

29<sup>th</sup> March 2007**BUY**

Price **Rs 284** Target Price **Rs381**

Sensex - 12,980

**Price Performance**

(%)	1M	3M	6M	12M
Absolute	4	9	29	44
Rel. to Sensex	3	15	24	24

Source: Capitaline

**Stock Details**

Sector	IT Services
Reuters	TTEX.BO
Bloomberg	TELX@IN
Equity Capital (Rs mn)	312
Mkt. Cap (Rs bn)	8.8
Face Value (Rs)	10
52 Week H/L (Rs)	320/147
Daily Avg Volume (No of shares)	143455
Daily Avg Turnover (US\$ mn)	0.9

**Shareholding Pattern (%)**

Promoters	38.1
FII's /NRI's	4.9
Institutions	19.4
Private Corp	3.5
Public	34.1

Source: BSE, 31.12.2006

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**Tata Elxsi****Growth .....By Design**

Initiating

We initiate coverage on Tata Elxsi Limited (TEL) with a BUY recommendation. TEL is a specialist Engineering Services (ES) outsourcing player with a niche focus on product design services. It caters to the automotive, consumer electronics, semiconductors, scientific instrumentation, networking and communications sectors. Over the years, it has transformed itself from being a low margin system integration and support centric player to a high margin full lifecycle product design service provider. TEL has also increased its presence in providing quality animation (2D & 3D), special effects, and gaming services to customers worldwide. Engineering services and visual computing lab which contributed 49% in FY02 increased to 80% in FY06 and further to 86% for 9MFY07. This has enabled PAT to grow at a CAGR of 40% over FY04-06. With deep domain expertise, creative designing and execution capabilities and with the pedigree of the Tata management group, we expect TEL to be a key beneficiary of a robust engineering services outsourcing / offshoring market.

**Offshore Engineering- next wave of IT offshoring/outsourcing**

According to NASSCOM and Booz Allen, India's market share in offshore engineering, which is currently 12%, is projected to increase to 25% by 2020 i.e. the potential engineering market in India could exceed US\$38 bn by 2020 indicating a CAGR of 28% till 2020. TEL, being a specialist Engineering Services (ES) outsourcing player with a niche focus on product design services, is expected to be a key beneficiary.

**Strong growth in all business segments**

With its focus in the embedded systems based product design services and continuing strong client relationship (Canon, Cisco, Hitachi, Motorola, Texas Instruments etc), we believe TEL is well positioned to capitalize on the robust market opportunity. We expect engineering services to post a CAGR of 36% over FY06-09E. Similarly, we expect visual computing lab to grow at 35-40% over next couple of years.

**Margin levers available**

We believe TEL has multiple margin levers in the form of (a) strong volume growth, (b) increased contributions from IP and product solutions currently from 7% of the total revenues to 10-12% going forward, (c) increased contributions from engineering services revenues from 80% in FY06 to 90% by FY09E, (d) more hiring of freshers – about 60% of the total hiring, and (e) better SG and A leverage.

**Valuations**

We expect the company to post a CAGR of 31% in revenues and 39% in profits for FY06-09E. EBITDA margins shall expand by 340 bps from 20% in FY06 to 23.4% in FY09E (already at 21.7% for 9MFY07). We expect healthy ROE of 61% and 55% for FY08E and FY09E respectively. With strong growth and expansion plan in place, robust order book position, expected improvement in margins, high dividend yield and healthy ROE, we believe TEL offers an attractive investment opportunity. At CMP of Rs 284, the stock is available at P/E of 12.8x FY08E and 9.7x FY09E and EV/EBITDA of 9.5x FY08E and 7.2x FY09E. We recommend BUY with a target price of Rs 381 (13x FY09E EPS of Rs 29.3).

**Key Financials**

March	Sales	EBITDA	EBITDA	PAT	EPS	ROE	EV/	P/BV	Div Yield	P/E
(Rs mn)			%		(Rs)	(%)	EBITDA		(%)	
FY06	2,362	472	20.0	343	11.0	52.1	18.8	13.5	2.3	25.9
FY07E	3,075	675	21.9	510	16.4	55.4	13.2	9.6	2.5	17.4
FY08E	4,125	933	22.6	695	22.3	51.5	9.5	6.6	2.6	12.8
FY09E	5,256	1,232	23.4	913	29.3	46.2	7.2	4.5	2.8	9.7

Source : Company, Emkay Research

## Investment Rationale

### Offshore Engineering- next wave of IT offshoring/outsourcing

*Engineering Services offshoring market expected to grow at a CAGR of 28% over 2006-2020*

Engineering Services Outsourcing (ESO) includes product design, research and development and other technical services across sectors like automotive, aerospace, hi-tech/telecom, utilities and construction /industrial machinery. As per NASSCOM and Booz Allen's study, global spending on engineering services is projected to increase from US\$750 bn in 2004 to US\$1.1 trillion by 2020. Out of this, only a miniscule portion i.e. US\$10-15 bn of engineering services is offshored today. The same is expected to grow at a CAGR of 28% to US\$150 -225 bn by 2020. India's market share in offshore engineering, which is currently 12%, is projected to increase to 25% by 2020 i.e. the potential engineering market in India could exceed US\$38 bn by 2020.

*Indian animation market is expected to witness a CAGR of 35 percent from 2005-2009*

According to NASSCOM, the size of the Indian animation market (from the developers' perspective) was estimated at US\$ 285 mn in 2005. It is expected to witness a CAGR of 35 percent from 2005-2009 and increase to US\$ 950 mn by 2009. According to the report, the market for gaming is expected to witness a CAGR of 78 percent and reach US\$ 300 mn by 2009 from US\$ 30 mn in 2005.

Given the domain presence and vast experience in engineering services, animation and gaming, strong execution capabilities and marquee client relationships, we believe TEL to be a key beneficiary of favourable industry dynamics.

*Management's focused strategy of bringing down the low margin system integration business*

### Transformation from a system integrator to a specialist

From a modest beginning as a system integration company, TEL has today positioned itself as a specialist Engineering Services (ES) outsourcing player with a niche focus on product design services. However, its expertise spans multiple disciplines, such as visual computing, networking and communications, multimedia, digital signal processing, embedded systems, storage solutions, hardware design, CAD / CAM / CAE, film/video and broadcast, and commercial and scientific computing.

TEL's strategy continues to inspire confidence in steady earnings growth. The management's focused strategy of bringing down the low margin system integration business over the years has provided a major boost to the company's growth prospects. System integration revenues have come down from around 40% in FY04 to around 20% in FY06 and further to 13-14% during 9MFY07. At the same time, with the company's organic efforts and a well-balanced portfolio of offerings and products, TEL has recorded a much faster growth in revenue and profitability over the last couple of years. Going forward, the management is quite optimistic about the strong traction across all offerings and, in view of the robust industry environment, expects to grow in line/ above the industry average in the coming years.

### Strong growth in all business segments

*TEL specializes in product design services (PDS) and provides "Full Life-Cycle Product Design Services"*

TEL has been in the **product design services (PDS)** space since 1989 and provides "Full Life-Cycle Product Design Services" currently. With extensive capabilities in multimedia, networking, graphics and hardware technology, TEL addresses hardware and software development for a wide range of embedded products such as digital cameras, video cameras, set-top boxes, office equipment such as printers and scanners, networking and telecommunications infrastructure and products such as routers, switches, gateways and mobile phones.

