Karel

Outperform

Ringing in a bargain

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- **Karel is a prominent manufacturer and supplier of telecom equipment in Turkey**, producing and marketing various telephone systems including public switches, private automatic branch exchange (PABX) systems, telephone sets and other accessories.

- **We are initiating coverage of Karel with an "Outperform" rating and a 12-month target price of TRY7.70, offering 97% TRY-based potential upside. We also include the stock in our top picks list**. The 2008F EV/EBITDA multiple of 3.4x, P/E multiple of 5.5x, and 5-year USD-based EPS CAGR forecast of 10%+ support our view that Karel is a neglected value-play for the small-cap investor, yet boasting a decent growth profile.

- **Robust financial performance.** Karel's revenues posted a USD CAGR of 11% in the past 3 years, while its margins also improved thanks to economies of scale and rising share of more profitable products, with a remarkable average EBITDA margin of 22.0% and average R.O.E. of 26.4%. Bolstered by the IPO proceeds, Karel targets further profitable growth via investing in R&D, production capacity, brand promotion and export penetration.

- **With a strong brand name and market position, Karel enjoys a dominant position in Turkey with a 61% market share in the local PABX market and an 80% share in the PABX market for SMEs**. With a focus on innovation, R&D and new product development, as well as the strongest sales and distribution network in the sector, Karel has built an indisputable competitive edge in the PABX market through meeting customer demands for cost-efficient products, while gaining market leadership and pricing power.

- **Growth potential**. The Turkish PABX market posted a CAGR of 12.7% in 2000-2005, and is expected to maintain its momentum through the liberalisation of the sector and mounting competition following Turk Telekom's privatisation and Telsim's sale to Vodafone. Falling prices of telecom services and broadening business lines in the liberalisation era should also boost the replacement market, where Karel offers considerable potential.

- **Broad area of operations**. Karel's business lines have diversified into areas other than PABX / telecom equipment, such as electronic control board production, the sale of commercial telecom equipment, turnkey projects and R&D and service activities.

- **R&D capacity and focus**. As the largest communication electronics firm with Turkish capital, Karel devises all its core products under its own license and know-how. Karel allocates a significant 10% of its annual production revenues to R&D, seeing R&D as imperative in gaining a competitive edge in developing new and affordable technologies and transforming them into saleable products. Karel's R&D centre, operating with certain attractive tax incentives, can generate a plethora of electronic designs for use in the telecoms, industrial electronics and defence industries. Karel will clearly benefit from the government's policy to support investments in technology and progressively raise subsidies on R&D for the development of value-added products.

- **Established business relations.** Karel enjoys long-standing relations with its client portfolio, including reputable names such as Turk Telekom, Arcelik, Aselsan, Vodafone Turkey, Avea, British AEP, and Aztelekom. It has also established strong relations and partnerships with well-known international companies in several projects and public tenders.

- **Competitive advantages**. Karel boasts production cost flexibility against larger global telecom equipment suppliers as well as geographical proximity to key markets.

- **Growth potential abroad.** Karel sells in more than 20 countries in three continents, while its future strategy embraces exporting its R&D capabilities to other markets to replicate its success story in Turkey. Karel has already established itself as the leading provider of premises switching equipment in the Middle East & Africa region for the last few years.

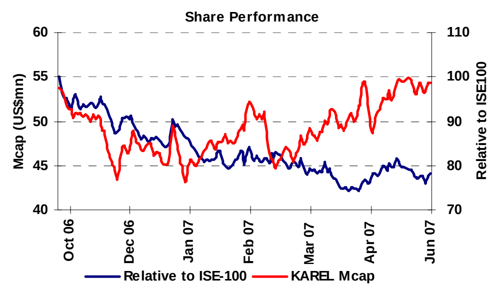
Key Financials (US$mn)	2004	2005	2006	2007F	2008F
Revenues	41	35	43	54	60
EBITDA	8	8	10	12	14
Net Earnings	4	6	8	8	10
EV/Sales (x)	-	-	1.1	0.9	0.8
EV/EBITDA (x)	-	-	4.6	3.9	3.4
P/E	-	-	6.6	6.4	5.5

Stock Data

Bloomberg / Reuters	KAREL TI / KAREL.IS
Price (TRY)	3.90
12-mo. Price Target (TRY)	7.70
52-week Price Range (TRY)	3.42 - 4.28
Shares Outstanding	18,200,000
Market Cap (TRYmn):	71
Market Cap (USDmn):	54
Enterprise Value (USDmn)	46

Trading Data

Relative Performance	
3-month:	-5.0%
6-month:	-13.9%
3-mo. Avg. Daily Trading Vol.	US$0.30 mn
Weight in ISE-100	-
Beta (weekly returns, since IPO)	0.640
Foreign Ownership	
Current	30.2% of free float
6 months ago	27.3% of free float



Investment Positives

Attractive valuation. Karel trades at attractive 3.9x EV/EBITDA and 6.4x P/E multiples based on our 2007 forecasts. Karel is trading at a significant discount to the ISE-100, ISE-Technology and ISE-Industrials multiples, as well as comparable companies. Our DCF analysis yields a current fair value of US$85mn. Our 12-month price objective, blending relative-based valuation with a cash-flow-based valuation is TRY7.70, suggests 97% upside potential (77% in USD terms according to our exchange rate assumptions). Karel's domestic and international growth prospects only fortify its value-play investment story, in our view, which we believe is currently neglected by the market. With the upcoming quarterly earnings releases, we believe that the market awareness of the stock will improve, and company multiples will eventually expand.

Turkey's largest PABX producer...

Strong brand name and market position. Karel has been the market leader in Turkey's PABX (private automatic branch exchange) market with a 60%+ share for the last three years as measured by the number of lines. Karel is also recognised as the most-regarded PABX brand in Turkey according to consumer research surveys. Around 80% of Turkish small-and-medium-sized enterprises (SMEs) use Karel's PABX products. The government is propelling the efficiency of SMEs via promoting information and communication technologies, enhancing the future potential of Karel.

