

11. INDEPENDENT MARKET RESEARCH REPORTS (Cont')

	-	Compaq Computer Corporation (M) Sdn Bhd	PCs, Notebooks, Servers & Printers, Software and accessories	6
5.1% to 9.9%	Siae Microelectronica	-	Digital Microwave Radio Systems	6
	Compaq Computer Corporation (M) Sdn Bhd	-	PCs, Notebooks, Servers & Printers, Software and accessories	6
	-	Siemens (M) Sdn Bhd	Synchronous Digital Hierarchy System	6
10% to 29.9%	Siemens (M) Sdn Bhd	-	Synchronous Digital Hierarchy System	6
30% to 50%	-	-	-	-
EMAC				
0.1% to 5%	Argus Technology Ltd	Argus Technology Ltd	Rectifier	5
	Exide Technologies	Exide Technologies	Batteries	5
5.1% to 9.9%	-	-	-	-
10% to 29.9%	-	-	-	-
30% to 50%	-	-	-	-

Note: * Years of relationship

The percentage of the above major suppliers is based on the purchase for years 1999 and 2000.

3. Competitive environment

The local IT industry is highly competitive. There are about 3,000 IT companies in Malaysia (mostly small), with about 1,000 in system integration and application development. Approximately 200 of the 1,000 are focussed on projects from the public sector.

3.1 Key Players

The key players in the higher end of the industry, which are currently listed on the Kuala Lumpur Stock Exchange (KLSE) are as follows: -

1. Computer Systems Advisors (M) Berhad ("CSAM") was incorporated as a private limited company in Malaysia on 6 November 1975. It was listed on the Second Board of KLSE on 28 April 1997.
2. Mesiniaga Berhad ("Mesiniaga") was incorporated in Malaysia on 17 December 1981 as a private limited company, subsequently converted into a public limited company on 24 December 1996.
3. Patimas Computers Berhad ("Patimas") was incorporated in Malaysia on 15 July 1992 as a private limited company and converted to public on 7 March 1997. It was listed on the Second Board of KLSE on 23 December 1997.
4. Dataprep Holdings Berhad ("Dataprep") was incorporated in Malaysia on 13 June 1989, as a public company and was listed on the Second Board of KLSE on 28 November 1991.
5. Fujitsu Systems Business (Malaysia) Berhad ("Fujitsu") was incorporated on 27 February 1984 as a private limited company, which was converted to a public company on 22 December 1993. It was listed on the Second Board of KLSE on 24 October 1994.
6. Hei Tech Padu Berhad ("Hei Tech") was incorporated on 5 August 1994 as a private limited company, which was converted into a public limited company on 24 March 2000. It was listed on the Main Board of KLSE on 20 November 2000.

11. INDEPENDENT MARKET RESEARCH REPORTS (Cont')

**Table 5: Core activities of IT Companies listed on the KLSE**

Company Name	Principal Activities and Services
CSAM	<ul style="list-style-type: none"> ▪ System integration and software services ▪ Information technology systems provision ▪ Customer service and support ▪ Distribution ▪ Electronic commerce and Internet ▪ Outsourcing and strategic consulting
Mesiniaga	<ul style="list-style-type: none"> ▪ End-to-end data/ voice infrastructure and networking solutions, system integration ▪ Software development, education and training ▪ Installation & maintenance of hardware & software ▪ Systems, operation and facilities management and ▪ E-business (electronic commerce solutions)
Patimas	<ul style="list-style-type: none"> ▪ Product development ▪ Product distribution and reselling ▪ Consultancy, system integration ▪ Design and programming
Dataprep	<ul style="list-style-type: none"> ▪ Data processing and software ▪ Computer systems and peripherals, personal computers and computer software ▪ Research and development of computer software.
Fujitsu	<ul style="list-style-type: none"> ▪ Distribution of computers ▪ Computer and software products and the provision of related installation and maintenance services. ▪ System integration and application software.
Hei Tech	<ul style="list-style-type: none"> ▪ Total business solutions in IT ▪ Turnkey software development ▪ Application development ▪ Management consultancy and IT consulting services

It is important to take into account the activities on Table 5. The companies are engaged in activities that are similar to EDARAN Group but there are also activities outside the scope of the Group.