Supported by India's largest team of creative industrial designers and mechanical engineers, **Innovative Design Engineering services (IDE)** of TEL applies concurrent engineering processes, which enable manufacturers to optimize product concepts early in the design process. TEL has secured the distinction of being the only design partner based in India for many of the worldwide subsidiaries of several prestigious multinationals (based in US, Europe and Japan). We expect engineering services to post a CAGR of 36% over FY06-09E.

TEL has followed a pro-active approach rather than a reactive one in its **visual computing lab division**. Its teams analyze and anticipate bottlenecks that might spring up and work in advance on the solutions. This exercise saves a lot on production budgets of their clients. TEL has spent a lot of time building credentials in India and abroad and is today already on the approved list of all the major producers and studios in Bollywood and Hollywood. TEL has worked on over 200 films in the past and is currently working on at least one film a month. We expect visual computing lab to grow at 35-40% over next couple of years.

### New growth drivers

*TEL has built a rich IP portfolio of ready-to-deploy product frameworks and reusable software components*

TEL is among the world's first product solution providers to come out with mobile TV on the laptop (HandyDVR). Similarly, TEL has built a rich IP portfolio of ready-to-deploy product frameworks and reusable software components in the areas of multimedia, networking, semiconductors, storage, WiMax and mobile TV. We expect contributions from IP and product solutions to increase from 7% of the total revenues currently to 10-12% going forward.

### Comprehensive Expansion plan

*TEL to double the headcount in 18-24 months and adding / expanding development centres*

TEL is strengthening its presence in India, not only by adding at least two new development centres but also by expanding some of its existing four development centers within the next 18 months. Its development centre outside India is expected to come up at Tokyo in Japan very soon, which will house 30 people in the initial phase. Besides strengthening its reach and presence, the company is also looking to double its headcount from the current level of 2300+ employees within the next 24 months.

### Strong Financial performance

*EBITDA and PAT have shown a healthy CAGR of 40% over FY04-06*

TEL has posted a CAGR of 24% in revenues over FY04-06. However, revenue has grown 33% yoy to Rs 2,190 mn, comparing 9MFY07 with 9MFY06. Due to a change in revenue mix more in favour of engineering services, EBITDA margins have improved from 15.4% in FY04 to 20% in FY06 and further to 21.7% during 9MFY07.

EBITDA and PAT have shown a healthy CAGR of 40% over FY04-06, comparable to any IT company. PAT margins have improved from 11.4% in FY04 to 14.5% in FY06 and further to 16.5% during 9MFY07.

### Margin levers available

*TEL has multiple margin levers*

We believe TEL has multiple margin levers in the form of (a) strong volume growth, (b) increased contributions from IP and product solutions currently from 7% of the total revenues to 10-12% going forward, (c) increased contributions from engineering services revenues from 80% in FY06 to 90% by FY09E, (d) more hiring of freshers – about 60% of the total hiring, and (e) better SG and A leverage.

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### Valuations

We expect the company to post a CAGR of 31% in revenues and 39% in profits for FY06-09E. EBITDA margins shall expand by 340 bps from 20% in FY06 to 23.4% in FY09E (already at 21.7% for 9MFY07). We expect healthy ROE of 61% and 55% for FY08E and FY09E respectively. With strong growth and expansion plan in place, robust order book position, expected improvement in margins, high dividend yield and healthy ROE, we believe TEL offers an attractive investment opportunity. At CMP of Rs 284, the stock is available at P/E of 12.8x FY08E and 9.7x FY09E and EV/EBITDA of 9.5x FY08E and 7.2x FY09E. We recommend BUY with a target price of Rs 381 (13x FY09E EPS of Rs 29.3).

## Industry dynamics favorable

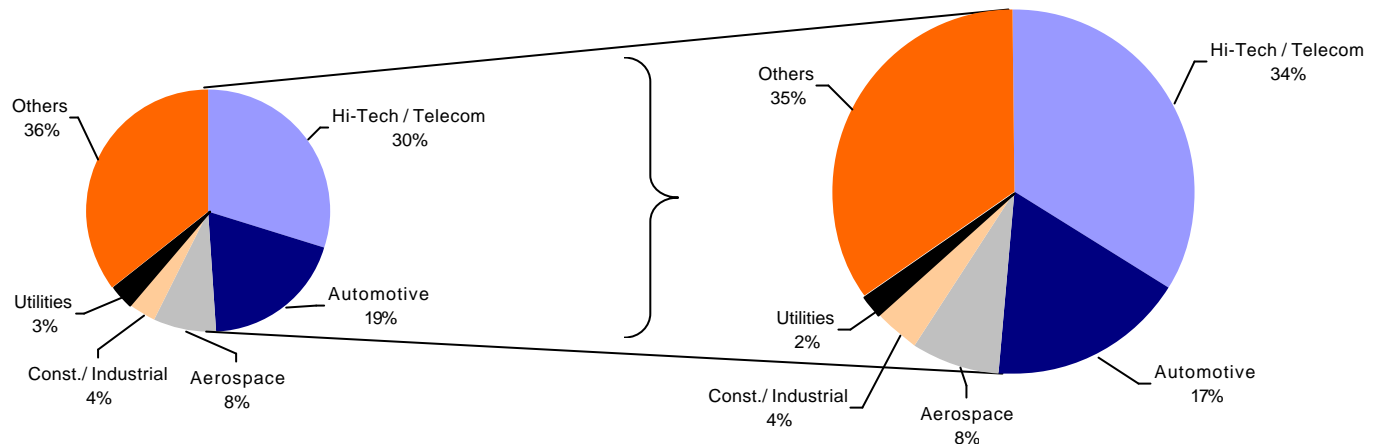
### Offshore Engineering- next wave of IT offshoring/outsourcing

#### 1. Engineering Services Outsourcing:

Engineering Services Outsourcing (ESO) includes product design, research and development and other technical services across sectors like automotive, aerospace, hi-tech/telecom, utilities and construction /industrial machinery.

Engineering Spend 2004- US\$ 750 bn

Engineering Spend 2020- US\$ 1100 bn



Source: NASSCOM

*Engineering Services offshoring market expected to grow at a CAGR of 28% over 2006-2020*

As per NASSCOM and Booz Allen's study, global spending on engineering services is projected to increase from US\$750 bn in 2004 to US\$1.1 trillion by 2020. Out of this, only a miniscule portion i.e. US\$10-15 bn of engineering services is offshored today. The same is expected to grow at a CAGR of 28% to US\$150 -225 bn by 2020. India's market share in offshore engineering, which is currently 12%, is projected to increase to 25% by 2020 i.e. the potential engineering market in India could exceed US\$38 bn by 2020.

#### India advantage

*The primary objective of outsourcing engineering services to emerging markets like India is cost cutting*

The primary objective of outsourcing engineering services to emerging markets like India is cost cutting. While the cost of automotive design in Europe, for instance, ranges as high as US\$800 per hour and is even higher in the US, costs in India are as low as US\$60 per hour for equivalent quality (Source: NASSCOM).

Similarly, increasing globalization spurs growth of R&D outsourcing in the electronics industry. Considering the rapid progress in technology as well as the significant cost and price advantages to be gained, an increasing number of multinational corporations in the electronics industry are beginning to outsource more of their R&D activities. Developing countries are proving to be the fastest growing markets for outsourcing electronics R&D.