Growth potential. The Turkish PABX market posted a CAGR of 12.7% in the 2000-2005 period, and is expected to maintain its march upwards through the liberalisation process of the Turkish telecom industry. Going forward, VoIP applications and IP-enabled systems will further boost the potential of the PABX market both through new sales and replacement demand. Karel positions itself as a "solution partner" for alternate operators. Recently-licensed Long Distance Telecom Service Providers will also augment PABX demand. Turk Telekom's privatisation (effectively also leading to change of control in Avea), Telsim's sale to Vodafone, and Turkcell's efforts to preserve its dominant market position are all likely to bode well for the telecom equipment industry. Falling prices of telecom services and broadening business lines in the liberalisation era may also be expected to encourage companies to invest in PABX and technical equipment, especially breathing life into the replacement market, where Karel commands the largest potential in the industry.

Broad area of operations. Although PABX and other telecom equipment account for more than half of Karel's revenues, the Company's business lines are fairly diversified into other areas as well, including electronic control board production, sale of commercial telecom equipment, turnkey projects, as well as R&D and service activities.

... with a special focus on R&D and innovation...

R&D capacity and focus. As the largest Turkish communications electronics firm (excluding companies with foreign capital), Karel is not technologically dependent for the licence and know-how of the products in its portfolio. Karel's R&D centre in Cyberpark, Ankara, has the capacity to produce a variety of electronic designs for use in the telecoms, industrial electronics and defence industries. With a business philosophy of special focus on R&D, Karel allocates 10% of its annual revenues from production to R&D activities, an atypically high level in Turkey. Cyberpark operations also benefit from certain attractive tax incentives.

The Turkish government has a current policy of supporting technology companies in particular, progressively allocating a higher portion of the state budget to subsidising R&D investments for the development of value-added products. In line with the government's target of raising Turkey's R&D expenditures to 2% of GDP by 2010, the largest y-o-y increase in the government's 2006 budget items had been allocated with 114% to TUBITAK (The Scientific & Technological Research Council of Turkey), while 2007 R&D budget was set at a quite equal amount. This approach brightens the outlook of Karel, which receives financial support from TUBITAK. Moreover, the government support for 2007 R&D studies has been announced as TRY1.3bn (US$0.8bn), up from TRY300mn (US$0.2mn) in 2002 (implying 34% CAGR).

The government has prepared a new draft law to further encourage R&D investments, which is anticipated to be passed by the parliament in a near future. The new draft law encompasses personnel incentives, 100% (40% in effective law) corporate tax exemption of R&D expenditures, one-time R&D capital support, among others. The new law, if approved, will be effective until 2023. This new law should brighten Karel's outlook as it presents augmented incentives.

- **Innovative approach.** Karel has been the pioneer in the shift from electro-mechanic systems to electronic communication systems in the Turkish telecom industry. Thanks to its R&D focus, Karel has been the first to introduce a number of telephone systems and accessories in Turkey, including (i) digital PABX; (ii) after-sales service through phone lines with remote control; (iii) the mini printer; (iv) the integrated auto attendant; (v) the internal pager; (vi) the GSM gateway; (vii) the DECT system. As a result of technological innovations integrating voice and data transmission, and the need for cutting communication costs, customers are increasingly demanding more value-added products with new features. Karel's know-how of the market and being close to market needs also allow it to develop functional, user-friendly, and customer-tailored solutions.

... and a powerful sales & distribution network

- **Extensive sales and distribution network**. Sales & distribution channels are very important in Karel's business. With 5 regional representative offices and more than 400 points of sale and after-sales service, Karel has penetrated into 95% of the cities in Turkey with a qualified sales and after-sales force.

- **Long-standing business relations.** Karel has long-standing relations with its client portfolio, including reputable names, such as Turk Telekom, Arcelik, Aselsan, Vodafone Turkey, Avea, the British AEP, and Aztelekom (the national telecom operator of Azerbeijan), among others. The Company's Project - Investment Department has also built strong relations and partnerships with well-known international companies in several projects and public tenders in both Turkey and abroad. These partners include NEC, Ascom Monetel, ECI Telecom, Marconi Communications, Dialogic/Intel, and Samsung, among others, and are expected to add to Karel's future potential in the telecom infrastructure market in Turkey and other regions.

- **Competitive advantages.** Alcatel, Siemens, Ericsson, Nortel Networks, Motorola are among the companies competing with Karel in its key markets. Karel sees its competitive advantage vis-à-vis the larger names as flexibility with production cost advantages. Karel's successful PABX strategy is to offer new technologies to the market at reasonable prices. The larger names have actually been withdrawing from products or markets as they face margin pressure, which augments Karel's potential. Karel also has a geographic location advantage vs. Far Eastern and other Asian producers due to its proximity to key markets as well as its cultural ties with the Central Asian republics.

Seeking to repeat its success in the domestic market in export markets

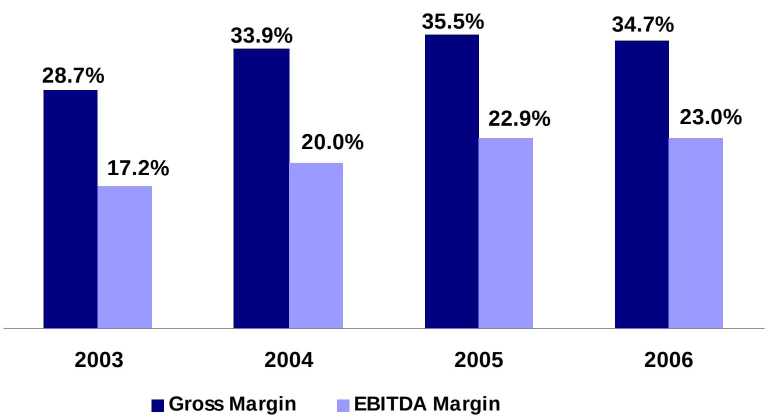
- **Exports experience and focus.** Since 1990, Karel has become active in more than 20 countries in Asia, Africa, and Europe through 25 main local distributors. The Company has been the leading provider of Premises Switching Equipment to the Middle East & Africa region for the last three years with a 27.6% market share as of 2005. Karel's product spectrum is particularly suitable for developing high-growth markets. The Company's future strategy embraces exporting out its R&D capabilities to other markets to pursue a similar success story achieved in the local market vs. the larger players. Karel also plans to build production facilities in its key markets to benefit from certain cost advantages of local production over imports into these markets.

