarily incurred on development activities. Cash requirements are shown below:

(Amounts in £000's)	<u>1995/6</u>	<u>1996/7</u>	<u>1997/8</u>	<u>1998/9</u>	<u>1999/0</u>	2000/1	2001/2
Total Receipts	404	1247	3984	13804	37368	75940	116564
Payments:							
Employee Costs	1391	2271	3318	4677	6137	8119	9581
Other Payments	1882	3741	5835	16205	37898	71196	101003
Taxes on Income	0	0	0	0	0	0	2115
Total Payments	3273	6012	9153	20882	44035	79315	112699
Net Operational Cash	-2869	-4765	-5169	-7078	-6667	-3375	3865

In this illustration, CDT is projected to require cash until 2001/2. Operating losses are projected until 1999/0, and until 2001, financing is required to fund working capital growth resulting from the direct sales business. By this stage, license income streams would have built up and direct product sales growth moderated to a self financing level of around 40% per annum. Manufacturing investment is not included in these projections because of the strategy of manufacturing in partnership (licensed or joint venture) with others. Debt financing, secured on debtors, is projected to be possible from 1999.

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11.0. Personnel

The Directors of CDT and Key Staff are as follows:

11.1. The Executive Directors

Mr Ralph Forster (50), Chief Operating Officer, joined CDT in July 1994 as Commercial Director and is presently CDT's Chief Operating Officer pending the recruitment of a full time CEO. Mr Forster trained in finance with Metal Box Ltd. In 1966, he joined the USA General Electric Company, working initially in the UK and then internationally in their Corporate Audit Staff. In 1973, he joined Honeywell in the UK and held several financial management positions before being appointed Chief Financial Officer in 1981. In 1989, he joined Anamartic, a venture capital backed early stage semiconductor company as Operations Director. He joined Granada Computer Services in 1991, as part of a restructuring team and most recently has been operating his own company providing financial services to developing businesses.

Dr Paul May (35), Technical Director, joined the company as its first employee and Technical Director in March 1994 to set up and manage the development team, facilities and work programme. A physicist by early training (MA Cantab 1981, PhD Imperial College, London) he has spent most of the last 10 years in product development. From 1986 to 1990, he was a senior researcher at IBM Research, Yorktown Heights, where he managed inorganic semiconductor optoelectronic projects including laser diode development. He returned to the UK in 1990 to help set up a new research facility for Sharp, where he was a senior manager responsible for several projects including one on liquid crystal displays.

11.2. Non-Executive Directors

Dr. ER Howells, Chairman

Eric Howells was educated at Cambridge, gaining a PhD in crystallography in 1953. He joined ICI in 1953 where he held a number of research management positions. In 1984, he was appointed Director of the University of Durham Industrial Research Laboratory. He moved to the University of Cambridge in 1988 as Director of Industrial Cooperation and was a founding director of CDT.

Mrs. JM Womack

Joanna Womack graduated from New Hall, Cambridge in 1969 with a First Class Degree in Law. She qualified as a solicitor and worked in the City of London, specialising in the company and commercial areas, until returning to Cambridge in 1975 to teach law. She became Bursar of New Hall in 1983, Bursar and Steward of Trinity Hall in 1990 and was appointed Treasurer of the University in 1993. Mrs. Womack was nominated by the Class C shareholders joined the Board of CDT in July 1993.

Mr. CA Smart

Chris Smart graduated from Natal University in 1976 with a Degree in Electrical Engineering and gained a Masters in Physics in 1980. He joined Altech Group in 1980 and held several development positions until appointed manager of a business unit in 1986. In 1989, Mr Smart joined Cambridge Capital Management and Cambridge Research and Innovation as Director with responsibility for investments. Mr Smart was a founding director of CDT, being nominated by the Class A shareholders.

Dr. RH Friend, FRS

Richard Friend graduated from Trinity College Cambridge in 1974 with a First Class Degree in Theoretical Physics and gained his PhD in 1979. He has been a Fellow of St John's College, Cambridge since 1977, and on the Faculty in the Cavendish Laboratory since 1980, where he is currently Reader in Physics. He takes up the Cavendish Professorship of Physics in October 1995. Dr Friend has been involved in the research and development of polymer based light-emitting diodes, and is one of the founding directors of CDT having been nominated by the Class B shareholders.

Dr. AB Holmes

Andrew Holmes, Msc (Melbourne), PhD (London), MA (Cambridge) is Director of the Melville Laboratory for Polymer Synthesis in the University of Cambridge and a fellow of Clare College. Dr Holmes is one of the team that discovered polymer based light emitting diodes and has research expertise in organic and polymer synthesis, and the design of novel materials for polymer LED's. He is a Director of the Cambridge Quantum Fund. Dr Holmes is the alternate Director for Dr Friend.

11.3. Key Staff

Dr. K Pichler (31), Head of Device Engineering

Karl Pichler graduated in 1990 from Graz University, Austria with a Masters in Physics. He then worked on the photophysical and transport properties of organic semiconductors at Cambridge University's Cavendish Laboratory gaining his PhD in 1994. Dr Pichler was one of CDT's first employees joining in March 1994 as Head of Device Engineering

Dr. CR Towns (30), Head of Chemistry

Carl Towns graduated from Lancaster University in 1985 with a First Class Degree in Chemistry and in 1989 was awarded his PhD. Dr. Towns conducted post doctoral research at Reading and Liverpool Universities before joining Smith and Nephew Group Research as a Research Chemist.

Dr. JJ Cooper (34), Head of Manufacturing Development

Jonathan Cooper graduated from the University of Bradford in 1982 with a degree in Materials Science and Technology and was awarded his PhD in 1989. In 1985 he joined ICI as a research scientist, was appointed Technical Manager, ICI Films in 1989 and seconded to Zeneca Bioproducts.

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Mr MS Gostick (32), Manager Business Development

Mark Gostick graduated from the University of Southampton in 1984 with a First Class Degree in Mechanical Engineering. After leaving ICI in 1986, he became involved with disk technologies, establishing CD manufacturing facilities and designing CD manufacturing equipment and marketing optical disk systems. In 1991 he gained a two year studentship through the RW Wright scheme which included placements with the Cambridge Quantum Investment Fund. Since 1993, Mr Gostick has been involved with plans to exploit LEP.

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12.0. Intellectual Property Rights

12.1. Current Patents Status

A first patent was applied for in the UK during 1989 and was subsequently filed in 7 other territories including Europe, the USA, Japan and Korea. This first patent has granted in Australia in 1992, in the USA in 1993, and in Europe in 1995. The second and third patents have also granted in the USA. The Company has a further nine patents at various stages of prosecution. A further 10 patents are expected to be filed during first calendar quarter 1995. The policy on coverage is to file in the UK first, then via PCT nominating Europe, the USA, Japan, and South Korea. Countries designated in the European National Phase are the UK, Germany and France. A listing of CDT's patents is shown in Appendix II

As expected, LEP technology is increasingly being researched by others and one aspect of this is an increase in patent activity. Through regular monitoring, CDT is aware of some patent filings which make claims which could be considered to overlap those in CDT's first, earlier priority, granted patent. The Board, after taking specific advice from CDT's patent agents, believes that others would require to seek a licence to CDT's first granted patent. This gives CDT a strong commercial position and in addition, CDT plans to take all necessary steps to reverse or mitigate any effects of these claims.

12.2. IPR Strategy

The objective is to enhance the value of CDT by developing and exploiting LEP technology whilst taking all reasonable steps to protect the IPR. CDT intends to concentrate on the development of LEP specific know-how and continually develop the technology from the materials through to applications and manufacturing levels. The technological lead will be protected and value enhanced by a combination of the factors shown below:

- Patent, trade secrets and copyright protection
- The accumulated knowledge of CDT staff
- The interlocking nature of the materials, LEP sheet, applications specific techniques, manufacturing and test elements
- Strategic and other partnerships and alliances with others providing access to core markets segments
- The encouragement of others to use CDT's technology in non-core applications by offering reasonably priced licenses with design and applications support

The combination of these actions potentially offers both a protective and proactive approach to the management of IPR.