*Availability of large pool of highly educated and skilled English-speaking workforce*

Besides cost advantage, India dominates the talent pool needed to support offshoring. In addition to the large pool of highly educated and skilled English-speaking workforce, the availability of a robust education system and low costs are the most decisive factors influencing the flow of R&D-related foreign direct investment (FDI) into a developing country. India accounts for 28 percent of all of the available Engineering Services Outsourcing (ESO) and BPO talent in low-cost countries. The next largest sources of low-cost talent, Russia and China, contribute only 11 and 10 percent, respectively. Key

industries that are shifting their electronics R&D outsourcing to overseas destinations include medical instrumentation, aerospace, automotive, and telecommunications. India's value proposition in ESO space is expected to evolve from simply low cost to a more strategic platform.

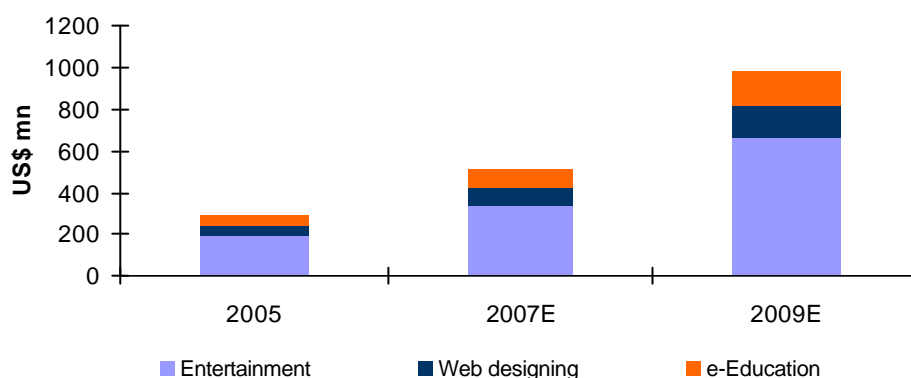
With Tata Elxsi's strong pedigree and proven execution engines in place, coupled with process discipline and quality focus, the company is ideally suited for reaping the business opportunities in the global engineering outsourcing market.

## 2. Animation and Gaming industry

*Indian animation market is expected to witness a CAGR of 35 percent from 2005-2009*

NASSCOM report on Animation and Gaming industry in India estimates the global market size (from the demand perspective) of this industry will witness a CAGR of 8 percent and is expected to reach US\$ 75 bn by 2009. Based on this, the global animation market (from the developers' perspective) is expected to increase to US\$ 35 bn by 2009 from US\$ 25 bn in 2005. The size of the Indian animation market (from the developers' perspective) was estimated at US\$ 285 mn in 2005. It is expected to witness a CAGR of 35 percent from 2005-2009 and increase to US\$ 950 mn by 2009. According to the report, the market for gaming is expected to witness a CAGR of 78 percent and reach US\$ 300 mn by 2009 from US\$ 30 mn in 2005.

### Indian Animation Industry



Source: NASSCOM

India is fast going up the animation-outsourcing ladder. Though a recent entrant in the global animation scene, demand for India's production services is growing at a fast pace. With global entertainment majors like Walt Disney, Imax, Warner Brothers and Sony signing up huge contracts with Indian animation companies, local animation design studios are gradually establishing their credentials overseas and building their skill sets in this high potential global market.

The Indian animation development market was dominated by the entertainment sector, which accounted for a share of 68%. India being the biggest entertainment industry boasts of some world-class studios.

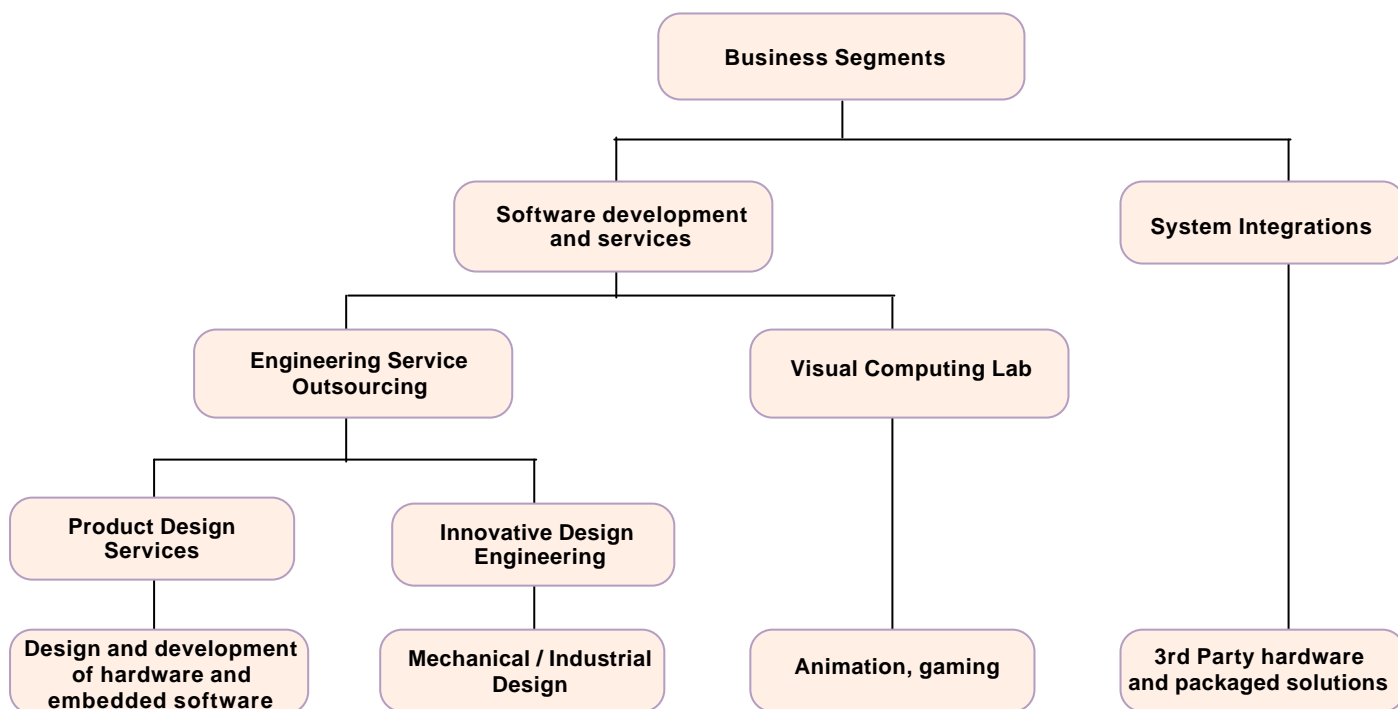
*The cost of producing a 30-minute 3D animation programme in India is US\$60,000 compared to US\$250,000-400,000 in the United States and Canada*

India's attractiveness as an animation hub lies in the presence of an English-speaking workforce, high-quality software engineers, large pool of creative talent, good studios and low costs. The cost of producing a 30-minute 3D animation programme in India is US\$60,000 compared to US\$250,000-400,000 in the United States and Canada. India has a cost advantage compared to the Philippines, which is another low cost producer of animations. The average monthly salary of an animation professional in India is US\$600 compared to US\$1,000-US\$1,200 in the Philippines. The cost of outsourcing one hour of animation work to India is estimated to be 30% to 40% of the corresponding costs in leading animation centers in Korea, Taiwan and the Philippines.

## Company's Profile

TEL, incorporated in 1989, was started with the objective to support and undertake R&D on Elxsi's Mainframes

TEL, incorporated in 1989, was started with the objective to support and undertake R&D (Research and Development) on Elxsi's Mainframes (Elxsi, a U.S based company which was started in 1982 from seed funding of Tata group). Experience gained from the System Integration (support) and Product R&D has enabled TEL to become one of the leading Indian companies in the ESO space.