- **Experienced and successful management**. Karel was founded by three entrepreneurial brothers and developed in 20 years to its current position. As well as the major shareholders, other top managers in the company are very qualified and talented, and have been with Karel for a long period. The management also presents a decent profile from a corporate governance perspective.

Enjoying improving profitability ratios

Strong financial status. Karel's 2006 revenues rose by 23% in USD terms (like-for-like basis). The company's EBITDA margin also increased from 17% in 2003 to 23% in 2006, while its gross margin improved from 29% in 2003 to 35% in 2006. On the back of economies of scale, rising share of more profitable telecom equipment sales has increased Karel's margins, also supported by the value-added impact of rising R&D activities. Note, however, that Karel's margins are predicted to be slightly diluted in 2007 and onwards due to rising portion of slimmer margin electronic board and project revenues in the sales mix. Karel has posted a strong R.O.E. over the last three years, in the range of 25-30%. Karel also boasts a sound balance sheet with a long FX position of US$1.8mn and a net cash position of US$8.0mn.

Figure 1. Karel - Improving Profitability



Risks & Investment Negatives

Sovereign risk. Karel's operations are highly exposed to Turkish GDP, despite the company's rising diversification through an increasing exports focus. A slowdown in domestic economic activity could hurt Karel's prospects; hence, it is susceptible to systematic risks. Turkey's gaping current account deficit renders the country as one of the more sensitive in the region to adverse global liquidity events. An erosion of confidence in Turkey's macro economy or political stability could derail Karel's investment thesis (just like other stocks trading at the Istanbul Stock Exchange).

Exposure to developing markets. Although Karel's export focus in developing high-growth regions is an investment plus from one perspective, it is also a risk factor as developing markets have their own characteristic risks, whether they are political, economic, or market risks, or risks arising from protectionist measures. A decline in commodity and energy prices could particularly depress economic growth in C.I.S. countries, an important region in Karel's export story. Moreover, every country's telecommunications infrastructure and needs may be different. Ensuring product compatibility, finding the correct local partner to distribute products, obtaining necessary approvals / permissions and gaining know-how of the market to effectively make business requires time and exertion.

Susceptible to telecom industry risks over and above systematic risks

Industry risk / Technological changes / Convergence of voice and data. The Telecom & telecom equipment businesses are rapidly developing with relatively shorter product cycles. This renders some technologies and investments obsolete, and requires technological investments and upgrades on both fixed capital and human capital. The shift of voice traffic from fixed-line to mobile and the convergence of voice and data is not a new phenomenon, but it has still caught many seasoned companies out over the past ten years. Hefty investments in new technologies have sometimes been unprofitable for larger telecom operators worldwide, which have suffered from ballooning financial leverage in the early 2000s, with repercussions in the overall global telecom industry. The difficulty of predicting the future potential of new technological investments warrants a higher beta (i.e. risk premium) for the industry in general.

We may also see further consolidation of the telecom equipment industry in the future as larger players are challenged by harsh competition and cost pressures. Karel is not immune to the developments in the global and Turkish telecom industry, although it may be deemed relatively resilient to industry threats with its strong R&D focus and innovative posture, as well as dynamic and agile adaptation to technological changes.

In Karel's PABX business, there is a particular shift from classical telephone systems to IP-enabled systems. IP-capable telephony was essentially perceived as an innovation for dramatically lowering phone bills. Yet, along with the rapid development of mobile telephony, operators have started competing swiftly, which has lowered tariffs on voice traffic, diminishing the relative advantage of VoIP and leading its penetration to taper off. What's more, Turkish consumers are typically cost-conscious and are reluctant to purchase more expensive IP phones at the moment, which are sold for around US$100-150, compared with US$10 on average for classical phones. Karel nevertheless expects its IP-enabled PABX sales to comprise 50% of total sales in 2010 and 85% by 2015. The Company has been producing IP-enabled phone systems since 1999, and is confident that it is well-suited to adapt to any change in market dynamics. The Company's R&D studies on VoIP are planned to integrate all-related Karel products to internet and data communication networks. Then again, the phasing out process of older technologies and products may nevertheless render some production lines obsolete and unproductive.

■ **Affordable PABX solutions by Turk Telekom.** Turk Telekom's efforts to offer an affordable PABX service via its Centrex brand for smaller business concerns may slightly curb demand for Karel's PABX line. Centrex (central office exchange service) is a PABX-like service offered by the incumbent operator, which provides switching at the central Turk Telekom office rather than the customer's premises without the requirement for any capital expenditure on the latter's side. Although offering affordable solutions for small entities may be deemed an attractive alternative, we do not believe this service will have a major impact on Karel's operations for several reasons:

- Customers are charged per user, thus total service charges may rise significantly for companies with a higher number of users.
- Centrex facilitates less-augmented services than PABX.
- The switching is not carried out in-house, raising secrecy issues.
- The customer has no direct control over the service, and is thus dependent on a third party.
- Centrex does not facilitate the use of enhanced services such as GSM Gateways and Long Distance Telecom Service Providers' VoIP solutions, which offer notable savings on telephone charges.

■ **Lingering industry liberalisation.** In Turkey, the deregulation and liberalisation of the telecom industry has not developed particularly effectively or rapidly, delaying the prospects for some alternate operators and telecom equipment providers. The period of 2000-2006 has thus been a rather dormant period for the Turkish telecom equipment providers due to the lower-than-expected development pace of alternate operators and telecom investments, as the supposed liberalisation era since the beginning of 2004 has only turned into a period of preparations and setting new regulations rather than an effective transformation. Thankfully, the outlook for the next five years is brighter due to earlier-stated structural changes in the industry, shareholder changes in key operators, the recent privatisation of Turk Telekom, as well as a more solid economic backdrop. From now on, market dynamics will evolve according to the accelerating liberalisation process.