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13.0. Risk Factors

There are a number of risks associated with an investment in CDT. These include technology risk, commercialisation risks, competitive threat and time to market risk.

The technology has yet to be proven in commercial form. Performance of devices has yet to be characterised and demonstrated in product form and many of the technology's potential benefits remain to be realised. Manufacturing has yet to be implemented on a commercial scale.

Patents might be obtained by others which CDT might require to license in order to exploit the technology.

Several other groups are working in the area of LEP's and may establish a marketing or technological lead over CDT. In addition, existing technologies and other new technologies may establish leadership in CDT's chosen core market segments.

The Company's exploitation plans rely to a large extent on creating an appetite for the technology and entering into long term cooperative relationships with large companies. No such relationships have yet been entered into.

It is possible that it will take longer than currently projected in this plan to develop products using the technology. The effect of this could be that market requirements and/or competitors change or meet future market requirements and reduce or eliminate the potential for LEP's as presently seen and projected in this plan.

Success in raising finance may not be guaranteed and additional finance is necessary to implement the current plan. In addition. CDT is presently dependent on the continuing service of a few key individuals.

It is intended to manage these and the other risks inherent in a new company with a new technology, such as CDT with LEP's, by the recruitment, motivation and retention of first class management and technical teams, the setting of challenging goals and rigorous monitoring of progress.

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14.0. Why invest in CDT?

CDT offers an attractive opportunity to participate from an early stage in the development of a new business based on a new technology of global potential.

The market for large area high pixel count flat panel graphics displays is growing and will continue to grow as technologies enable more needs to be met. CDT believes that its LEP technology offers an opportunity to capture a significant share of this market by focusing on those applications which best match the technologies strengths.

The risk to Seed Round investors has been reduced with the granting of early patents, the recruitment of a technical team and the demonstration of operating lifetime of over 1,000 hrs.

The next phase in the development of CDT for which funds are now sought, involves establishing commercial partnerships, developing and bringing the first product to market, and developing and demonstrating full colour graphics display capabilities.

In summary. the Board believes that CDT has the potential to establish a significant business based on LEP technology over the next five years. During this period, CDT plans to establish LEP as the technology of choice for flat panel displays and to establish CDT as the partner of choice for those companies wishing to introduce LEP products. Over this five year period, the value of CDT is expected to increase significantly as the technology is developed, commercial relationships established and product and license revenues come on stream. It is possible that an Initial Public Offering of shares could be made at an appropriate stage during the second half of this period.

Very significant growth could be in prospect from 1999, when first graphics display products are planned. This would provide a further acceleration in revenues and profits and could lead to a further period of significant growth in the value of CDT.

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Appendix I - CDT's Financial Record

PROFIT AND LOSS ACCOUNT for the year ended 30 June 1994	Year ended 30-Jun 1994	Year ended 30-Jun 1993 <i>f</i>
Operating Costs	255,173	191,383
OPERATING LOSS Interest receivable Interest payable to related undertaking LOSS ON ORDINARY ACTIVITIES BEFORE TAX Tax on loss on ordinary activities LOSS ON ORDINARY ACTIVITIES AFTER TAX AND RETAINED FOR THE PERIOD	-255,173 34,095 -6,401 -227,479 140	-191,383 560 0 -190,823 -140
MAD ALIMITALD FOR THE FERIOD		170,703
BALANCE SHEET at 30 June		
FIXED ASSETS	1994	1993
Intangible assets Tangible assets	83,295 44,406	111,060 0
CURRENT ASSETS	127,701	111,060
Debtors Cash at bank and in hand	15,578 770,064 785,642	22,607 20,634 43,241
CREDITORS: amounts falling due within one year NET CURRENT ASSETS/(LIABILITIES)	221,937 563,705	234,264
TOTAL ASSETS LESS CURRENT LIABILITIES	691,406	-79,963
CAPITAL AND RESERVES		
Called up share capital	1,539	1,110
Share premium account	1,108,169	109,890
Profit and loss account	-418,302	-190,963
	691,406	-79,963

The results shown above are extracted from CDT's audited accounts, full copies of which are available for inspection at CDT's offices as part of the Rights Issue documentation.

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Appendix II - CDT's Patents

Title/UK No. / <u>Filing Date</u> EL Devices 8909011.2 20/4/89	<u>Countries</u> UK Europe Australia Brazil Canada Finland Japan S Korea USA	Status In EPO Granted Granted Filed Filed Filed Filed Filed Granted	Summary EL device comprising semiconductor layer in the form of thin dense polymer film, with at least one conjugated polymer, in contact on each side with contact layers, and emitting radiation under applied electric field.
Tuning 9018698.2 24/8/90	UK Europe Australia Brazil Canada Finland Japan S Korea S. Union USA	In EPO Filed Filed Filed Filed Filed Filed Filed Filed Granted	Semiconductive conjugated copolymer comprising two or more chemically different monomer units with, in homopolymer forms, different bandgaps, the proportions of the monomer units having been selected to control the optical properties of the copolymer, the whole being thermally stable.
Patterning 9018698.2 24/8/90	UK Europe Australia Brazil Canada Finland Japan S Korea S. Union USA	In EPO Filed Filed Filed Filed Filed Filed Filed Filed Granted	A method of forming in a conjugated polymer at least first and second regions having different optical properties by forming a layer of precursor polymer and allowing the first region to come into contact with a reactant and heat, but the second region only with a lower concentration of the reactant.
Multiple Layers 9215929.2 27/7/92	UK PCT	In PCT Filed	EL devices fabricated with several layers of conjugated polymers arranged so that light emission occurs in two or more of these layers.
Manufacture of EL Devices 9215928.4 27/7/92	UK PCT	In PCT Filed	Methods for protection of semiconductive conjugated layers from mobile ions released by charge carrier injecting layers by use of barrier layers.

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Appendix II - CDT's Patents Cont'd

Title/UK No. / <u>Filing Date</u> Blue Light 9226475.3 18/12/92	<u>Countries</u> UK PCT	<u>Status</u> In PCT Filed	Summary Emissive layers in EL devices comprising a processible polmer matrix and a chromophoric component. The chromophore is blended with or covalently attached to the matrix and selected to emit blue light.
Stacked Devices 9317932.3 26/8/93	UK PCT	In PCT Filed	An electroluminescent device whereby first and second light emitting layers are in viewing overlap and the electrode arrangement comprises two sets of electrodes which can be operated independently.
Nitrile Polymers 9323004.3 5/11/93	UK PCT	In PCT Filed	Semiconductive conjugated polymer materials for use in optical devices where an electron withdrawing group is conjugatively linked to the polymer main chain. The effect is to enhance efficiencies of the materials if they are used in EL devices.
Polymers in Photodetectors 08305848 USA 14/11/94	USA	Filed	Not yet published
Photorespon- sive Material 9424894.5 9/12/94	UK	Filed	Not yet published
Polymers for use in LED's 23/12/94	UK	Filed	Not yet published
Electrooptic Modulation 0294061 Acquired in 1992	UK Europe Japan USA	Granted Granted Filed Filed	A device for electrooptic modulation of an optical beam comprising a film of congugated polymer with two or more layers each consisting of electrically conducting, insulating or semiconducting materials.

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Appendix III - Competition - Technologies and Companies

Technologies

There are a number of other flat panel display technologies such as Liquid Crystal Displays (LCD), Plasma, Inorganic Electroluminescence (IEL) and Field Emitter Displays (FED). LEP offers several potential advantages over these other technologies. These potential advantages include low cost (compared with Plasma and Active LCD) wide viewing angle (limited for LCD), and large area capability, robustness, and thin and lightweight form.