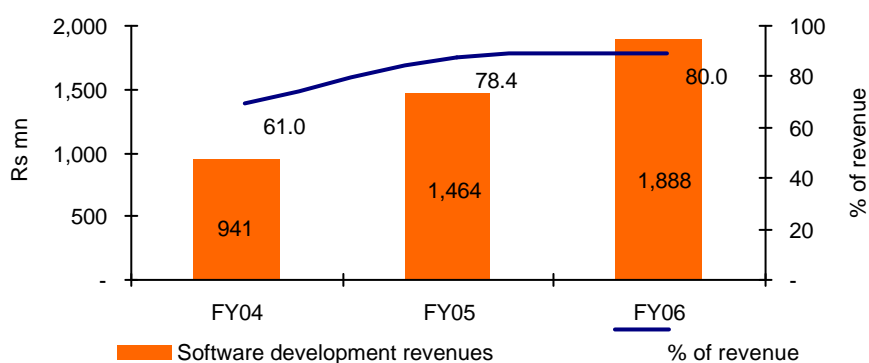


Source: Company

### 1. Software Development & Services

TEL restructured its business model in FY02, which led to conscious reduction of some of its less profitable lines in systems integration and addition of high margin customers in the software development business. With increased focus on Software Development & Services since FY02, this segment's share in total revenues has gradually increased from 49% in FY02 to 80% in FY06. Major portion of the revenue of the software development and services segment comes from Engineering Services Outsourcing (ESO) i.e. Product Design Services (PDS) and Innovation Design & Engineering (IDE) space. Software Development & Services has grown at a CAGR of 42% over FY04-06.

#### Software Development Revenues



Source : Company



*TEL specializes in product design services (PDS) and provides "Full Life-Cycle Product Design Services"*

### Product Design Services (PDS)

TEL has been in the PDS space since 1989, by setting up a dedicated centre in Bangalore. Domain expertise, creative designing capabilities, seamless execution and vast experience in product design has enabled TEL to provide "Full Life-Cycle Product Design Services" currently.

#### Service offerings include:

Development and integration of Embedded Software – software that is embedded in a hardware device (normally in chips) and it drives important functionalities of consumer electronics, automobiles or mobile phones. Market for embedded software applications is around US\$21 bn. With extensive capability in multimedia, networking, graphics and hardware technology, Tata Elxsi addresses hardware and software development for a wide range of embedded products such as digital cameras, video cameras, set-top boxes, office equipment such as printers and scanners, networking and telecommunications infrastructure and products such as routers, switches, gateways and mobile phones.

Hardware design, including Very Large Scale Integration (VLSI) – VLSI is a process for the creation of electronic integrated circuits. Almost all the chips - the Pentiums and the Athlons - are built using this.

Middleware - is used to support complex, distributed applications.

Development and integration of device drivers and full product and system level integration.

*TEL's IPs, reusable components, product reference solutions and frameworks deliver industry leading performance and value benefits*

IP and reusable technology components: Tata Elxsi IPs, reusable components, product reference solutions and frameworks deliver industry leading performance and value benefits, providing customers with reliable and cost effective solutions with faster time to market. Tata Elxsi's extensive portfolio of IPs have enabled Consumer Electronics, Networking and Semiconductor companies across the world for products such as 3G Phones, Gateways, Security Devices, IP Phones & PBX, WLAN Switches, Access points, Network cards, DVD Players, HDTV Applications, Media Players, IP-STB, Mobile TV products, HD & SD Streaming applications.

*Diverse Industry served*

#### Diverse Industry served

PDS caters to diverse sectors - from automobiles and consumer electronics to semi conductors, network & telecom, wireless, media, storage and scientific applications.

*Strong Clientele Relationships*

#### Strong Clientele Relationships

PDS has a proven track record of working with leading companies like CISCO, TI, Motorola, Hitachi, Canon, Enterasys Networks, Pace Micro Technology, Shimadzu, Pinnacle Systems, Airespace and COE.

With its focus in the embedded systems based product design services, seamless execution, continuing strong client relationship and vast experience, we believe TEL is well positioned to capitalize robust market opportunity.



## Innovation Design & Engineering Services (IDE)

### Service offerings include

*IDE delivers integrated services towards complete mechanical product design*

IDE delivers integrated services towards complete mechanical product design, including styling and industrial design, branding and graphics, interface and usability. Its design team works right from marketing inputs to providing complete product specifications and CAD drawings ready for manufacturing. Its designers and engineers work with automotive design studios to design and develop complete digital models for interiors and exteriors of passenger cars and commercial vehicles. Supported by India's largest team of creative industrial designers and mechanical engineers, IDE applies concurrent engineering processes, which enable manufacturers to optimize product concepts early in the design process. TEL has secured the distinction of being the only design partner based in India for many of the worldwide subsidiaries of several prestigious multinationals (based in US, Europe and Japan).

*Supported by India's largest team of creative industrial designers and mechanical engineers, IDE applies concurrent engineering processes*

### Diverse Industries served

*Diverse Industries served*

IDE caters to diverse sectors - from consumer electronics, consumer products, electronic enclosures, FMCG packaging, houseware and domestic appliances, medical devices, industrial products and transportation.

### Marquee Clientele Relationships

*Marquee Clientele Relationships*

Clients across industry segments: -

1) Automotive: -General Motors (designing a rear parcel shelf and car speaker brackets), Toyota, Jaguar Cars, MG Rover, Tata Johnson Controls, Mack Trucks, Lear Seating etc.

2) Packaging: - Unilever Faberge, Hindustan Lever (packaging design for Pond's talc), Glaxo, Cadbury, Procter & Gamble etc.

3) Consumer Appliances: -Whirlpool Appliances (industrial designing and concept modeling towards a new range of washing machines), Sansui (range of concept towards a series of Flat screen TVs), Kenstar, Akai, Encore software, Maytag alliances etc.

4) Design Firms: -Frog Design (SFO and Germany), PSI Design (USA), Holmes & Merchant (UK), PSD Fitch (UK), Seymour Powell (UK) etc.

We believe this business segment holds potential for sizeable growth in the coming future especially in areas like automotive styling, aesthetics and engineering design of consumer products, packaging design of FMCG goods etc..We expect engineering services to post a CAGR of 36% over FY06-09E.

*VCL creates digital media content, animation (2D and 3D) and special effects and games development services*

### Visual Computing Lab (VCL)

#### Service offerings include:

This business unit creates digital media content, animation (2D and 3D) and special effects for advertising, television and motion pictures and games development services for mobile phone markets. It leverages its unique mix of engineering and creative skills including 3D Computer Graphics, Animation, and Visual Effects, to offer services in Pre-Production, Production and Post-Production of content for niche markets of Advertising, Film & TV, and Gaming, both in India as well as Internationally.

*TEL has followed a pro-active approach rather than a reactive one*

#### Strengths of TEL

TEL has followed a pro-active approach rather than a reactive one. Its teams analyze and anticipate bottlenecks that might spring up and work in advance on the solutions. (For example, a lot of pre visualization and animation work had been carried out for Dhoom2). This exercise saves a lot on their clients' production budgets.

TEL has spent a lot of time building credentials abroad and is today already on the approved list of all the major producers and studios in Hollywood.

TEL has worked on more than 200 films in the past and is currently working on at least one film a month and on all of Yash Raj Production and Karan Johar films.