3.2 Governing laws and regulations

The governing laws and regulation pertaining to EDARAN Group's lines of business are:

- Evidence Act of 1950;
- Telecommunication Act 1950;
- Copyright Act 1987, which was last amended in 1997 to fulfil the requirements of the Multimedia Super Corridor (MSC);
- Cyber Law of Malaysia comprising Digital Signature Act 1997 and Computer Crimes Act 1997; and
- Communications and Multimedia Act 1998.

3.3 Demand and Supply

According to the Seventh Malaysia Plan (SMP) 1996-2000, information is at the leading edge of global competition. The Government through SMP:-

- Ensures the widespread application of IT within and across sectors to stimulate productivity and competitiveness as well as improving quality of life;
- Has increased awareness in IT among the population with the implementation of the MSC, as well as the continuing provision of new and/or the upgrading of the present telecommunication infrastructure;
- Expanded IT education and training in line with the anticipated demand for IT related skills, knowledge and expertise;
- Reviewed legislation that might impede the development of IT; and
- Promoted and developed the IT industry, in terms of design and production of innovative products, systems and services to generate new growth opportunities as well as skills and employment in high-tech areas and developing Malaysia into an IT hub with international IT companies operating in Malaysia.

4. Barriers to Entry

4.1 Ease of entry

The Government is encouraging the growth of IT in Malaysia. Hence, there are no legislative restrictions to entrepreneurs and small operators to venture into the business, thus making the industry extremely intense and competitive. However, for telecommunication infrastructure, where existing operations are relatively stabilised, new entrants will have difficulty penetrating the market due to their lack of connectivity. This is where EDARAN Group has the competitive edge due to years of experience and knowledge and involvement in this sector.

4.2 Capital intensive

The knowledge-based industry is capital intensive. Capital spending has been an important influence on the industry's performance and growth. Investments in technology have contributed to the increasing growth of EDARAN Group and the improved performance of their products and services.

Investment financing is a major problem for new entrants. Banks tend to focus on the value of collateral, in the form of fixed assets and require a good record of cash flows in order to provide financing. Since the collateral offered by new start-ups is generally intangible and with the absence of a track record, new entrants will have trouble accessing financing to compete with established companies such as EDARAN Group.

Further, the recent demise of many dot-com start-ups has influenced investment community attitudes to funding. EDARAN Group is differentiated from the dot-com community based on its long-term presence in the market, strong revenues base, profitability and fundamental financial performance generating tangible liquidity and asset value.

4.3 Established name

EDARAN Group has been in the business for fourteen years and has established a reputation among Government agencies, telecommunication operators and other commercial establishments. Hence, new competitors will find it hard to persuade businesses and organisations, to allow them integrate their systems or provide IT applications or solutions.

Established companies like EDARAN Group, have an entrenched reputation in the corporate sector and it is highly unlikely that companies will trust a new entrant competitor with only a 'business proposition' to manage their business transactions or host mission-critical applications.

EDARAN Group competes on value, not on price. This feature is considered difficult to compete against.

4.4 Technical knowledge and expertise

High levels of technical competence are required in the IT industry with strong capabilities in overall technical knowledge, software development, customer applications and the integration of products to meet customers' requirements.

The EDARAN Group has invested more than 10 years learning the trade and developing their business. They have placed great emphasis on new technologies and have invested substantially on technical expertise in the advancement of their business. The Group has gained experience and expertise through its representation of niche products and its association with equipment principals, who provide continuous R&D expertise and technical knowledge in the usage of their products and equipment.