In addition, LEP is presently a very young technology with potential to be realised. LCD, the dominant flat panel technology, has benefitted from 20 years development and substantial investment. However, LEP can potentially build on the driver and addressing schemes developed for existing display technologies and thin film and other relevant manufacturing techniques, to reduce the time to maturity.

A comparison of LEP with some competing technologies is shown below. The basis for the relative capabilities is CDT's technical judgement of other technologies' potential compared with that projected for LEP.

	Display Quality	Info. <u>Conteni</u>	Resolu:	Light <u>Thin</u>	Large <u>Size</u>	Color	Gray Scale	Resp- onse	Voltage	Current	Effici-	Cos
CRT		•	•	x	Δ	•	•	•	х	0	•	
Flat CRT		•	•	X	X	•	•	•	х	Δ	•	Δ
VFD	٠	Δ	0	Δ	x	0	•		Δ	Δ	0	Δ
Plasma	۰	•	Δ	•	•		•	•	х	х	Δ	Δ
EL		Δ	•	•	Δ	0	•	•	x	Δ	Δ	Δ
Pas Matrix LCD	0	0	•		0		Δ	Δ	٠	٠	٠	•
Act Matrix LCD	•	•	•	•	х	٠	•	0	•	•	٠	Х
FED	•	•	•	•	x	0	0	٠	0	0	0	Δ
LEP Projected	٠	٠	•	•	٠	٠	0	۰	٠	Δ	0	•

• Excellent o Good \triangle Marginal x Poor

Competing technologies are discussed further in following paragraphs.

Liquid Crystal Displays (LCD)

Shuttering technology requiring backlight or ambient light, colour is typically determined by filters. Display size is limited to approximately 20"diagonal and the viewing angle is narrow. Response times are relatively slow and manufacturing costs are high for high resolution active matrix thin film transistor displays. Power requirements depend on the required perceived brightness. Significant development and manufacturing resources are being applied to extend this technology to it's maximum potential.

Appendix III - Competition - Technologies (cont'd)

Cathode Ray Tube (CRT)

Very mature and cheap technology with excellent resolution. Extremely bulky, with display size limited to approximately 40" diagonal.

Light Emitting Diodes (LED)

Efficiencies are high in red, low in yellow/green and satisfactory in the recently introduced blue. Excellent brightness and lifetimes. Manufacturing and packaging well understood but complex and therefore somewhat expensive. Array configuration required for large areas. LED is inappropriate for high resolution applications.

Inorganic Electroluminescence (IEL)

Light emitting technology with low brightness for reasonable lifetimes. Requires high power consumption and added complexity in electronics as AC required. Size not limited but low resolution and no dynamic patterning capability.

Vacuum Fluorescent Display (VFD)

Mature technology used mainly in alphanumeric applications. Good brightness and viewing angle but expensive and requires high voltage. Can be scaled up but limited scale down and hence resolution. Bulky and fragile.

Electroluminescent Plasma Panel Displays (PDP)

Large area (40" diagonal) plasma flat panel displays have now been produced in prototype by several companies including Fujitsu and Matsushita. Current displays are relatively low brightness, but the major potential drawback is cost with the manufacturing process being of high complexity.

Field Emitter Displays (FED)

Currently being developed. 6" diagonal RGB prototypes are of relatively low brightness and uniformity, but it is a rapidly advancing technology. Manufacturing constraints make it unlikely ever to satisfy large area requirements.

Sublimed Molecular Films

An electroluminescent material similar to LEP's but based on molecular materials. A more mature technology than LEP's with similar application areas. However, materials need to be evaporated and achieving the strict uniformity requirements over a large area may prove difficult.

AC Thin film Electroluminescence (ACTFEL)

A solid state technology based on sublimed films. It has excellent contrast and because ACTFEL displays are rugged, it has found applications in military and industrial markets. It suffers from poor brightness in RGB applications, may not be scalable above 14", and requires high voltage drivers.

Appendix III - Competition (Cont'd)

Companies

One company, Uniax Inc., of Santa Barbara, USA has announced its intention to move from funded research to a strategy of commercial exploitation of LEP technology. Other companies known to CDT to be active in the research into LEP include Philips, Hoechst and Thomson CSF, who are in a three year EC grant-funded programme, Hewlett Packard, Motorola, AT&T and Sumitomo. A complete list of companies known by CDT to be engaged in LEP work is shown below.

> <u>Europe</u> Bayer, Germany Bosch, Germany Hoechst, Germany Philips, the Netherlands Thomson, France

<u>Japan</u> Idemitsu Kosan Mitsubishi Pioneer Sumitomo

<u>USA</u> AT&T Hewlett Packard IBM Motorola Polaroid Uniax

Other than Uniax and possibly Polaroid, these companies are believed by CDT to be undertaking background research, largely focused on establishing a basic capability or a watching brief on a new technology area.



FFI N. ALARA

Facsimile Cover Sheet

To: Dr. Alfred Bader

Company

Phone.

Hax:

From: Inge Ferosie

Company: Cambridge Chemical, Inc. Phone: (414) 251-5044 Fax: (414) 251-5577

Date: 09/20,95 Pages including this cover page: 2

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Michael Majohrzak gave me the delightful news that you and Mrs. Bader will be visiting Campridge on October 11. We are located in the Germantown industrial park and are easy to find. Simply travel west on I-54 and take the north exit on Hwy 45 Travel north (approximately 15 miles) and exit on East 167 (Lannon/Mequon Ros) The first road on the left is Maple Road (which is a partially under construction) Turn left into Mequon Road and then into McCormick - Weikle (coeffold) in ellowher of McCormick and Edison Drive.

Needless to say, we are looking forward to your visit and are happy to be able to welcome you to our fine little place.







Dr. Alfred Bader 2961 North Shepard Avenue Milwaukee, Wisconsin 53211

March 14, 1995

Mr. Ralph Forster Chief Operating Officer Cambridge Display Technology Ltd. 181 a Huntingdon Road Cambridge CB3 0DJ England

Dear Mr. Forster:

Naturally, I have studied the material you sent very carefully.

I am concerned by the fact that you have not yet appointed a CEO; that your capital structure with so many different classes of stock, is very complicated; and that you do not expect to break even for quite a while.

Hence, I have had to decide not to consider investing in your company; of course, I will keep the material which you sent me confidential.

Incidentally, have you seen the interesting article on related work in the March 6th issue of C&E News, copy enclosed?

With all good wishes and best regards to you and Andy Holmes, I remain,

Yours sincerely, '

AB/cw

Enclosures



CDT

CAMBRIDGE DISPLAY

181a Huntingdon Road Cambridge CB3 0DJ United Kingdom Tel + 44 (0) 1223 276351 Fax + 44 (0) 1223 276402

20 February, 1995

Dr. Alfred Bader 2961 North Shepard Avenue Milwaulkee Wisconsin 53211 U.S.A.

Dear Dr. Bader,

As requested, we enclose a copy of the Notice of Annual General Meeting and accompanying Business Plan ("Documents") of Cambridge Display Technology Limited (the "Company") for your consideration. Pursuant to the provisions of the United States securities laws and the securities laws of the State of Wisconsin, it is incumbent upon us to notify you of a number of matters relating to the Company and your possible purchase of some of the Company's ordinary shares, of a class to be determined ("Shares"). Neither the Documents nor this letter constitutes an offer to sell, or the solicitation of an offer to purchase, any Shares.