■ **Dependency on key clients.** Although Karel has a quite-diversified client portfolio and is keen on further diversification and growth of the customer base, its exposure to a number of larger clients is a moderate risk factor. Turk Telekom's investment practices with its new owner, for example, may have important consequences for telecom equipment providers including Karel. In the electronic control board business, also, Arcelik temporarily shifted a limited portion of its orders to different suppliers in 2005 although we observed an even stronger recovery in the orders in 2006 and 2007. In the future, there may be occasional volatility in orders from Arcelik or other electronic board clients although this will largely be at an absorbable extent, in our view.

■ **Fluctuations in some revenue items.** Karel's 2005 revenues unpredictably fell due to lower electronic board sales, the virtual lack of project-based income, and pricing pressure in the commercial product portfolio. In the future, variation in revenue items may at times have consequences on projected income.

Small market capitalisation is a hindrance for some investors

■ **Relatively low liquidity.** Karel's diminutive market capitalisation and relatively low trading volume in the secondary market is a notable hindrance for some institutional investors.

Company Background

Karel Elektronik, established in 1986, is a prominent manufacturer and supplier of telecommunication equipment in Turkey. Karel's core business is the design, development, production and marketing of a variety of telephone systems including rural switches and private automatic branch exchange (PABX) systems with telephone sets and other accessories.

Karel was initially found to meet the voice communication needs of small-and-medium-sized enterprises (SMEs), by designing and manufacturing PABX systems. The Company has widened its product spectrum over the last 20 years, and now offers a wider range of PABX systems (telephone systems, telephones, and accessories), as well as public switching solutions (rural switching systems, centralised management systems and field-proven projects).

Karel devises all of its core products under its own license, and its own know-how, engineering capability and workmanship. With its telephone systems covering the whole range, from a few to thousands of ports, Karel enjoys a dominant position in the local market and a strong and widening presence in world markets.

61% market share in PABX and 80% market share in SME PABX market

Largest supplier of premises switching equipment to the Middle East & Africa region

Currently, there are 475,000 Karel PABX systems installed in a wide range of private and public entities in Turkey. The Company has a 61% market share in the local PABX market as measured by line penetration. Its market share in the PABX market for SMEs is close to 80%.

Karel is among the top 25 manufacturers of telephone exchanges in the world, and has been the leading manufacturer of the world for PSE (Premises Switching Equipment) shipments to the Middle East & Africa region for the last three years ending 2005, as certified by Gartner Dataquest.

The Company's strong distribution network composed of authorised distributors, wholesalers, dealers and sales points forms the basis of its widespread marketing activities. Thus Karel offers optimum solutions for a wide range of enterprises, such as hotels & hospitals, banks, manufacturing plants, multi-location offices, public offices and telecom operators worldwide.

Within the context of its activities in telecommunications, Karel collaborates with reputable companies to develop **turnkey projects** for private and public companies, including telecom operators in Turkey as well as neighbouring countries.

Karel also designs and produces **electronic control boards** for use in white goods products and wireless equipment by reputable domestic and foreign manufacturers.

Karel is also an **importer / seller of various commercial products**, including fax machines, corded and cordless phones, ADSL modems, and VoIP gateways.

Shareholding Structure

Karel was founded by three entrepreneur brothers of the Tunaoglu Family, which have engineering backgrounds. Karel shares are currently equally-split by the Tunaoglu brothers.

From a corporate governance perspective, there is also an independent Board member of the Company, Aydin Gunter, who has worked for seven years in the Ministry of Finance, and 20 years in Sabanci Holding's (SAHOL.IS) Finance Department. Gunter is still a Board member in Akbank (AKBNK.IS) and a number of larger industrial concerns.

Figure 2. Karel – Shareholding Structure	Share in Capital (TRY)	Share (%)
Ali Sinan Tunaoglu	4,180,167	22.97%
Serdar Nuri Tunaoglu	4,187,166	23.01%
Sakir Yaman Tunaoglu	4,187,167	23.01%
Other	10,500	0.06%
Free Float	5,635,000	30.96%
Total	**18,200,000**	**100.00%**

Operations

Karel's head office is located in Istanbul, Turkey, while its production premises and the R&D centre are based in Ankara. There are three regional offices in Izmir, Antalya and Van in Turkey, and one in Baku, Azerbaijan. The Company presently employs 611 people including 79 R&D personnel.

Karel's production plant is equipped with state-of-the-art machinery and test instruments, with a total automated component insertion rate of 190,000 components / hour. The capacity is targeted to be raised to 325,000 components per hour by 2009.

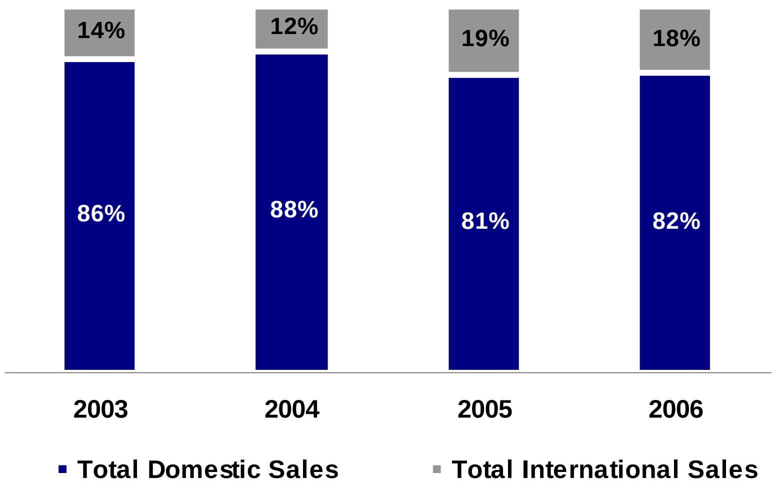
Karel's annual procurement for production currently amounts to approximately 60-65% of COGS. 70% of this amount is imported while 30% is supplied from local sources with payment terms of 30 to 90 days. Around 30% of the COGS comprises of fixed overheads, enabling operating leverage as production increases.