#### Strong Clientele Relationships

VCL has done visual enhancement for: -

1. Bollywood movies like *Veer Zara, Salaam Namaste, Swades, Hum Tum, Bose, Bunty aur Babli, Neal N Nikki, Rang De Basanti, Kabhi Alvida Na Kehna, Dhoom 2* etc.
2. Hollywood films like '*XXX 2*' and '*Into the Blue*' and are currently pursuing two other movies.
3. Advertising commercials for Bournvita, Thums Up, Onida DVD Player, Elle 18 etc.
4. Logo for Sony Music and 3D animation done for Satyam.

Being supported by a skilled team of animation experts and vast exposure to various requirements and challenges in the animation space, we expect VCL to grow at a rate of around 35-40% for the next couple of years. Engineering services and visual computing lab which contributed 49% in FY02 increased to 80% in FY06 and further to 86% for 9MFY07.

*Strong Clientele Relationships*

## 2. System Integration & Support (SI)

### Service offerings include

*One of the oldest System Integration Services provider*

TEL, reputed to be one of the oldest System Integration Services provider in India, integrates products and services using the inherent domain expertise in design tools, visualizations, computer systems, storage and networking.

### Industry served

Partnering with global leaders, the system integration division assists customers in implementing complex design solutions across the market segment such as automotive, aerospace, entertainment, manufacturing, government and education.

### Strategic alliances

Some of the strategic alliances in this business group offering state-of-the-art solutions to customer are: -

1. Computing platforms: - Silicon Graphics and Hewlett Packard.
2. Connectivity solutions: - Autodesk, UGS-PLM and Opticore.
3. Enterprise storage solutions: - Sun Microsystems and Symantec.
4. Digital media solutions: - Apple Computers, Cambridge Animation and Masstech.

TEL's approach in this segment has been to maintain its domestic presence and consciously reduce orders which are not commercially attractive, while continuing to bid for higher margin orders. Due to the inherent nature of the business viz. value added reselling and maintenance revenues, there is a greater amount of lumpiness in the revenues from this segment over the years. This occurs mainly due to a large customer's orders in any year which may not repeat in the following year. Considering the high volatility in this segment, we believe revenue contribution from SI to remain at 12-14% in the near future.

### Transformation from a system integrator to a specialist

*Management's focused strategy of bringing down the low margin system integration business*

From a modest beginning as a system integration company, TEL has today positioned itself as a specialist Engineering Services (ES) outsourcing player with a niche focus on product design services. However, its expertise spans multiple disciplines, such as visual computing, networking and communications, multimedia, digital signal processing, embedded systems, storage solutions, hardware design, CAD / CAM / CAE, film/video and broadcast, and commercial and scientific computing.

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## New Growth Drivers

### HandyDVR

*TEL has built a rich IP portfolio of ready-to-deploy product frameworks and reusable software components*

TEL is among the world's first product solution providers to come out with mobile TV on the laptop (HandyDVR). HandyDVR is a multi featured, handheld USB DVR device for laptops; capable of receiving, recording and relaying broadcast DVB-H digital television i.e. HandyDVR offers live television viewing on the laptop.

### IP (Intellectual Properties) and Product Solutions

Experience gained from the manufacturing of micro-processor based computer systems and components at its Bangalore centre in the 90s has enabled TEL to build a rich IP portfolio of ready-to-deploy product frameworks and reusable software components in the areas of multimedia, networking, semiconductor, storage, WiMax and mobile TV. TEL's comprehensive portfolio of IPs, reusable components, product reference solutions and frameworks have enabled Consumer Electronics, Networking and Semiconductor companies across the world for products such as Wimax, 3G Phones, Gateways, Security Devices, IP Phones & PBX, WLAN Switches, Access points, Network cards, DVD Players, HDTV Applications, Media Players, IP-STB, Mobile TV products, HD & SD Streaming applications. In this area, recently Tata Elxsi has come up with prototype designs for a portable media-player, which can be customized into a full product according to the client's requirements. The new approach would help TEL in tapping the fast-evolving market for smart phones, media-players, game-consoles and toys. We expect contributions from IP and product solutions to increase from 7% of the total revenues currently to 10-12% going forward.

### Comprehensive expansion plan

*TEL to double the headcount in 18-24 months and adding / expanding development centres*

TEL is developing an additional design centre at Thiruvananthapuram, which will house 2000 people and is going to be completed (in 3 phases) by June 2008. Besides this new centre, TEL is planning to add at least two development centres to its existing four within the next 18 months. Its first 'near shore' center outside India is expected to come up at Tokyo in Japan very soon, which will house 30 people in the initial phase.

Besides strengthening its reach and presence, the company is also looking to double its headcount from the current level of 2300+ employees within the next 18-24 months, with most of the recruitment happening in the product development and designing space. TEL is planning to recruit freshers and laterals in the ratio of 60:40. Induction of laterals and expansion in new centres will help TEL to fill the skill gap. TEL is expected to incur Rs300 mn and Rs 360 mn in FY08E and FY09E respectively on its expansion, which will be funded entirely from its internal accruals.

### Margin levers available

*TEL has multiple margin levers*

We believe TEL has multiple margin levers in the form of (a) strong volume growth, (b) increased contributions from IP and product solutions currently from 7% of the total revenues to 10-12% going forward, (c) increased contributions from engineering services revenues from 80% in FY06 to 90% by FY09E, (d) more hiring of freshers – about 60% of the total hiring, and (e) better SG and A leverage.

*TEL's revenues are volatile in nature, since most of the businesses are project based*

### Key risks and concerns

TEL's revenues are volatile in nature, since most of the businesses are project based.

Wage inflation at around 15%-18% annually is very much a reality in the software industry, given the fact that demand outpaces the supply. Therefore, attracting and retaining the right talent is the biggest challenge for the company, in particular when it has to play a role of a specialist outsourcing player.

TEL faces increased competition from mid-size IT companies like Infotech Enterprises, Rolta, Sasken Technologies, KPIT Cummins, Geometric Software etc and even Top Tier IT companies like Infosys, TCS, Wipro, Satyam etc, besides captive units like Bechtel, Ford, GM, Caterpillar etc in the engineering space.

Top 5 and Top 10 clients still contributed as high as 42% and 53% of the total revenues during 9MFY07. Revenues of the company would be adversely impacted with any of the top clients ramping down significantly or in the event of delay in execution of the projects.

Emergence of other offshoring destinations such as China, Eastern Europe and South East Asian countries could provide tough competition to India in general and TEL in particular.