Kindly acknowledge the matters set out below by signing, dating and returning to the undersigned the enclosed copy of this letter. If you decide to purchase any Shares, you will be required to execute a subscription agreement with the Company that will, among other matters, confirm the substance of the matters set out in Sections 2 to 7 below:

- 1. The Documents comprise proprietary and confidential information of the Company. The Company requires you to keep the content of the Documents confidential, although that you may disclose the Documents to such of your advisors and employees who need to review them to assist you in evaluating a possible purchase of the Shares. At the Company's request, (or in the event that you decide not to proceed with a purchase of the Shares within 3 months of today's date), you will be required to redeliver to the Company the Documents and any other written material later provided to you by the Company. You may not make copies of the Documents without the Company's prior written consent and any memoranda or notes which you prepare in relation to the Documents must be destroyed at the same time as you return the Documents to us.
- 2. The Shares have not been and will not be registered under the United States Securities Act of 1933 (the "Securities Act") or the securities laws of any State of the United States.
- 3. In making your investment decision as to whether to purchase any Shares you will have access to such financial and other information concerning the Company and the Shares as is contained in the Documents and or otherwise publicly available and you will have an opportunity to ask questions and request information from the Company, its officers and directors.
- 4. If you decide to purchase any Shares, you will acquire them for your own account, for investment purposes only, and not with a view towards, or for sale in connection with, any distribution of the Shares or any part thereof, and you will agree not to offer, sell, pledge or otherwise transfer any of the Shares, or any interest therein, except in compliance with the Articles of Association of the Company and the registration requirements of the Securities Act

Registered Office 13 Station Road, Cambridge CB1 2JB Registered in England No: 2672530



or pursuant to an exemption therefrom, and in each case in compliance with all applicable state securities laws.

- 5. You are an investor experienced in the evalution of businesses similar to the Company and have such knowledge and experience in financial and business matters as to be capable of evaluating the merits and risks of such investments. You are able to bear the economic risk of such an investment, and at the present time are able to bear a complete loss of such investment.
- 6. You are an "accredited investor" within the meaning of Rule 501 promulgated under the Securities Act.
- 7. You acknowledge that the certificate representing any Shares you may purchase will bear a legend substantially to the following effect:

THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED EXCEPT (A) PURSUANT TO A REGISTRATION STATEMENT WHICH HAS BEEN DECLARED EFFECTIVE UNDER THE SECURITIES ACT OR (B) TO A NON-U.S. PERSON IN ACCORDANCE WITH REGULATION S UNDER THE SECURITIES ACT OR (C) IN THE OPINION OF COUNSEL, IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER OF THE SECURITIES, IN CONNECTION WITH AN OFFER, SALE, PLEDGE OR TRANSFER THAT DOES NOT VIOLATE THE PROVISIONS OF THE SECURITIES ACT OR ANY STATE SECURITIES LAWS. ALL OFFERS, SALES, PLEDGES OR OTHER TRANSFERS OF THE SECURITIES REPRESENTED HEREBY PURSUANT TO THE FOREGOING CLAUSE (B) ARE SUBJECT TO THE ISSUER'S RIGHT PRIOR THERETO TO OBTAIN AN OPINION OF COUNSEL SATISFACTORY TO THE ISSUER.

Yours sincerely.

Ralph Forster Chief Operating Officer



THIS DOCUMENT IS IMPORTANT AND REQUIRES YOUR IMMEDIATE ATTENTION. If you are in any doubt about the action to be taken you should consult your stockbroker, bank manager, solicitor, accountant or other professional adviser authorised pursuant to the Financial Services Act 1986 immediately.

If you have sold all your Shares in Cambridge Display Technology Limited, please hand this document to the purchaser or the person through whom you made the sale for transmission to the purchaser.

This document does not constitute a prospectus issued by the Company and has not been delivered for registration to the Registrar of Companies in England and Wales.

No application has been made nor is there any present intention to apply for any of the share capital of the Company to be listed or dealt in on any recognised investment exchange. Your attention is drawn to the section entitled "Risk Factors" on page 9.

CAMBRIDGE DISPLAY TECHNOLOGY LIMITED

NOTICE OF ANNUAL GENERAL MEETING

PROPOSED RIGHTS ISSUE OF UP TO 39,500 NEW A SHARES, 40,000 NEW B SHARES, 47,865 NEW C SHARES AND 32,777 NEW D SHARES AT £28.20 PER SHARE

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The procedure for acceptance and payment is set out on page 12. The latest time and date for payment is 3.00 pm on 31 March 1995.



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EXPECTED TIMETABLE OF EVENTS

Record date for the Issue

Latest time and date for receipt of forms of proxy

Annual general meeting of the Company Provisional allotment letters despatched

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Latest time and date for acceptance and payment

Definitive share certificates despatched

13 January 1995 12.30 pm on 8 February 1995

12.30 pm on 10 February 199510 February 19953.00 pm on 31 March 1995

4 April 1995



DEFINITIONS

The following definitions apply throughout this document unless the context requires otherwise:

· · ·

"CDT" or the "Company"	Cambridge Display Technology Limited
"Directors"	the directors of the Company whose names are set out on page 5 of this document
"Business Plan"	the business plan relating to the Company dated 11 January 1995 and enclosed with this document
"A Shares"	"A" ordinary shares of 1p each in the capital of the Company
"B Shares"	"B" ordinary shares of 1p each in the capital of the Company
"C Shares"	"C" ordinary shares of 1p each in the capital of the Company
"D Shares"	"D" ordinary shares of 1p each in the capital of the Company
"annual general meeting"	the annual general meeting of the Company to be held at 12.30 pm on 10 February 1995, notice of which is set out on pages 20 and 21 of this document
"Issue"	the proposed issue of Rights Shares by way of rights to Qualifying Shareholders described in this document
"Issue Price"	£28.20 per Rights Share
"LEP"	light emitting polymer
"Overseas Shareholders"	holders of Shares who are resident in, or citizens of, countries other than the United Kingdom
"Provisional Allotment Letter"	the provisional allotment letter in respect of Rights Shares
"Qualifying Shareholders"	holders of Shares on the register at the close of business on the Record Date, other than Overseas Shareholders
"Record Date"	13 January 1995



"Rights Shares"

"Share Option Scheme"

"Shares"

39,500 new A Shares, 40,000 new B Shares, 47,865 new C Shares and 32,777 new D Shares proposed to be issued by the Company pursuant to the Issue

the proposed Cambridge Display Technology Limited 1995 Share Option Scheme

A Shares, B Shares, C Shares and D Shares


PART I

CAMBRIDGE DISPLAY TECHNOLOGY LIMITED (Registered in England no. 2672530)

Directors:

Dr E R Howells (Chairman - Non-Executive) Mr R N Forster (Chief Operating Officer) Dr R H Friend, FRS (Non-Executive) Dr P G May (Technical Director) Mr C A Smart (Non-Executive) Mrs J M Womack (Non-Executive) **Registered Office:**

13 Station Road Cambridge CB1 2JB

13 January 1995

To holders of A Shares, B Shares, C Shares and D Shares

Dear Shareholder

Proposed one for one rights issue at £28.20 per share

Introduction

It was announced today that CDT is proposing to raise approximately £4.5 million by means of a rights issue of up to 160,142 new Shares at £28.20 per share. The Issue will be made on the basis of 1 Rights Share for every 1 share held at the close of business on 13 January 1995. Qualifying Shareholders will be entitled to Rights Shares of the same class as their shareholdings on the Record Date. The Issue is not underwritten.

The Issue is conditional upon the passing of the requisite resolution at the 1995 annual general meeting of the Company to be held at 12.30 pm on 10 February 1995. I am writing to you to provide you with details of the Issue and to seek your approval for the resolutions to be proposed at the annual general meeting. I enclose a business plan prepared by CDT which provides further information about CDT, its activities and prospects and a copy of the Company's annual financial statements for the financial year to 30 June 1994.

Current status of CDT

Based on the support of investors in the seed finance round in July 1993, CDT has established its own development team and laboratory facilities, recruited other personnel and secured a first commercial agreement. In addition, the filing of new patents and early patents moving to grant have also added to the value of CDT.