To date, the Group has successfully worked on projects with the following companies to deliver Total Solutions and services:

- Fujitsu ICL Computers Ltd for Polis DiRaja Malaysia and Suruhanjaya Pilihanraya;
- NEC Corporation for Jabatan Kastam dan Eksais DiRaja Malaysia; and
- Unisys (M) Sdn Bhd for Malaysian Airline System Berhad to set-up its WAN, LAN and Asynchronous Transfer Mode Switches (ATMs).



4.5 Research and development (“R&D”)

In a rapidly changing IT industry, services business need to be technically sound and innovative in order to stay competitive. New and upgraded versions of software and hardware are constantly being introduced into the market. Hence, R&D is essential for product innovation and product improvement to ensure a continuance of serving a customer’s need.

Although, as a distributor, EDARAN Group does not develop its own products, it represents giants and leaders in product development of the IT industry, who are investing in R&D activities in order to stay competitive. Hence, the Group has the advantage of not only enjoying the benefits of distributing world-class products but also relieved of the heavy costs of investing in R&D. Nevertheless, the management of EDARAN Group is well aware that high levels of technical competence are required in the IT industry with strong capabilities in overall technical knowledge, software development, customer applications and the integration of products to meet customers’ requirements.

Hence, EDARAN Group has throughout the years accumulated experiences and technical knowledge to integrate its principals’ products to provide total solutions packaged according to individual customer’s requirements. The Group further provides value-added services by identifying and recommending compatible hardware and software products to fulfil its customers’ need, which do involve a certain amount of R&D activities in order for integrated systems to perform perfectly. The EDARAN Group has invested more than 12 years learning the trade and developing its business. It has placed great emphasis on new technologies and has invested substantially on technical expertise in the advancement of its business. The Group has gained experience and expertise through its representation of niche products and its association with equipment principals, who provide continuous R&D expertise and technical knowledge in the usage of their products and equipment.

5. Future Prospects

Study shows that the IT industry in Southeast Asia doubled in size between 1987 and 1998 and is expected to grow at an average of 15.5% annually from 1999 to 2004.¹ The study also projected that the software industry could contribute to as much as US\$686.9 million annually.

Other trends, which will beneficially impact the future of the EDARAN Group, are:-

Telemedicine - which will play a significant role in healthcare not only in Malaysia but worldwide as well. It will offer commercial opportunities to EDARAN Group in content development, network architecture and end-user interface. Products and services useful in Telemedicine range from creating online databases or virtual libraries, telecommunication equipment, network architecture, end-user interface and systems integration.

Software development potential - analysts predict that total annual sales over the Internet could grow to more than US\$186 billion worldwide by the year 2005. The issues identified with e-commerce include customs, taxation, e-banking, Internet banking and Internet stockbroking. These issues will require complex and well-integrated solutions.

Video-conferencing has become a feasible, cost-effective method of communicating face-to-face with various parties around the world, without having to leave the boardroom. This will lead to a demand for more sophisticated communication devices with extensive bandwidth, which in turn will mean more opportunities for EDARAN Group.

WAP enabled telephone, is expected to be much cheaper than PCs and is expected to lead rapid growth of mobile Internet in the near future.² According to Siemens Malaysia, 50% of phones sold will be WAP enabled. As demand grows, there will be a parallel demand for local application and content development.

¹ The Star - IDC 21/4/2000

² Ericsson Malaysia - 1 May 2000

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According to IDC, by the year 2002, there will be an 868 percent increase in Internet users in Asia Pacific. Motorola is predicting that half of all Internet connections will come from wireless devices by 2003, which would mean that the first Internet experience for most consumers in Asia would be via a wireless device and not a personal computer.³ This should benefit EDARAN Group as a significant vendor of the equipment and software requirements.