Product Lines

Figure 3. Karel – Areas of Operation

Domestic Operations	International Operations
Telecom equipment	Telecom equipment
Electronic control boards	Electronic control boards
Sale of commercial products	Sale of commercial products (corded phone sales, limited)
Project-based sales	
R&D and service business	

Figure 4. Karel – Breakdown of Revenues

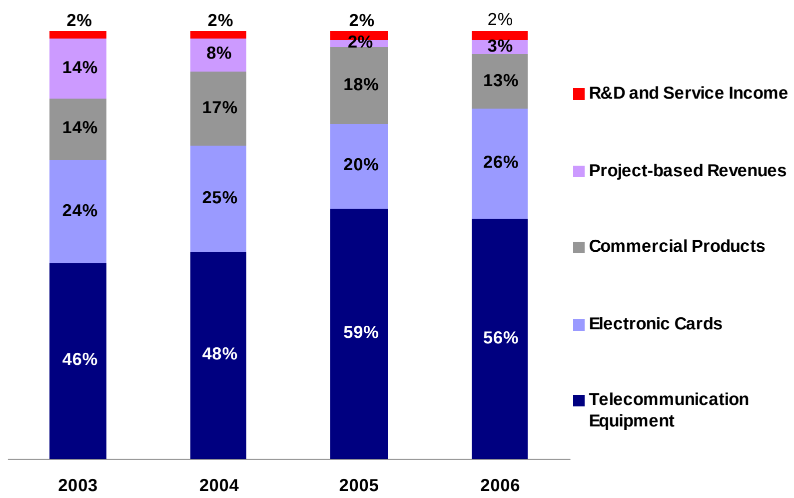


- The share of core products in Karel's sales rose from 77% in 2005 to 82% in 2006, due to the increase in the share of electronic cards in total sales from 20% to 26%.

- The share of revenues generated from the sale of commercial products (i.e. cordless and corded phones, fax machines, ADSL modems, VoIP gateways, etc.) hovers at around 15-20% of total revenues.

The share of more profitable telecom equipment sales is rising

Figure 5. Karel -- Breakdown of Total Revenues

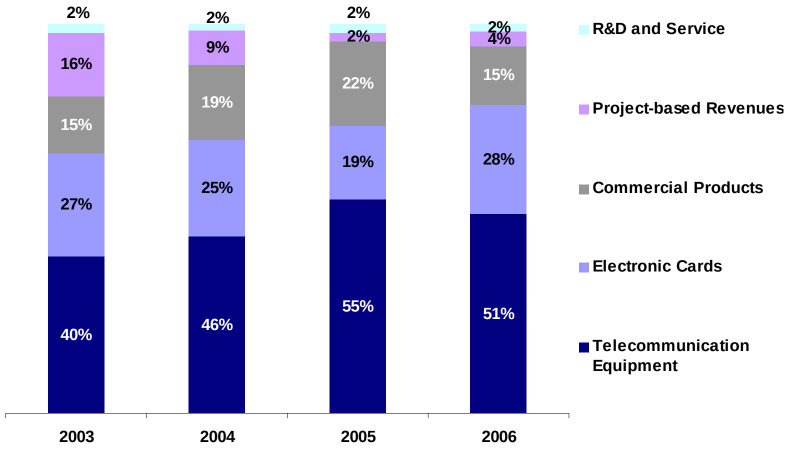


Domestic Operations

Telecom Equipment

The major items in Karel's line of products are predominantly telecom equipment, but also telephone systems of various capacity and peripherals. Sales of telecom equipment comprised 59% and 56% of Karel's total revenues in 2005 and 2006, respectively.

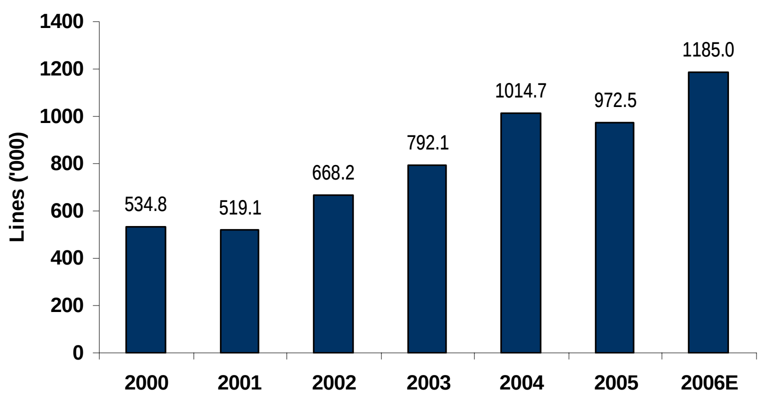
Figure 6. Karel -- Breakdown of Domestic Revenues



Private Automatic Branch Exchange (PABX). A Private Automatic Branch Exchange (PABX) is a telephone exchange linked to the Public Switched Telephone Network (PSTN, i.e. a network of interconnected telephone networks enabling the familiar telephone service based on copper wire that carries analogue voice data). PABX can be described as a switching system handling calls within an organisation, providing internal telephone switching and making connections automatically (i.e. without an operator), as well as making outside connections. The telephone systems found in many offices use PABX, providing an extension for each telephone and a connection to the main telephone system.

For the most part, demand for PABX in Turkey grows in parallel with GDP. PABX equipment is primarily designed for business usage. PABX line sales rose by 14.1% p.a. from 534,800,000 in 2000 to 1,185,000 in 2006. During the same period, office stock in Turkey posted a CAGR of 7.4%.

Figure 7. Turkey – Total PABX Line Sales



Small-and-medium-sized enterprises (SMEs) constitute 99.8% of all Turkish enterprises and 76.7% of the work force. The government is propelling the efficiency of SMEs via promoting information and communication technologies, which is enlarging the market for PABX services.

Shortening PABX replacement cycle expected to boost replacement demand

Another trigger for this product line is replacement demand. The PABX replacement cycle has historically lasted for 8-9 years, but is shortening along with the adoption of new technologies providing savings in communication expenses, such as VoIP. According to a study conducted by the market research firm Infonetics Research, the global market for IP technology is expected to grow by 50% between 2005 and 2009, while the PABX market is projected to grow by 43% to US$11.6bn. A similar trend is also expected in Turkey.