More specifically, progress has been made as follows:

<u>Organisational</u>

- Core development team recruited and laboratory facilities established at Huntingdon Road, Cambridge in April 1994. The development team is now 7 strong.
- Management team appointed comprising Ralph Forster Chief Operating Officer, Paul May - Technical Director and Mark Gostick - Business Development.
- An independent Chairman with a relevant commercial record has been identified and a formal appointment is expected to be made during February 1995.
- A Chief Executive is currently being recruited.

<u>Technical</u>

- Standard light emitting polymer materials routinely produced to consistent quality using continuous dialysis process.
- Scale-up methodology identified for materials production.
- Low temperature conversion process established for flexible (polyester) substrates.
- Devices fabricated using a laboratory scale process in normal atmosphere.
- Device test facilities established and performance analysis of devices undertaken.
- Electrode materials and deposition procedures defined.
- Encapsulation procedures defined.
- Green and red bi-layer devices fabricated and tested.
- Operating lifetime of over 1000 hours has been demonstrated.

In addition, CDT continues to benefit from Cambridge University research on LEP with which the Company retains strong links. Dr Richard Friend has been elected as the next Cavendish Professor of Physics and Dr Andrew Holmes, who acts as alternate director for Dr Richard Friend in Dr Friend's occasional absence and who maintains strong links with CDT, is now director of the University Melville Laboratory for Polymer Synthesis. These honours have provided further awareness of the strength of CDT's science base.

Patents

- 5 new patents filed since seed round.
- Main patent granted in the USA, Europe and Australia.



• Second and third patents granted in the USA.

Commercial

- Commercial agreement signed with StanTech Inc., a USA company, for the joint development of devices for safety lighting applications.
- Encouraging meetings being held with other potential partners.
- Acquired the share capital of Advanced Displays Limited together with additional finance of £200,000.

The Board considers the progress made to be entirely satisfactory at this stage; it is especially important that the technical team has met their first major milestone of demonstrating operating lifetime of over 1,000 hours. This lifetime, which is potentially suitable for several initial applications, has been achieved with devices fabricated using scaleable manufacturing processes. This achievement provides CDT with a platform for developing first products.

Business opportunities

LEP technology offers the potential of low cost light emitting devices, primarily flat panel displays, with full colour and very high resolution coupled with form factor capabilities such as large area, extreme aspect ratios and light weight.

Development undertaken to date has resulted in operating lifetime believed to be acceptable for targeted first products. A significant amount of work is required to implement the manufacturing process and to develop and introduce commercial devices. CDT has targeted the end of 1996 for the introduction to market of the first LEP products.

CDT has been granted a patent which it believes is the first in the field of LEP light emission technology and other patents covering aspects of the implementation of LEP technology.

CDT's objectives are to establish LEP as the technology of choice for flat panel graphics displays and to establish CDT as the partner of choice for companies seeking to implement LEP product solutions.

The business strategy is focused on strategic partnerships, alliances and joint ventures as means of leveraging CDT's technology and capabilities. By combining CDT's entrepreneurial drive and focus with larger companies' access to markets and product manufacturing capabilities, the technology can be established in markets faster than by CDT alone. In addition, CDT will be concerned with the full range of LEP technology, from materials science to applications, in order to optimise the applications solutions and to share in the maximum available added value.

The marketing strategy is to concentrate on applications where LEP offers clear advantages over existing technologies. LEP development will be prioritised, so that new and increasingly higher value applications can be addressed as the technology is developed to meet the Company's long term target market of large area high pixel count flat panel graphics displays. CDT's market analysis has suggested a range of potentially interesting initial and longer term product targets which are currently being progressed.



CDT is a young company with an immature technology of enormous potential. The market for large area high pixel count flat panel graphics displays is growing and will continue to grow as technologies enable more needs to be met. CDT believes that its LEP technology offers an opportunity to capture a significant share of this market by focusing on those applications which best match the technology's strengths.

Requirements for funding

The next phase in the development of CDT, for which funds are now sought, involves establishing commercial partnerships, developing and bringing the first product to market, and developing and demonstrating full colour graphics display capabilities. The Board plans to increase staff numbers from 10 to over 50 by mid 1997, and to grow aggregate annual capital and operating expenditure from £850,000 currently to over £6m in 1996/7 in order to achieve these next phase targets.

The Board is seeking to raise approximately £10m to provide funding for the next two years. It is planned to raise this amount through the Issue and subsequent offers to investors. CDT plans first to offer shares with a value of approximately £4.5m to shareholders via the rights issue. Subsequent financing rounds are planned to raise the balance by early 1996.

Based on current funding and investment plans, the Directors intend to apply at least 70% of CDT's aggregate operating and capital expenditures over the 1995/97 financial years to CDT's research and development of LEP technology and products.

The Directors expect that further equity issues beyond 1997 will be required to finance continuing expenditures on the development of the technology and the commercialisation of its product candidates. It is currently anticipated that future profits will be reinvested in CDT's business.

Principal terms of the Issue

Detailed information on the Issue, including the procedure for acceptance and payment, is set out in Part II.

Share Option Scheme

The Board are seeking shareholders' approval at the annual general meeting for the adoption of a new Share Option Scheme, pursuant to which the Board will be able to grant options to subscribe for D Shares to any employee of the Company, any of the Company's non-executive directors and any other person in the Board's absolute discretion. The Board may determine the exercise price of any option granted pursuant to the Share Option Scheme in its absolute discretion, subject to compliance with the rules of the scheme. The number of shares which may be issued on the exercise of options granted under the scheme is limited to 20% of the issued share capital of the Company. The Board's intention is to reduce the limit to 15% when the Company has raised £10m in aggregate of funds from new share issues after 1 January 1995. The Board have an absolute discretion to determine the number of shares over which any individual may apply for options, subject to compliance with the overall scheme limit.

The Board's present intention is to use the Share Option Scheme to grant options which will provide incentives for the Company's management and employees by enabling them to participate in the ownership of the Company.



Directors

On 21 November 1994, Mr Ralph Forster was appointed Chief Operating Officer of CDT and became a director.

As explained earlier in this letter, the Board expects to appoint a new non-executive Chairman during February 1995.

Risk factors

The Directors believe that the Company will provide shareholders with a profitable investment; however, shareholders should be aware that, as with any young company concerned with an immature technology yet to be proven in commercial form, there are risks involved. Your attention is particularly drawn to the following:

- Risk factors including technology risk, commercialisation risk, competitive threat and time to market risk are described in more detail in the Business Plan, and you should refer to section 13 of the Business Plan in this respect.
- The speed with which CDT can develop and bring a product to market depends in part upon CDT's ability to attract and retain suitably qualified personnel. CDT is presently dependant on the continuing service of a small number of key individuals.
- CDT is the owner of certain granted patents and has filed applications for further patents, details of which appear in the Business Plan. There is no assurance that patents applied for will be granted and rights embodied in granted patents may be challenged by others in the future. It is possible that others may obtain patents which cause CDT to require a licence in order to continue use or development of certain technology.
- CDT may not succeed in raising sufficient finance to implement its current plan.
- There is no recognised market for the Company's shares and accordingly it may be difficult to sell your shares.
- The value of investments may go down as well as up and the past is not necessarily a guide to CDT's future performance.
- The investment opportunity offered in this document may not be suitable for all recipients.

If shareholders are in any doubt about this Issue they are strongly recommended to consult an investment adviser authorised pursuant to the Financial Services Act 1986 who specialises in investments of this kind before making their decision to invest.

Annual general meeting

You will find set out at the end of this document notice of the 1995 annual general meeting of the Company to be held at the Dirac Room, Fisher Building, St John's College, St John's Street, Cambridge CB2 1TP at 12.30 pm on 10 February 1995.