Global e-commerce - is expected to increase by 100 percent per year over the next four years.⁴ According to IDC, priorities are now shifting to integrating services to help companies get their products to customers faster, developing competitive advantage.⁵

Very few companies today have Web sites that are fully integrated with their business systems. Hence, opportunities exist for EDARAN Group to provide the integrated applications, in the form of a Web-based office management, communication tools and gateways for B2B and B2C, e-commerce and m-commerce activities.

Key trends in e-commerce demonstrates:

1. The World Wide Web (Web) will become a single interface for a multiplicity of services and it is achieving its results through collaboration as well as through competition.
2. The Web as a growing vehicle for e-commerce will be an important tool for businesses to penetrate worldwide markets.

The Web has become the key driver for IT developments. The Web is moving to meet business needs through mobile and fixed Internet development.

5.1 Growth of IT in Malaysia

Malaysia is one country in Asia, which is moving at "internet" speed in both its economy and IT.⁶ There were 750,000 Internet subscribers, with 1.89 million Internet

³ STPM - 17 May 2000

⁴ Malaysian business - Jan 2000

⁵ The Star Business 4/21/2000

⁶ Skali - 23 Sept '99

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users in Malaysia last year and the number is expected grow to 3.91 million by the year 2004⁷.

There are currently only three Internet Service Providers of ISPs namely Jaring, Maxis and Tmnet – the latter with 400,000 subscribers, making it the leader in the industry. However, four more licenses have been issued as part of the government's efforts to ease congestion on the Internet, due to the rapid increase of users in the country.⁸

Global e-commerce is estimated to increase to US\$150 billion this year, with 50 million potential users but Malaysian companies in general have only just begun to realise the significance of e-commerce. However, the pace of activity on the Internet is picking up and business CEOs are becoming increasingly aware that online business is becoming more lucrative. E-commerce revenue is expected to grow from US\$426 million (RM1.6 billion) this year to US\$3 billion (RM11.4 billion) in 2004.⁹

Malaysia is placed ninth on the list of "Emerging 20", a term coined to distinguish the countries which may prove to be the most lucrative markets going into the 21st century, which will be extremely attractive to U.S. equipment providers.¹⁰

In 1998, due to the economy falling into recession, the IT industry in Malaysia took a tumble. The industry as a whole suffered a 38% drop in sales, from US\$2,096.6 million (RM7,967 million) in 1997, to US\$1,297.2 million (RM4,929 million) in 1998. (Table 6)

Latest statistics shows that the IT industry for the year 1999 grown and is on an upward trend. Total sales for 1999 were US\$1,380.4 million (RM5,246 million) or an increase of approximately 6% over 1998. According to IDC, the industry is expected to increase further to US\$1,540.5 million (RM5,854 million) or by 11 percent this year.

⁷ IDC - Star 25 April 2000

⁸ The Star - May 5, 2000

⁹ Ibid

¹⁰ Inter@active

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5.2 Prospects and Outlook of the Industry

The Government has emphasised a commitment to the future development of IT in Malaysia and is continuing to pursue a knowledge and information-based economy with IT and multimedia being identified as strategic enabling tools assisting the achievement of these efforts. The thrust will be to develop and expand the requisite infrastructure that will contribute to the creation of IT-based industries, as well as to instil an IT-culture amongst citizens.

IT growth has been carefully shaped and guided by strategic five-year developmental master plans which provides the backdrop for Vision 2020, a national agenda that sets out specific goals and objectives for long-term development. The strategic agenda covers five main areas: e-economy, e-public service, e-learning, e-community and e-sovereignty to meet the needs of an information based economy.

With this in mind, the Multimedia Super Corridor (MSC) was created to assist companies of the world to test the limits of technology. The MSC will also accelerate Malaysia's entry into the Information Age, and through it, help actualise Vision 2020. It will bring together, an integrated environment with all the unique elements and attributes necessary to create the perfect global multimedia climate.