**Broad Operating Metrics for 9MFY07**

<b>Revenue by Horizontal</b>	
System Integration	14%
Product Design Services	73%
Innovative Design Engineering	9%
Visual Computing Lab	4%
<b>Revenue by Clients</b>	
Top Client	18%
Top 5 Clients	42%
Top 10 Clients	53%
<b>Revenue by Geography</b>	
US	30%
Europe	30%
Japan	30%
RoW	10%
Fixed Price Project	30-35%
Offshore Ratio	60-65%
Repeat Business	60%
Utilisations	80%
<b>Break up of Employees</b>	
Product Design Services	1750
Industrial Design Engineering	250
Visual Computing Labs	150
System Integration	150
<b>Total Employees</b>	<b>2300</b>
Attrition	15%

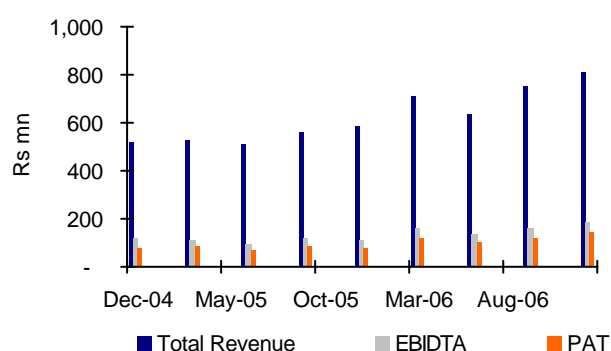
Source : Company

## Key Financials

Consolidated Quarterly (Rs mn)	Dec-04	Mar-05	Jun-05	Sep-05	Dec-05	Mar-06	Jun-06	Sep-06	Dec-06
<b>Total Revenue</b>	<b>517</b>	<b>528</b>	<b>511</b>	<b>561</b>	<b>579</b>	<b>711</b>	<b>635</b>	<b>750</b>	<b>805</b>
Growth (%) q-o-q	17.7	2.1	(3.3)	9.8	3.3	22.7	(10.7)	18.2	7.3
System Integration	121	110	92	100	123	158	70	113	115
Growth (%) q-o-q	78.6	(8.7)	(16.5)	8.9	22.3	28.7	(55.6)	61.5	2.0
Software development	396	418	419	460	457	553	565	637	690
Growth (%) q-o-q	6.6	5.4	0.2	10.0	(0.8)	21.1	2.1	12.8	8.3
Cons of raw materials	93	78	70	77	87	118	63	103	92
Staff cost	213	265	266	281	302	348	326	369	404
Other Exp	99	75	84	86	82	88	110	121	127
<b>EBIDTA</b>	<b>113</b>	<b>110</b>	<b>91</b>	<b>116</b>	<b>108</b>	<b>157</b>	<b>136</b>	<b>156</b>	<b>183</b>
Growth (%) q-o-q	40.6	(2.8)	(17.3)	28.1	(7.1)	44.7	(13.2)	15.2	17.1
Growth (%) y-o-y	46.3	64.9	41.3	44.8	(4.4)	42.4	49.4	34.4	69.3
<b>EBIDTA (%)</b>	<b>21.9</b>	<b>20.8</b>	<b>17.8</b>	<b>20.8</b>	<b>18.7</b>	<b>22.0</b>	<b>21.4</b>	<b>20.9</b>	<b>22.8</b>
Add:Other Income	0	0	0	0	0	1	1	1	0
Less:Depreciation	13	14	15	17	17	18	19	20	22
PBT	100	96	76	100	91	139	118	138	161
Less:Tax	24	14	10	13	14	24	16	18	20
<b>PAT</b>	<b>76</b>	<b>82</b>	<b>66</b>	<b>87</b>	<b>77</b>	<b>116</b>	<b>102</b>	<b>120</b>	<b>141</b>
Growth (%) q-o-q	23.9	7.8	(19.3)	29.6	(10.8)	51.6	(11.5)	16.4	17.4
Growth (%) y-o-y	36.0	32.6	50.0	39.6	0.5	41.3	54.9	39.1	83.1
<b>PAT (%)</b>	<b>14.7</b>	<b>15.5</b>	<b>12.9</b>	<b>15.2</b>	<b>13.2</b>	<b>16.3</b>	<b>16.1</b>	<b>15.9</b>	<b>17.3</b>
EPS	2.4	2.6	2.1	2.7	2.4	3.7	3.3	3.8	4.5

Source : Company

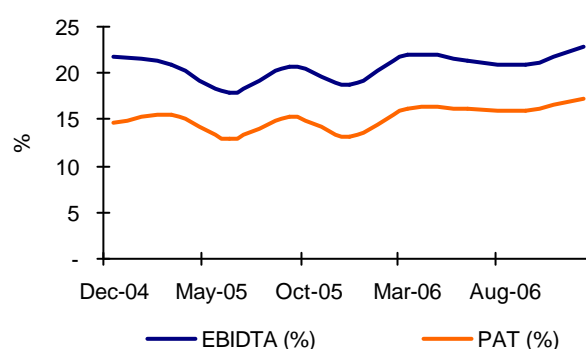
## Revenues



Source : Company

*EBIDTA and PAT have shown a healthy CAGR of 40% over FY04-06*

## Margins



TEL has posted CAGR of 24% in revenues over FY04-06. However, revenue has grown 33% yoy to Rs 2,190 mn, comparing 9MFY07 with 9MFY06. Due to a change in revenue mix in favour of engineering services, EBIDTA margins have improved from 15.4% in FY04 to 20% in FY06 and further to 21.7% during 9MFY07.

EBIDTA and PAT have shown healthy CAGR of 40% over FY04-06, comparable to any IT company. PAT margins have improved from 11.4% in FY04 to 14.5% in FY06 and further to 16.5% during 9MFY07.

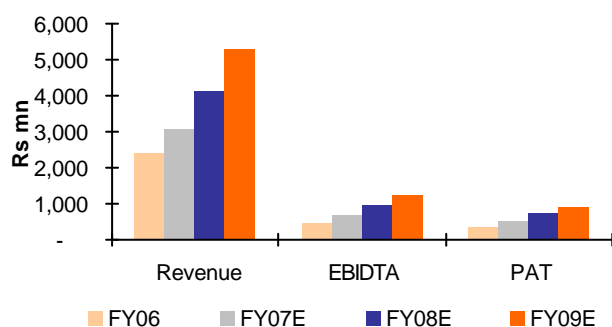


## Segment Results (Rs mn)

Consolidated Quarterly	Jun-05	Sep-05	Dec-05	Mar-06	Jun-06	Sep-06	Dec-06
<b>Total Revenues</b>	<b>510.8</b>	<b>560.8</b>	<b>579.3</b>	<b>710.7</b>	<b>634.7</b>	<b>750.1</b>	<b>805.0</b>
Growth (%) q-o-q	(3.3)	9.8	3.3	22.7	(10.7)	18.2	7.3
Growth (%) y-o-y	33.6	27.6	12.0	34.6	24.3	33.8	39.0
<b>System Integration</b>	<b>92.2</b>	<b>100.4</b>	<b>122.8</b>	<b>158.0</b>	<b>70.1</b>	<b>113.2</b>	<b>115.5</b>
Growth (%) q-o-q	(16.5)	8.9	22.3	28.7	(55.6)	61.5	2.0
Growth (%) y-o-y	(10.9)	48.3	1.5	43.1	(24.0)	12.8	(5.9)
% of Sales	18.1	17.9	21.2	44.0	11.0	15.1	14.3
<b>Software development</b>	<b>418.6</b>	<b>460.4</b>	<b>456.5</b>	<b>552.7</b>	<b>564.5</b>	<b>636.9</b>	<b>689.5</b>
Growth (%) q-o-q	0.2	10.0	(0.8)	21.1	2.1	12.8	8.3
Growth (%) y-o-y	50.2	23.8	15.2	32.3	34.9	38.3	51.0
% of Sales	81.9	82.1	78.8	77.8	89.0	84.9	85.7
<b>EBIDTA - Total</b>	<b>90.9</b>	<b>116.4</b>	<b>108.2</b>	<b>156.5</b>	<b>135.8</b>	<b>156.5</b>	<b>183.2</b>
Growth (%) q-o-q	(17.3)	28.1	(7.1)	44.7	(13.2)	15.2	17.1
Growth (%) y-o-y	41.3	44.8	(4.4)	42.4	49.4	34.4	69.3
% of sales	17.8	20.8	18.7	22.0	21.4	20.9	22.8
<b>EBIDTA - segmentwise</b>							
System Integrations (SI)	8.8	18.4	15.8	27.1	1.2	6.6	15.8
% of SI sales	9.5	18.3	12.9	17.1	1.6	5.9	13.7
Software development (SD)	81.6	97.0	89.6	136.5	134.7	150.7	167.6
% of SD sales	19.5	21.1	19.6	24.7	23.9	23.7	24.3