Karel is the local PABX market leader with a 61% market share in terms of the number of lines. PABX is Karel's main product. Karel develops intelligent solutions for small, medium & large-scale companies through analogue, digital and hybrid PABX systems. The number of Karel's PABX products is expected to rise to 16 by the end of 2007 from 13 currently. The Company's flexible PABX solutions employ convenient features & accessories for an extensive set of applications and services, including medium- and large-sized telephone systems, SOHO systems, automatic call distribution, CRL & CTI, auto attendant & voice mailing, GSM gateways, external DECT systems, local paging modules, VoIP, various telephones (feature phones, add-on modules, caller ID phones, ISDN phones, single-line phones), as well as networking and wireless applications.

Figure 8. Karel – Domestic PABX Line Sales (lines)

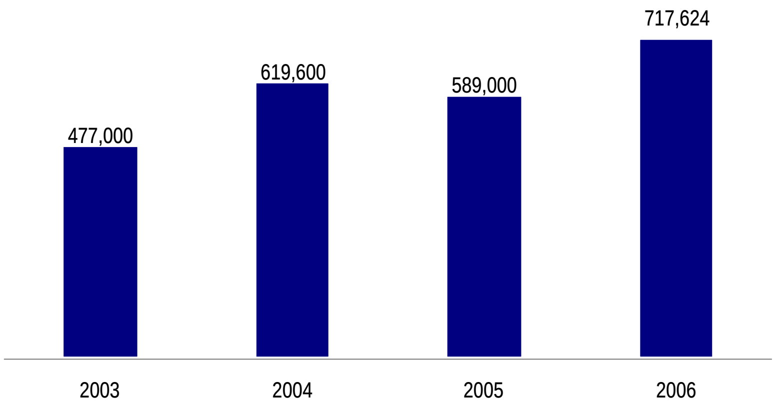
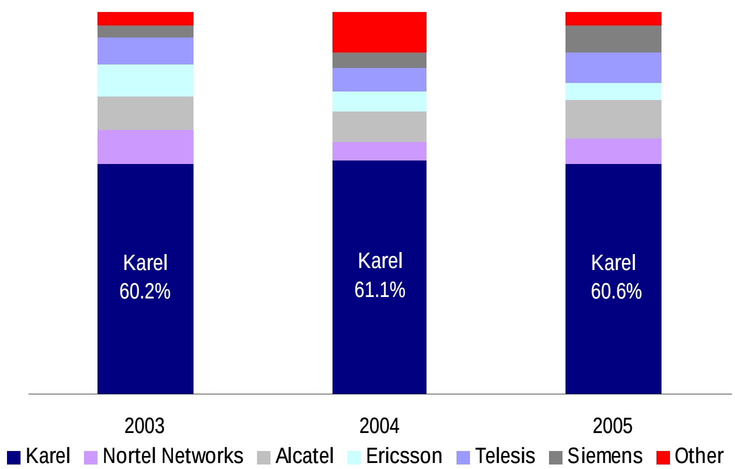


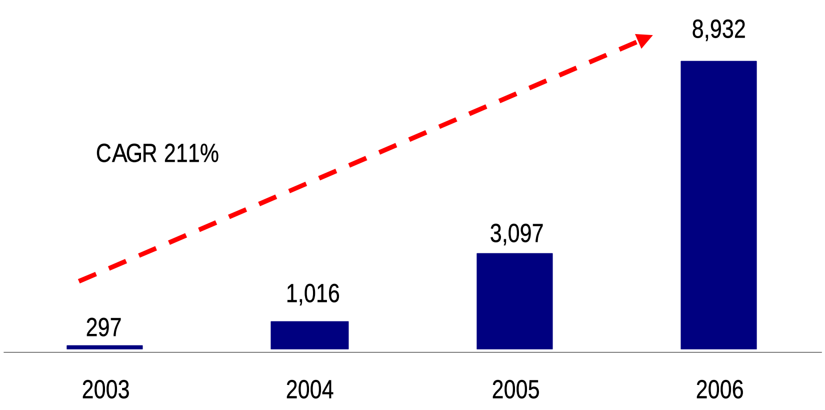
Figure 9. Turkey PABX Line Market Shares



Source: Gartner Dataquest

GSM Gateways. The first GSM gateways in Turkey have been devised and developed by Karel to reduce the costs of fixed-to-mobile (F2M) calls by utilising a GSM network in mobile calls of fixed-line users, allowing the payment of lower mobile-to-mobile (M2M) tariffs. The Company is selling both to the end-clients and existing GSM operators, such as Vodafone Turkey and Avea. This is a rapidly-growing business line as the number of GSM gateways sold rose from 297 in 2003 to 3,097 in 2005 and 8,932 in 2006.

Figure 10. Karel – GSM Gateway Sales (units)



Electronic Control Boards

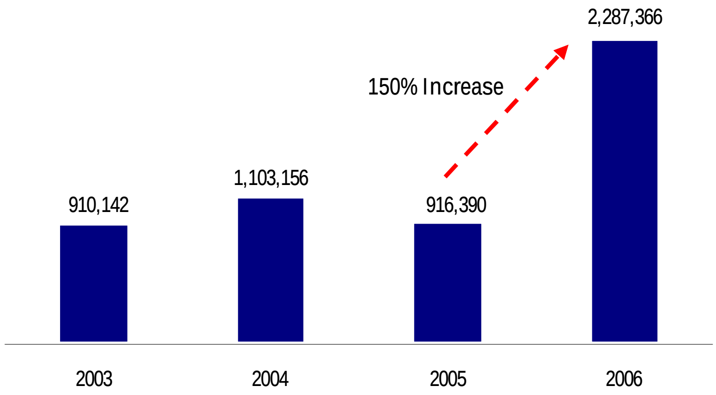
Karel designs and produces electronic control boards primarily for use in white goods products and wireless equipment. White goods, communications and defence are among the industries served. Turkey boasts a cost advantage when compared to developed Western countries as well as a logistics advantage through its proximity to export markets, when compared to the lower-cost producers in the Far East and China.

By far the largest supplier of electronic control boards for Arcelik

Major customers for this product line include Koc Group's **Arcelik** (ARCLK.IS) and **Turk DemirDokum** (TUDDF.IS, recently sold to Vaillant), the defence electronics manufacturer **Aselsan** (ASELS.IS) in the domestic market, and heating & cooling appliances manufacturer British **AEP (Applied Energy Products Ltd.)** in export markets. Karel is actually the by-far-largest supplier of Arcelik in white goods electronics, providing design and engineering services for electronic and remote control modules and indicator devices of white goods products. Karel's electronic board market share in the domestic white goods market is estimated in the range of 15-20%.