Table 6: Malaysian IT market 1997-2002 (US\$ mil)¹¹

	1997	1998	1999	2000*	2001*	2002*
Multi-tiered systems	216.2	120.8	127.8	138.3	166.8	189.2
Single user systems	1028.2	633.7	663.4	723.6	844.5	955.2
Data communications equipment	191.7	116.3	107.9	123.1	148.4	181.8
Packaged software	364.2	236.5	274.8	323.7	379.3	429.2
Services	295.3.	189.9	206.4	231.9	271.8	307.5
Total	2096.6	1297.2	1380.4	1540.5	1810.7	2062.7
		-38%	6%	11%	18%	14%

* Forecast

¹¹ IDC

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Knowledge based industries are a fast growing sector of the Malaysian economy. Traditional manufacturing, resource and agricultural industries, long the foundations of Malaysian economic well-being, are joining service industries such as banking and travel in their increased use of the new technologies.

Manufacturers are now using information technologies to find export markets and fill orders from around the globe. Resource companies use these technologies to gain access to the scientific and marketing data necessary for sustained growth and sustainable development. These enabling effects of IT are building a foundation for competitiveness in the global economy.

5.3 Prospects of EDARAN Group

The future strategic direction of EDARAN Group is on new services and products identified as 'emerging business'. Especially, this relates to e-commerce based applications augmenting current core activities. The market niche is becoming evident as more businesses are seeking innovation through IT, to achieve competitive business advantage.

EDARAN Group believes that future growth of the company into the new millennium will depend largely on its expertise in consultancy, project management and systems integration. At present, success is also largely contributed by projects that require such expertise and experience. Track record in completing large-scale projects that require skills in systems integration such as JKED and the Prime Minister's department, is a testimony to their capability.

In line with this, EDARAN Group will continue to maintain annual growth in revenue by: -

- Continuing to serve existing customers with existing core services and products; and
- Continuing to serve existing customers with new services and products and in particular, introduce outsourcing, ASP activities and Managed Network Services.

EDARAN Group has strategised to expand its customer base by:-

- Extending regional and local expertise in engineering support;
- Offering 'last mile' solutions;
- Commencing e-transformation upgrades for large organisations;

11. INDEPENDENT MARKET RESEARCH REPORTS (Cont')



- Offering ASP based solutions;
- Establishing its services base to become a true 'one-stop-shop' for convergence industry solutions; and
- Extending its Professional services portfolio to provide equipment facilities and consulting on applications including:-
 - Short Messaging System (SMS);
 - WAP services and mobile internet;
 - Portal services;
 - Virtual Private Networks (VPN); and
 - Voice Over Internet Protocol (VOIP).

5.4 Future prospects impact on EDARAN Group

EDARAN Group is expected to continue to retain its niche in the IT Malaysian market and should have the ability to sustain growth as one of the market leaders for providing telecommunication and IT products and services in Malaysia. The Group has the business expertise, technical skills, and quality products from reliable principals to implement IT solutions for customers. Together with its established project management practices and quality improvement regime, the Group is in a sound strategic position to fully satisfy the demand of its customers.

Therefore, based on past track record, the strength of the group and the future uptrend of the IT and telecommunications economy, EDARAN Group is considered well placed to secure a sizeable portion of the industry. As Malaysia moves into the information age, almost all aspects of life will involve IT. The Group remains very focused in their future plans and with the foresight to diversify concentrate on core business in selected areas related to the telecommunications and IT industry, is well equipped and ready to meet the challenges of the 21st century moving towards Vision 2020.

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**Deloitte
Touche
Tohmatsu**

23rd March, 2001

EDARAN Digital Systems Berhad
(formerly known as Alpine Technologies Berhad)
15th Floor Menara TR
161B Jalan Ampang
50450 Kuala Lumpur

Dear Sirs:

INDEPENDENT FEASIBILITY STUDY

(Prepared for inclusion in the Prospectus of EDARAN Digital Systems Berhad)

This report has been prepared for inclusion in the Prospectus to be dated 30th March, 2001 pursuant to the proposed listing of Edaran Digital Systems Berhad (EDARAN) (formerly known as Alpine Technologies Berhad) on the Main Board of The Kuala Lumpur Stock Exchange.