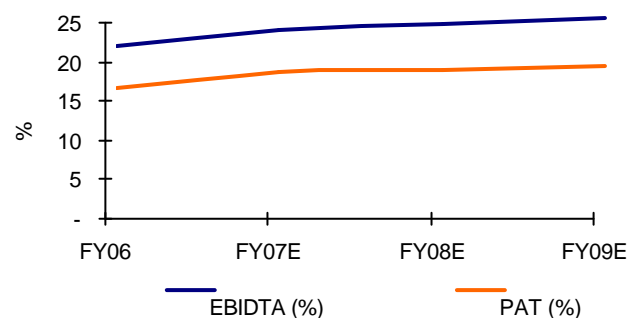
Source: Company

## Revenue Estimates



Source: Company, Emkay research

## Margins



We expect EPS of Rs 22.3 and Rs 29.3 for FY08E and FY09E respectively

We expect revenues to post CAGR of 31% over FY06-09 to reach Rs 5,256 mn by FY09E. EBITDA margins shall improve by 340 bps from 20% in FY06 to 23.4% in FY09E (already at 21.7% for 9MFY07). EBITDA shall increase from Rs 472 mn in FY06 to Rs 1,232 mn by FY09E (CAGR of 38% over FY06-09E). We expect PAT margins to improve from 14.5% in FY06 to 17.4% by FY09E (already at 16.5% for 9MFY07). PAT shall increase from Rs 343 mn in FY06 to Rs 913 mn in FY09E (CAGR of 38% over FY06-09E). We expect EPS of Rs 22.3 and Rs 29.3 for FY08E and FY09E respectively.

We expect cash and cash equivalents to increase from Rs 146 mn in FY06 to Rs 854 mn in FY09E.

### Valuations

*We expect the company to post a CAGR of 31% in revenues and 39% in profits for FY06-09E*

We expect the company to post a CAGR of 31% in revenues and 39% in profits for FY06-09E. EBITDA margins shall expand by 340 bps from 20% in FY06 to 23.4% in FY09E (already at 21.7% for 9MFY07). We expect healthy ROE of 61% and 55% for FY08E and FY09E respectively. With strong growth and expansion plan in place, robust order book position, expected improvement in margins, high dividend yield and healthy ROE, we believe TEL offers an attractive investment opportunity. At CMP of Rs 284, the stock is available at P/E of 12.8x FY08E and 9.7x FY09E and EV/EBITDA of 9.5x FY08E and 7.2x FY09E. We recommend BUY with a target price of Rs 381 (13x FY09E EPS of Rs 29.3).

### Comparative Valuations

	CMP	Sales			EBITDA margins (%)			PAT margins (%)		
		FY07	FY08	FY09	FY07	FY08	FY09	FY07	FY08	FY09
<b>Tata Elxsi</b>	<b>285</b>	<b>3,075</b>	<b>4,125</b>	<b>5,256</b>	<b>21.9</b>	<b>22.6</b>	<b>23.4</b>	<b>16.6</b>	<b>16.8</b>	<b>17.4</b>
Infotech Enterprise	347	5,456	7,584	10,087	21.3	21.3	21.0	15.1	15.2	15.0
Geometric Software*	100	2,889	4,013	5,337	27.0	28.1	29.2	12.6	11.7	11.5
KPIT Cummins *	130	4,573	6,126	7,903	15.8	16.0	16.4	11.1	11.3	11.6
Sasken Communications *	480	4,813	6,844	9,139	17.2	21.2	22.6	10.2	12.9	14.1

	EPS			ROE			PE			EV/EBITDA		
	FY07	FY08	FY09	FY07	FY08	FY09	FY07	FY08	FY09	FY07	FY08	FY09
<b>Tata Elxsi</b>	<b>16.4</b>	<b>22.3</b>	<b>29.3</b>	<b>55.4</b>	<b>51.5</b>	<b>46.2</b>	<b>17.4</b>	<b>12.8</b>	<b>9.7</b>	<b>12.9</b>	<b>9.3</b>	<b>7.1</b>
Infotech Enterprise	17.4	24.3	32.9	29.2	29.7	29.7	19.9	14.3	10.5	13.6	9.8	7.5
Geometric Software *	5.9	7.7	10.0	22.4	24.0	28.2	16.9	13.0	10.0	7.7	5.3	3.8
KPIT Cummins *	6.7	9.0	11.8	30.8	30.1	30.1	19.4	14.4	11.0	14.1	10.4	7.9
Sasken Communications*	18.2	32.0	42.6	11.9	17.9	21.5	26.3	15.0	11.3	14.1	8.0	5.6

Source: Emkay research ,\* Bloomberg estimates

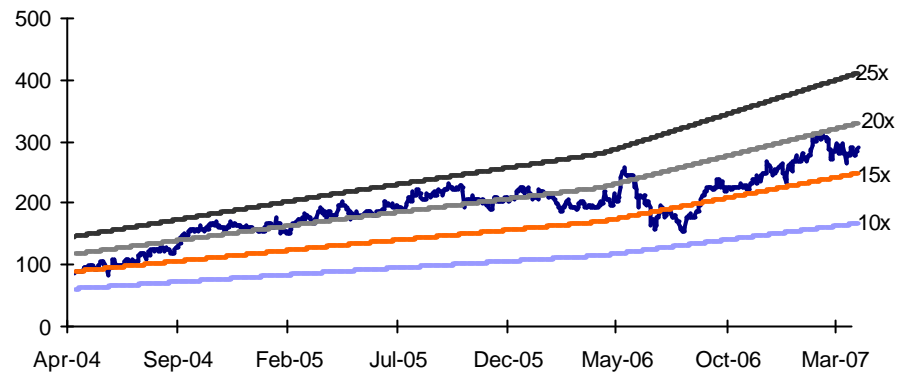
With strong growth in revenues and profits, better margins, healthy return ratios and undemanding valuations make TEL an attractive investment proposition.