Electronic control board revenues comprise roughly 26% of Karel's revenues. Although the electronic board business has much lower gross margins, operating it alongside the telecom equipment business is sensible as fixed costs become reasonable in the context of economies of scale. Electronic board sales rose by a whopping 143% YoY in 2006 to 2.38 million units, with the bulk majority being sold in the domestic market.

Figure 11. Karel – Domestic Electronic Board Sales (units)

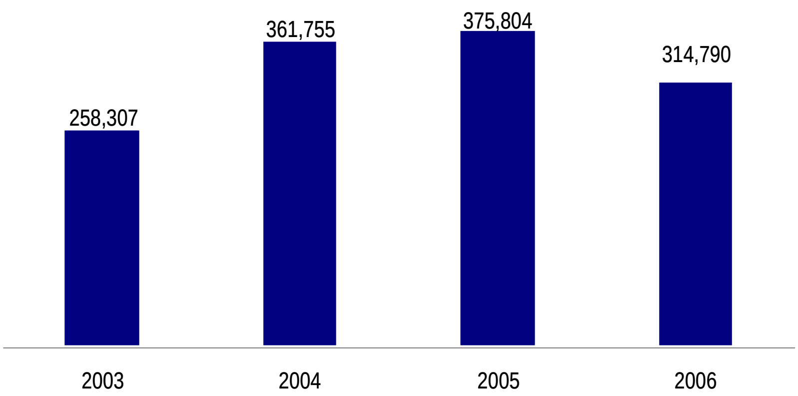


Commercial Products

PABX system sales are accompanied by the commercial sale of "terminal units"

PABX system sales are accompanied by "terminal unit" sales, such as corded and cordless phones, as well as fax machines, which also support the brand awareness of the PABX product. In order to promote its brand and create an additional source of income, Karel started the commercial sale of terminal units in the 1990s. The Company mainly imports commercial products for resale in the domestic market. The value-added portion and margins are lower than the Company's original telecom equipment products. 94% of the commercial product unit sales are derived from cordless and corded phone sales.

Figure 12. Karel – Domestic Commercial Product Sales (units)



Cordless Telephones. Cordless telephones are offered both to the corporate customers and individuals as they are used both in offices and homes. DECT (Digital Enhanced Cordless Telecommunications) handset units may be used in wireless exchanges. The expansion of mobile communications has been changing consumer attitudes, leading to a boost in the use of cordless handsets, which are predominantly imported from lower-cost Far-Eastern and Asian countries. Turkish cordless handset imports have risen from 138,000 units in 2002 to 1,439,000 units in 2005. Karel was the first company to introduce Turk-Telekom-approved legal cordless phones in the Turkish market in 1994. The Company has sold more than 150,000 cordless phones to date, while its market share has declined from 9% in 2000 to 3-4% due to the flood of imported lower-priced inferior brands into the Turkish market. We expect this to become a growing line of business for Karel, as the regulatory body takes action against substandard products.

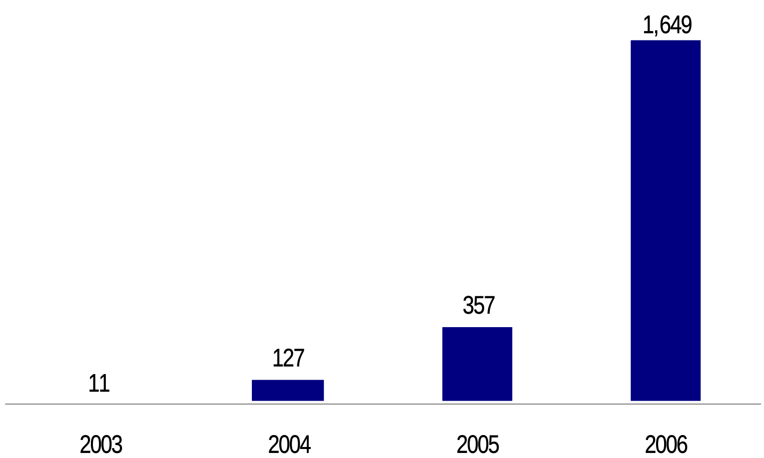
Corded Telephones. This segment has lost some of its appeal in the face of the rising attractiveness of cordless handsets, yet has been picking up recently in line with increasing demand for PABX systems in the corporate market. Moreover, Turk Telekom's CLIP feature (number display function) has led to an increase in replacement demand. This is the most-valued commercial item in Karel's portfolio. Karel has 8 different corded phone models and plans to introduce two new models in 2007. The Company has sold over 2 million wired phones to date. It boasts a 13% market share in Turkey's corded phone market.

Fax machines. The target market for this product is mainly offices, and, to a limited extent, homes. This is also an import item from lower-cost Far-Eastern and Asian countries. Turkish imports of fax machines rose from 70,000 in 2002 to 198,000 in 2005. Karel procures fax machines from the world's largest producers as OEM and sells them with the Karel brand. The Company has sold more than 100,000 fax machines in Turkey since 1991, half of which were sold in the last four years. Karel commands a 10% market share in this segment.

ADSL modems. Along with the expansion of Internet and DSL (Digital Subscriber Line) technology, the number of broadband users in Turkey has risen to an estimated 2.3 million in 2006, up from a mere 100,000 in 2003, presenting an attractive area for Karel, which imports 3 models and offers them in the Turkish ADSL market under its own brand. The Company focuses on higher-capacity models supporting VoIP gateway projects. This is a rapidly-growing product line.

VoIP Gateway. The liberalisation of the Turkish telecommunications industry in 2004 has led to the emergence of alternate operators, creating demand for VoIP (Voice over Internet Protocol) Gateways to be used in carrying voice. A total of 35 alternate operators have been licensed to provide Long Distance Telephone Services. Karel is the distributor and solution partner of the international Audiocodes brand in Turkey. This is also a rapid-growth item among commercial sale items.