This report has been prepared with the intention to provide an overview of the future direction of the IT and telecommunication industry and to assess the viability of potential new and extended services offered to EDARAN Group's existing customer base as well as other strategically attractive new markets. Deloitte & Touche Management Solutions Sdn Bhd (DTTMS) had conducted the research as an independent third party and DTTMS is a member firm of Deloitte Touche Tohmatsu, being one of the leading management consulting, accounting, auditing and tax firms in the world.



Azman Mohd Zain
Deloitte & Touche Management Solutions Sdn Bhd
Executive Director

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1.0 BACKGROUND

1.1 The Malaysian Technology Landscape

The promise of "Business-to-Business" (B2B) electronic commerce and the provision of internet or web-enabled business process is generating more excitement in the world of business than any other development in decades. There are many reasons for this excitement but in particular the conversion of a vast, connected economy to a vast, interconnected economy via the internet - could dramatically both reduce costs of commerce while increasing productivity.

The Government of Malaysia has been supportive of the development of e-commerce in Malaysia and the establishment of the Multimedia Super Corridor is intended to facilitate Malaysia's transition from an industrial based to an information age economy.

As 'new economy' e-commerce technologies expand, a global inter-connectivity-based marketplace is inevitable. This digital marketplace is borderless, very open, and very competitive. The future of the 'net' market in Malaysia appears promising as the telecommunications structure is available to provide the bandwidth that internet driven commerce requires, and the basic systems for e-commerce are already in place to a greater degree. Malaysia's e-commerce value is expected to grow to potentially RM6 billion by year 2003 (source: May 2000 - Investors' Digest). Internet growth in Asia is now faster than in the rest of the world, with a compounded annual growth of web users in Asia at 99% per year over the past five years. Currently, in Malaysia there are approximately 800,000 registered users on the net and the 'catch-up' of internet subscribers is expected to swell to 2.5 million in the next few years (source: May 17, 2000 - Star).

The wireless internet market is also projected to enjoy a significant growth rate with the introduction of Wireless Application Protocol (WAP). The current cellular penetration rate of mobile phones is about 14% in Malaysia, representing about 2.9 million subscribers as at the end of January 2000. Cellular penetration is approaching 15% and it could rise to 30% or so in the next three years (source: May 17, 2000 - Star).

With the combined uptake of wireless and WAP enabled applications, the backdrop to consistent growth in the telecommunications oriented markets appears significantly attractive.

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**Deloitte
Touche
Tohmatsu**

The additional consolidation of internet and wireless is also viewed as significant and will impact relatively quickly. However, as telecommunications infrastructure develops, and transfer speeds improve, content and applications will consistently need to be modified and developed. This will likely be highly profitable for equipment makers, service providers and the new breed of convergence companies. By the same token, services in new economy technology such as web design and hosting, data center and call center management, payment gateway and customer relationship management, enhanced maintenance services, network/communications management and new applications access will all become increasingly of interest to both a range of specialized services firms and their customers.

In particular, the areas of Outsourcing and Applications Service Provision (ASP) are identified as key new domains for existing systems integration/services companies. Managed Network services and facilities are also viewed as attractive for telecommunications oriented companies as the wider market seeks to reduce complexity of operations and overcome specialist skill shortages.

EDARAN Digital Systems Berhad (EDARAN) (formerly known as Alpine Technologies Berhad) is involved in the provision of IT and telecommunications based solutions and is a prominent Malaysian company with 12 years experience in the field of IT and telecommunications support services. It is from this base and by leveraging accelerating industry dynamics, that the EDARAN Group is taking the opportunity to expand and gear up for new and extension business to its current core offerings.

The EDARAN Group considers that its position in the market and current market dynamics are ideally suited to launching a greater depth of services and consolidating its position as a potential market leader.