### Absolute Price Performance

	1m	3m	6m	12m
<b>Tata Elxsi</b>	<b>4</b>	<b>9</b>	<b>29</b>	<b>44</b>
Infotech Enterprises	-2	9	66	93
Geometric Software	-7	-16	-8	-1
KPIT Cummins	-7	-6	56	73
Sasken Communications	-3	-10	22	40
BSE IT Index	0	-7	11	20
Sensex	0	-6	4	15

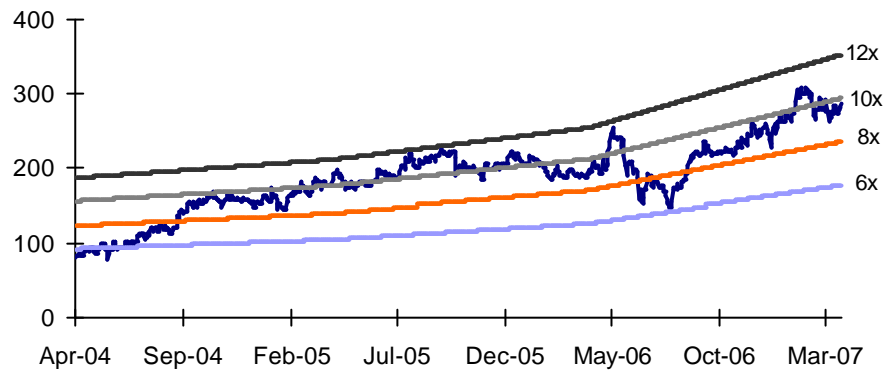
Source: Bloomberg

Tata Elxsi - P/E Band



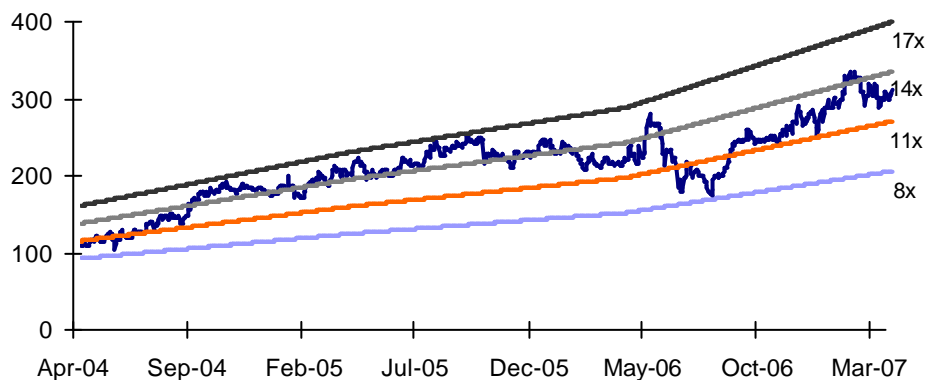
Source: Emkay research

Tata Elxsi - P/B Band



Source: Emkay research

Tata Elxsi- EV/EBITDA Band



Source: Emkay research

Profit & Loss Statement					Balance Sheet				
Mar end (Rs mn)	FY06	FY07E	FY08E	FY09E	Mar end (Rs mn)	FY06	FY07E	FY08E	FY09E
System Integration	473	426	478	502	Equity Capital	311	311	311	311
Growth (%)	17.6	(10.0)	12.3	5.0	Reserves	348	610	1,038	1,667
Software development	1,888	2,649	3,647	4,754	Networth	659	921	1,350	1,979
Growth (%)	28.9	40.3	37.7	30.4	Deferred Tax Liability	35	35	35	35
<b>Total Revenues</b>	<b>2,362</b>	<b>3,075</b>	<b>4,125</b>	<b>5,256</b>	<b>Total Liabilities</b>	<b>694</b>	<b>956</b>	<b>1,384</b>	<b>2,013</b>
Growth (%)	26.5	30.2	34.1	27.4	Gross Block	777	997	1,297	1,657
Cons of raw materials	351	358	417	460	Less Depreciation	324	408	521	668
Staff cost	1,197	1,543	2,109	2,718	Net Fixed Assets	453	589	776	989
General & Admin. Expenses	341	499	666	846	CWP	31	31	31	31
<b>EBITDA</b>	<b>472</b>	<b>675</b>	<b>933</b>	<b>1,232</b>	Debtors	466	632	848	1,080
Growth (%)	28.4	43.0	38.3	32.0	Cash and Bank	145	254	467	854
<b>EBITDA margin (%)</b>	<b>20.0</b>	<b>21.9</b>	<b>22.6</b>	<b>23.4</b>	Inventories	1	3	4	5
Other Income	2	3	3	4	Loans & Advances	358	461	619	788
Interest Exp	2	4	6	6	Total Curr. Assets	971	1,351	1,938	2,728
Depreciation	67	84	112	147	Current Liabilities	375	461	619	788
PBT	404	589	817	1,083	Provisions	387	554	743	946
Tax	61	78	122	169	Total Curr. Liabi. & Prov.	761	1,015	1,361	1,735
<b>PAT</b>	<b>343</b>	<b>510</b>	<b>695</b>	<b>913</b>	Net Current Assets	210	336	577	993
Growth (%)	30.6	48.7	36.1	31.4	<b>Total Assets</b>	<b>694</b>	<b>956</b>	<b>1,384</b>	<b>2,013</b>
<b>PAT margin (%)</b>	<b>14.5</b>	<b>16.6</b>	<b>16.8</b>	<b>17.4</b>					

Source : Company, Emkay Research

Source : Company, Emkay Research

Cash Flow					Ratios				
Mar end (Rs mn)	FY06	FY07E	FY08E	FY09E	Mar end	FY06	FY07E	FY08E	FY09E
Profit Before Tax	404	589	817	1,083	<b>Profitability (%)</b>				
Depreciation	67	84	112	147	EBITDA margin	20.0	21.9	22.6	23.4
Interest Expenses	2	4	6	6	PAT margin	14.5	16.6	16.8	17.4
Operating Cash Flow	474	677	936	1,236	ROCE	58.5	62.0	59.5	54.1
Change in working capital	(29)	(35)	(46)	(48)	ROE	52.1	55.4	51.5	46.2
Less:Direct Taxes	(61)	(78)	(122)	(169)	<b>Per Share Data (Rs.)</b>				
<b>Net C F from Operating</b>	<b>395</b>	<b>564</b>	<b>768</b>	<b>1,019</b>	EPS	11.0	16.4	22.3	29.3
CF from Investing Activities					CEPS	13.2	19.1	25.9	34.1
(Purchase)/Sale of Fixed Asset	(193)	(220)	(300)	(360)	BVPS	21.2	29.6	43.3	63.5
<b>Net C F from Investing</b>	<b>(193)</b>	<b>(220)</b>	<b>(300)</b>	<b>(360)</b>	DPS	6.5	7.0	7.5	8.0
CF from Financing Activities					<b>Valuation (x)</b>				
Dividend Paid	(196)	(231)	(249)	(266)	P/E	25.9	17.4	12.8	9.7
Interest Paid	(2)	(4)	(6)	(6)	Cash PE	21.6	14.9	11.0	8.4
<b>Net CF from Financing</b>	<b>(198)</b>	<b>(235)</b>	<b>(255)</b>	<b>(273)</b>	P/BV	13.5	9.6	6.6	4.5
Net Increase/(Decrease) in Cash	4	109	213	387	EV/EBITDA	18.8	13.2	9.5	7.2
<b>Opening Balance</b>	<b>141</b>	<b>145</b>	<b>254</b>	<b>467</b>	EV/Sales	3.8	2.9	2.2	1.7
<b>Closing Balance</b>	<b>145</b>	<b>254</b>	<b>467</b>	<b>854</b>	PEG	0.8	0.4	0.4	0.3
					Dividend Yield %	2.3	2.5	2.6	2.8

Source : Company, Emkay Research

Source : Company, Emkay Research

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## Emkay Rating Distribution

Ratings	Definition
BUY	Expected total return (%) of stock price appreciation and dividend yield) of over 25% within the next 12-18 months.
ACCUMULATE	Expected total return (%) of stock price appreciation and dividend yield) of over 10% within the next 12-18 months.
REDUCE	Expected total return (%) of stock price appreciation and dividend yield) of below 10% within the next 12-18 months.
SELL	The stock is believed to under perform the broad market indices or its related universe within the next 12-18 months.
NEUTRAL	Analyst has no investment opinion on the stock under review.

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