At the annual general meeting, in addition to the ordinary business, a special resolution will be proposed to:

- (a) redesignate 780 existing unissued C Shares as D Shares;
- (b) increase the Company's authorised share capital from £1,611.45 to £5,091.00 by the creation of 347,955 new Shares;
- (c) authorise the directors to allot the entire authorised but unissued share capital of the Company; and,
- (d) disapply statutory rights of pre-emption in respect of the Company's entire authorised but unissued share capital.

An ordinary resolution will be proposed to adopt the Share Option Scheme and authorise the Directors to implement the scheme.

The Board proposes to increase the Company's authorised share capital to an amount in excess of that required for the Issue to maintain a margin of authorised but unissued share capital to preserve flexibility for the future and to enable the Directors to allot D Shares to new investors. Existing investors who wish to apply for more than their rights entitlement may approach the Board with such an application and, subject to the Board's approval, will be entitled to subscribe for further shares of the same class as their existing holding, if such shares remain available, and thereafter for D Shares.

New A Shares, B Shares and C Shares will only be allotted to existing holders of shares of those classes and not to other shareholders or new investors.

Action to be taken

A form of proxy for use by shareholders at the annual general meeting is enclosed with this document. Whether or not you propose to attend the meeting, you are requested to complete and return your form of proxy to the Company as soon as possible and, in any event, so as to arrive no later than 12.30 pm on 8 February 1995. The completion and return of the form of proxy will not preclude you from attending the meeting and voting in person should you so wish.

Provisional Allotment Letters

Subject to the passing of the resolution numbered 6 set out in the notice of annual general meeting, it is expected that Provisional Allotment Letters will be despatched to Qualifying Shareholders on 10 February 1994. The procedure for acceptance and payment is set out in Part II of this document.

Overseas Shareholders

Information for shareholders who have registered addresses outside the United Kingdom, or who are citizens or residents of countries other than the United Kingdom, appears in Part II of this document.

Taxation

If you are in any doubt as to your tax position, you should consult your independent professional adviser immediately.



Additional information

Your attention is drawn to the additional information set out in Part III of this document.

Recommendation

Your Directors consider that the Issue and the adoption of the Share Option Scheme are in the best interests of the Company. Accordingly, they unanimously recommend that you vote in favour of the resolutions to be proposed at the annual general meeting as those Directors who are shareholders intend to do in respect of their shareholdings.

Yours sincerely

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Dr ER Howells Chairman



PART II

DETAILS OF THE ISSUE

1 Terms of the Issue

Subject to the condition referred to in this paragraph, Qualifying Shareholders are being offered the opportunity to subscribe for Rights Shares at £28.20 per Rights Share on the basis of:

1 Rights Share for every 1 share held on 13 January 1995.

The allotment and issue of the Rights Shares will be made upon and subject to the terms and conditions set out in this document and in the relevant Provisional Allotment Letter and in the Company's memorandum and articles of association.

The Rights Shares will, when issued and fully paid, rank pari passu in all respects with Shares of the same class presently in issue.

The Issue is conditional upon the passing on 10 February 1995, without amendment, of the resolution numbered 6 contained in the notice of annual general meeting set out at the end of this document. The Issue may be withdrawn at any time by the Company giving notice to shareholders.

The Issue is not underwritten and it is emphasised that no application has been made nor is there any present intention to apply for any of the share capital of the Company to be listed or dealt in on any recognised investment exchange.

2 **Provisional Allotment Letters**

Subject to the passing of the resolution numbered 6 to be proposed at the annual general meeting, it is expected that Provisional Allotment Letters will be despatched to Qualifying Shareholders on 10 February 1995.

The Provisional Allotment Letters will set out the holding of existing Shares upon which the entitlement of a Qualifying Shareholder is based, the number of Rights Shares provisionally allotted to him and the procedure to be followed.

3 Procedure for acceptance and payment

A Qualifying Shareholder wishing to take up his entitlement, in whole or in part, must return the relevant Provisional Allotment Letter, together with a remittance for the amount payable on acceptance, in accordance with the instructions printed on the relevant Provisional Allotment Letter so as to arrive not later than 3.00 pm on 31 March 1995.

All payments must be in pounds sterling and must be made by cheque or bankers' draft payable to "Cambridge Display Technology Limited". The Company may elect not to treat as valid any acceptances in respect of which cheques are not honoured on first presentation. All enquiries in connection with Provisional Allotment Letters should be addressed to the Company Secretary, 13 Station Road, Cambridge CB1 2JB (tel: 0223 312856).



All documents and remittances will be sent to or by allottees at the risk of the person(s) entitled thereto.

4 Procedure in respect of rights not taken up

If payment in full for any of the Rights Shares provisionally allotted has not been received by 3.00 pm on 31 March 1995, the provisional allotment will be deemed to have been declined and will be cancelled. The Issue is not underwritten. The Company may, in its absolute discretion, allot and issue Rights Shares not taken up pursuant to the authorities to be conferred upon the Directors by the resolutions to be proposed at the annual general meeting. Any premium over the Issue Price obtained in such circumstances will not be paid to shareholders but will be retained for the benefit of the Company.

The Company shall not be responsible for any loss or alleged loss arising from any failure to procure any sale or subscription.

5 Overseas Shareholders

The making of the Issue to Overseas Shareholders may be affected by the laws of the relevant jurisdictions. Accordingly, the Issue is not being made to Overseas Shareholders and Overseas Shareholders receiving this document and/or a Provisional Allotment Letter in any territory other than the United Kingdom should not treat the same as constituting an invitation or offer to them, nor should they in any event use the Provisional Allotment Letter.

Notwithstanding the above, the Board may in its absolute discretion make available Provisional Allotment Letters to such Overseas Shareholders as the Board sees fit, having regard to applicable legislation in the relevant jurisdiction and to the interests of the Company.

6 United Kingdom taxation

If shareholders are in any doubt as to their tax position with regard to the Issue and their holding of Shares in the Company, they are strongly recommended to consult an independent professional tax adviser.

7 Timetable

The dates set out in the expected timetable of events on page 2 of this document, and mentioned throughout this document and the relevant Provisional Allotment Letter, may be adjusted by the Company, in which event details of the new dates will, where appropriate, be notified to shareholders.



PART III

ADDITIONAL INFORMATION

1 Responsibility

The Directors, whose names appear in paragraph 2 below, accept responsibility for the information contained in this document. The Directors have taken all reasonable care to ensure that the facts stated herein are true and accurate in all material respects and that there are no other material facts, the omission of which would make misleading any statement herein, whether of fact or opinion.

2 Directors

The Directors and their principal functions are as follows:

Dr E R Howells	Non Executive Chairman
Mr R N Forster	Chief Operating Officer
Dr P G May	Technical Director
Mrs J M Womack	Non Executive
Mr C A Smart	Non Executive
Dr R H Friend, FRS	Non Executive

The business address of all the directors is 181A Huntingdon Road, Cambridge, CB3 0DJ.

3 Incorporation and registration

The Company was incorporated in England on 2 January 1992 with registered number 2672530. The registered office of the Company is 13 Station Road, Cambridge, CB1 2JB and the Company's principal place of business is 181A Huntingdon Road, Cambridge, CB3 0DJ.

4 Share capital

(a) the following table sets out the authorised and issued and fully paid share capital of the Company as at 13 January 1995:

	Authorised		Issued and fully paid	
	Nominal Value	No. of Shares	Nominal Value	No. of Shares
	£		£	
A Shares	395.00	39,500	395.00	39,500
B Shares	400.00	40,000	400.00	40,000
C Shares	486.45	48,645	478.65	47,865
D Shares	330.00	33,000	325.82	32,582

In addition, the Company has issued 195 nil paid D Shares to Mr Mark Gostick, an employee of the Company.



the following table sets out the authorised and issued and fully paid share capital of the Company as it will be immediately following the Issue, assuming full subscription of Rights Shares provisionally allotted to Qualifying Shareholders (and ignoring any Shares which may be issued upon the exercise of options):

	Authorised		Issued and fully paid	
	Nominal Value £	No. of Shares	Nominal Value £	No. of Shares
A Shares	790.00	79,000	790.00	79,000
B Shares	800.00	80,000	800.00	80,000
C Shares	957.30	95,730	957.30	95,730
D Shares	2,543.70	254,370	653.59	65,359

- (c) details of subsisting options over shares in the Company's capital are set out in sub-paragraphs (d) to (i) of paragraph 8 of this Part III.
- (d) following completion of the Issue and assuming full subscription for the Rights Shares there will be 189,011 authorised but unissued and uncommitted Shares (representing approximately 37% of the issued share capital). The Company intends to make available such authorised but unissued share capital for subscription by investors or existing shareholders considered appropriate by the Directors, subject to the restrictions on the Directors' power to allot shares contained in the special resolution set out in the notice of annual general meeting. The issue price of such Shares will be determined by the Directors at the time of issue in their absolute discretion.
- (e) the new Shares are neither being sold nor are they available in whole or in part to the public.
- (f) the Issue Price for the Rights Shares represents a premium of £28.19 over the nominal value of 1p per share.

5 Articles of Association

The articles of association of the Company contain details of the rights attaching to Shares and will be available for inspection by shareholders as described in paragraph 11 below.

6 Directors' interests

(a) As at 13 January 1995, the interests of the Directors and persons connected with them (all of which are beneficial) in the share capital of the Company which have been notified to the Company were as follows:

A Shares	B Shares	C Shares	D Shares
-	-	-	29
-	-	-	-
-	6,400	-	-
-	-	-	100
-	-	-	-
-	-	-	-
	A Shares - - - - -	A Shares B Shares - 6,400 	A Shares B Shares C Shares

(b)



7 Substantial interests

As at 13 January 1995, the Directors were aware of the following interests in five per cent. or more of the Company's issued share capital:

Shareholder	No. of Shares	Percentage of issued share capital
Cambridge Research and Innovation Limited	33,400 "A" <u>1,800</u> "D" 35,200	
Cambridge Capital Management Limited	<u>6,100</u> "A"	
Total	<u>41,300</u>	25.8
Lynxvale Limited	27,000 "C"	16.9
University of Cambridge	9,750 "C"	6.1
Generics Asset Management Limited	5,000 "D"	
Generics Strategic Investment Fund Limited	<u>3,000</u> "D"	
Total	8,000	5.0

8 Material contracts

The following contracts, not being contracts entered into in the ordinary course of business which are or may be material, have been entered into by the Company since 13 January 1993:

- (a) a subscription agreement ("Subscription Agreement") dated 22 July 1993 between Cambridge Capital Management Limited and Cambridge Research and Innovation Limited (1), Lynxvale Limited (2), R H Friend and Others (3)-(9), the Generics Strategic Investment Fund Limited (10), The University of Cambridge and Others ("University") (11)-(17), Generics Asset Management Limited (18) and the Company (19) pursuant to which the University agreed to subscribe for new C Shares on the terms set out therein. The Subscription Agreement contains certain restrictions upon the Company and provisions relating to the administration and management of the Company's business;
- (b) a share acquisition agreement dated 22 July 1994 ("Acquisition Agreement") between Providence Investment Co Limited ("Providence") and Others (1), H Hauser and Others (2) and the Company (3) pursuant to which the Company acquired the entire issued share capital of Advanced Displays Limited ("ADL"). The consideration for the acquisition of ADL was the issue and



allotment to the vendors of an aggregate of 2,381 D Shares. The Acquisition Agreement contained limited warranties in favour of the Company;

- (c) a convertible loan agreement dated 22 July 1994 between Providence (1) and the Company (2) pursuant to which Providence agreed to lend to the Company £100,000 repayable on demand on or after 22 July 1995. The loan is interest free provided that it is repaid in accordance with its terms, and the Company may by notice to Providence on or before 22 July 1995 allot and issue to Providence in full satisfaction of the loan (or such part thereof as the Company may determine) one D Share for each £25.64 of the loan (or part thereof);
- (d) an option agreement dated 22 July 1994 between the Company (1) and Millsreeve Jersey Trustees Limited and Reevemills Jersey Trustees Limited ("Millsreeve and Reevemills") (2) pursuant to which the Company conditionally granted to Millsreeve and Reevemills an option to subscribe, subject to the satisfaction of the exercise condition described in the agreement, at par for such number of shares as may be calculated in accordance with the formula set out in the agreement, subject to a maximum of 115, at any time during a period of three years from the date of satisfaction of the exercise condition;
- (e) an option agreement dated 22 July 1994 between the Company (1) and Mark Stephen Gostick ("Mr Gostick") (2) pursuant to which the Company conditionally granted to Mr Gostick an option to subscribe, subject to the satisfaction of the exercise condition described in the agreement, at par for such number of shares as may be calculated in accordance with the formula set out in the agreement, subject to a maximum of 1,152, during a period of three years from the date of satisfaction of the exercise condition;
- (f) an option agreement dated 22 July 1994 between the Company (1) and Providence (2) pursuant to which the Company conditionally granted to Providence an option to subscribe, subject to the satisfaction of the exercise condition described in the agreement, at par for such number of shares as may be calculated in accordance with the formula set out in the agreement, subject to a maximum of 1,152, during the period of three years from the date of satisfaction of the exercise condition;
- (g) an option agreement dated 22 July 1994 between the Company (1) and Mr Elserino Piol ("Mr Piol") (2) pursuant to which the Company conditionally granted to Mr Piol an option to subscribe, subject to the satisfaction of the exercise condition described in the agreement, at par for such number of shares as may be calculated in accordance with the formula set out in the agreement, subject to a maximum of 1,152, during the period of three years from the date of satisfaction of the exercise condition;
- (h) a second option agreement dated 22 July 1994 between the Company (1) and Providence (2) pursuant to which the Company conditionally granted to Providence an option to subscribe, subject to the satisfaction of the exercise condition described in the agreement, at par for such number of shares as may be calculated in accordance with the formula set out in the agreement, subject to a maximum of 2,000, during the period of three years from the date of satisfaction of the exercise condition; and



 a second option agreement dated 22 July 1994 between the Company (1) and Mr Piol (2) pursuant to which the Company conditionally granted to Mr Piol an option to subscribe, subject to the satisfaction of the exercise condition described in the agreement, at par for such number of shares as may be calculated in accordance with the formula set out in the agreement, subject to a maximum of 2,000 during the period of three years from the date of satisfaction of the exercise condition.

9 Share Option Scheme

The rules of the Share Option Scheme, which set out the detailed provisions of the scheme, will be available for inspection by shareholders as described in paragraph 11 below.

10 Miscellaneous

- (a) the Directors consider that, taking into account the proceeds of the Issue, the Company will have sufficient working capital for its present requirements;
- (b) the Issue is not underwritten;
- (c) the Company is not engaged in any arbitration or litigation nor, so far as the Directors are aware, is any arbitration or litigation or claim pending or threatened against the Company;
- (d) Advanced Displays Limited, a company incorporated in England with registered number 2830058, is a wholly owned subsidiary of the Company. The principal activity of Advanced Displays Limited is commercial exploitation of LEP technology; and
- (e) Ernst & Young of Compass House, 80 Newmarket Road, Cambridge CB5 8DZ were auditors of the Company for the two financial periods since the incorporation of the Company, and are currently auditors of the Company.

11 Documents available for inspection

Copies of the following documents will be available for inspection at the offices of the Company at 181A Huntingdon Road, Cambridge CB3 0DJ during normal business hours on any weekday (Saturdays and public holidays excepted) from the date of this document up to and including 10 February 1995, and at the annual general meeting:

- (a) the memorandum and articles of association of the Company;
- (b) the audited accounts of the Company for the two financial periods ended 30 June 1994;
- (c) the material contracts referred to in paragraph 8 of this Part III;
- (d) the rules of the Share Option Scheme;



- (e) the Business Plan; and
- (f) this circular.
- 13 January 1995

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CAMBRIDGE DISPLAY TECHNOLOGY LIMITED

Notice of Annual General Meeting

Notice is given that the 1995 Annual General Meeting of Cambridge Display Technology Limited will be held at the Dirac Room, Fisher Building, St John's College, St John's Street, Cambridge CB2 1TP on 10 February 1995 at 12.30 pm for the following purposes:

Ordinary Business

- 1 To receive the Directors' Report and the Accounts for the financial year of the Company ended 30 June 1994.
- 2 To re-appoint Ernst & Young as auditors of the Company and to authorise the Directors to fix their remuneration.
- 3 To elect as a director Dr Paul May who retires pursuant to article 79.
- 4 To elect as a director Mr Ralph Forster who retires pursuant to article 79.
- 5 To re-elect as a director Dr Eric Howells who retires by rotation.

Special Business

To consider and, if thought fit, pass the following resolutions of which resolution 6 will be proposed as a special resolution and resolution 7 will be proposed as an ordinary resolution:

Special Resolution

6 That:

- (a) the 780 authorised and unissued "C" Ordinary Shares of 1p each in the capital of the Company (""C" Shares") be redesignated as 780 "D" Ordinary Shares of 1p each (""D" Shares") ranking pari passu with the existing "D" Shares in the capital of the Company and having the rights and being subject to the restrictions attaching thereto;
- (b) the authorised share capital of the Company be increased by £3,479.55 from £1,611.45 to £5,091.00 by the creation of 39,500 additional "A" Ordinary Shares of 1p each (""A" Shares"), 40,000 additional "B" Ordinary Shares of 1p each (""B" Shares"), 47,865 additional "C" Shares and 220,590 additional "D" Shares;
- (c) the Directors of the Company be generally and unconditionally authorised pursuant to Section 80 of the Companies Act 1985 to allot relevant securities up to an aggregate nominal amount equivalent to the nominal value of the unissued share capital of the Company as at the date hereof as increased by paragraph (b) above, provided that:
 - (i) this authority shall expire on the fifth anniversary of the passing of this resolution (save that the Company may before such expiry make an offer or agreement which would or might require such



shares to be allotted after such expiry and the Directors may allot relevant securities pursuant to such an offer or agreement as if the authority conferred hereby had not expired); and,

 (ii) this authority shall be limited in the case of "A" Shares, "B" Shares and "C" Shares to the allotment of such shares to holders of shares of the same class on the register at the close of business on 13 January 1995

such authority to be in substitution for any previous authority given to the Directors to allot relevant securities which remains unexercised (save to the extent relied upon prior to the passing of this resolution); and,

(d) the Directors be empowered in accordance with the authority granted pursuant to paragraph (c) of this resolution to allot or make offers or agreements to allot equity securities (within the meaning of section 94 as defined for the purposes of section 95 of the Companies Act 1985) pursuant to such authority as if section 89(1) of the Companies Act 1985 did not apply to any such allotment, provided that this power shall be limited in the case of "A" Shares, "B" Shares and "C" Shares to the allotment of such shares to holders of shares of the same class on the register at the close of business on 13 January 1995.

Ordinary Resolution

That:

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- (a) the Cambridge Display Technology Limited 1995 Share Option Scheme ("the Scheme") produced to the meeting and for the purposes of identification signed by the Chairman be adopted; and,
- (b) the Directors of the Company be authorised to do all acts and things necessary to establish and carry into effect the Scheme, including the making of such amendments to the Scheme as may in their opinion be necessary, desirable or expedient.

13 January 1995 Registered in England No. 2672530 Registered Office: 13 Station Road Cambridge CB1 2JB

By order of the Board

Secretary

Notes:

- 1 Holders of "A", "B", "C" or "D" Ordinary Shares of the Company, or their proxies, are entitled to attend and vote at the meeting.
- 2 A member entitled to attend and vote at the meeting is entitled to appoint one or more proxies to attend and, on a poll, to vote in his stead. A proxy need not be a member of the Company.
- 3 To be valid, the instrument appointing the proxy must be deposited at the registered office of the Company, 13 Station Road, Cambridge CB1 2JB not later than 48 hours before the time appointed for the holding of the meeting or any adjournment thereof. Completion of the enclosed form of proxy does not preclude a member from attending and voting in person.





Ralph Forster CHIEF OPERATING OFFICER

181A HUNTINGDON ROAD CAMBRIDGE CB3 0DJ UNITED KINDOM TEL + 44 (0) 1223 276528 FAX + 44 (0) 1223 276402



Ralph Forster CHIEF OPERATING OFFICER MARK GISTICK - BUSINETS DEV.

181A HUNTINGDON ROAD CAMBRIDGE CB3 0DJ UNITED KINDOM TEL + 44 (0) 1223 276528 FAX + 44 (0) 1223 276402


entation to Prof. Bader idge, November 25, 1994
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INFORMATION PROVIDED IN CONFIDENCE	 + Emissive technology + Passive matrix + CMOS compatible drive schemes 	+ Simple structures + RGB materials	Low cost materials + Low cost manufacturing process	Light Emitting Polymers (LEP) The long term technology of choice for flat panel displays	LEP - The Opportunity

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The long term technology of choice for flat panel displays Light Emitting Polymers (LEP)

- No obvious limit on size
- Fast switching speeds
- Flat
- Thin
- Robust
- High resolution
- Flexible
- Low voltage
- Lightweight





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Prof Bader - 25/11/94 - 9 INFORMATION PROVIDED IN COM	strategic partnerships, alliance	by means of a business stra	To drive LEP technology into hig	
IFIDENCE	es and joint ventures	ategy focussed on	h added value markets	Our Objective





INFORMATION PROVIDED IN CONFIDENCE

Prof Bader - 25/11/94 - 10





- Access to revolutionary technology
- Competitive advantage thru early access
- Faster commercialisation
- Spreading of risk
- Increased profits

- Access to markets
- Product design in
- Credibility
- Finance
- Manufacturing
- Increased profits



Partnership Structure

 Strategic partners who would focus "their" LEP development and "enabling" exploitation through CDT and take an equity stake in CDT

Other Partnerships

- Partner with fine chemicals company to develop and manufacture materials
- Applications partnerships with OEM's to design in and distribute products
- JV's with manufacturing companies



Positive Value Management

- Continually develop the technology towards the ultimate market target
- Participate at all levels from materials to applications enablers
- Focus on selected core applications area leveraging CDT's IPR through

alliances, partnerships and joint ventures

- Shared IPR access across core applications
- Enable the widest possible take up of the technology
- Offer non-core licenses and support packages
- Establish standards and use branding wherever possible
- Protect the IPR









CAMBRIDGE DISPLAY TECHNOLOGY LIMITED

181A HUNTINGDON ROAD, CAMBRIDGE CB3 ODJ TEL + 44 (0) 223 276351 FAX +44 (0) 223 276402

Direct Line: 0223 276528

Dr. Alfred Bader, 2961 North Shepard Avenue, Milwaukee, Wisconsin, 53211, USA

August 1, 1994

Dear Dr Bader,

I understand from Andrew Holmes that you may be visiting Cambridge later this year. On behalf of CDT I would like to extend an invitation for you to meet the Board and receive an update on the company and its future plans. If this would be of interest, may I suggest your secretary advise me of some suitable dates as your travel plans firm up.

Yours sincerely,

Ralph Forsti

Ralph Forster Commercial Director

cc Dr A B Holmes