Figure 13. Karel – VoIP Gateway Sales (units)



Turkey Projects

Karel implements worldwide turnkey projects for public telecom operators and state organisations

Karel implements worldwide turnkey projects for public telecom operators, state organisations, the armed forces, police departments and the like, undertaking both production and the installation and after-sales services. Where required, Karel collaborates with domestic or foreign partners as technology and solution providers, so as to create strategic partnerships. NEC Corporation from Japan, Ascom Monetel from France, ECI Telecom, Comverse and RAD Data Communications from Israel, Marconi Communications from Italy, RFS GmbH from Germany, Dialogic/Intel, IBM, Cisco, and Andrew from U.S.A., Samsung from South Korea, and Huawei from China have been among Karel's global partners.

Turnkey projects began with support to Turk Telekom's (TT) infrastructure in the early 1990s. The Company has also delivered projects to the Directorate of State Airports Authority and defence electronics manufacturer, Aselsan (ASELS.IS). Karel has generated around US$27mn of revenues from such projects since 1991, with US$21.5mn of this amount having been realised since 2000. While this business line does not necessarily enjoy higher value-add, it is gaining significance in consolidated revenues.

Karel has recently signed a significant US$8.9mn contract with Turk Telekom to build "PDH-SDH Radio Link systems. Total project revenues had stood at US$1.4mn in 2006. We believe Karel will benefit handsomely from Turk Telekom's post-privatization investment spending plan to a significant extent as Turk Telekom plans to invest some US$3bn for infrastructure over a 5-6 years period. Separately, Karel has also recently received a letter of intent from Tellcom Iletisim to build Radiolink systems in Ankara and Istanbul for US$0.9mn.

The major projects implemented by Karel are as follows:

o Production & Installation of Exchange Transmission Equipments (ADPCM) for Turk Telekom
o Design & Production of Detailed Billing & Recoding System (ADS) for Turk Telekom
o Development of IVR System for Turk Telekom
o Development of Automated Time Telling Service for Baku Telecom
o Implementation of Line Multiplexer Systems for Turk Telekom
o Implementation of Payphones with Smart & Credit Cards for Turk Telekom. 10,721 pay phones, remote systems and 10 million smart cards have been provided to Turk Telekom.
o Implementation of 600 A/V STM-1 Based SDH Radio Link Transceivers for Turk Telekom. 650 SDH radio link transceivers and their related management systems have been installed for Turk Telekom.
o Implementation of PDH-Based Radio-link Transceivers for Aztelekom. Tens of PDH radio link transceivers and their related control systems have been installed for Aztelekom.
o Implementation of PDH-Based Radio-link & Multiplexer Systems for Ankara, Antalya and Izmir Airports.

Defence is a key focus area for Karel's R&D efforts

Defence is also a key focus area for Karel's R&D efforts and project-based business for the coming years. Karel aims to subcontract some of the larger projects for the Ministry of Defence, while also trying to capture a stake from the NATO Maintenance and Supply Agency's (NAMSA) 2007 spending budget. In the framework of intensified efforts on increasing defence solutions business, Karel has recently received another electronic cards order from Aselsan (ASELS.IS) worth US$1.3mn.

Karel is continuously on the look out for further turnkey projects. In 2007-2009, the Company is targeting orders from Turk Telekom, Vodafone Turkey, Avea, Turksat, Turkiye Elektrik Iletim A.S. (electricity distribution), and PTT, the General Directorate of Post and Telegraph Organisation which are estimated to amount US$120mn on aggregate.

Research and Development

Karel has been dedicated to R&D since its inception. Among the *Turkish-capital* companies operating in the Turkish technology sector, Karel has the largest R&D department with its strong workforce of 79 employees including 57 engineers. Equipped with modern devices, the Karel R&D Centre has the capacity to generate all forms of electronic design applicable in the telecoms, industrial electronics and defence industries. The Company has accomplished various R&D projects in the areas of ISDN (Integrated Services Digital Network), DECT (Digital Enhanced Cordless Telecommunications), VoIP (Voice over Internet Protocol), CTI (Computer Telephony Integration), GSM gateways, electronic control technologies and defence. Karel's R&D Centre currently provides support to the design of electronic boards produced by respected industrial firms, such as Arcelik, Turk DemirDokum, Aselsan and the British AEP. The Company has 7 relatively large-scale ongoing R&D projects in various areas of voice and data communications to be completed by mid-2008.

Allocates 10% of annual production revenues to R&D activities, an atypically high level in Turkey

Karel allocates 10% of its annual production revenues to R&D activities, an atypically high level in Turkey, as it views its R&D strength as a crucial competitive advantage in developing new and affordable technologies and transforming these technologies to saleable products in the marketplace. As of 2005, Karel positioned its R&D centre as a wholly-owned separate company ("Karel ArGe") in the Cyberpark Technology Development Zone of Ankara to conduct product & system development. Cyberpark operations benefit from certain tax incentives:

R&D operations benefit from certain tax incentives

- The pay for technical personnel working at the Cyberpark are exempt from income tax
- Income from R&D- and software-based operations are exempt from corporate tax
- The government is subsidising Karel's R&D activities as the Company is able to obtain refunds on an average of 35% of its all R&D expenditures incurred in the Cyberpark under TUBITAK's (The Scientific & Technological Research Council of Turkey) TEYDEB (Technology and Innovation Support) program. These refunds are also exempt from corporate tax.

To exemplify, Karel realised TRY1.37mn (US$1.0mn) of such R&D support income in 2006 (2% of total revenues and 9% of EBITDA), which is booked as "other income from operations".

The tax shields reduce Karel's effective tax rate to 10-15%, compared to the 20% statutory rate. These tax shields are applicable until 2013.

The government has prepared a new draft law to further encourage R&D investments, which is expected to be ratified in Parliament in a near future. The new draft law encompasses personnel incentives, a 100% (40% in effective law) corporate tax exemption on R&D expenditures, one-time R&D capital support and other items. The new law, if approved, will be effective until 2023. and brighten Karel's outlook, raising the prospect of improved activities.

Separately, Karel's international service and assembling revenues, as well as export revenues generated in the Tuzla Free Trade Zone, are also exempt from corporate taxes.

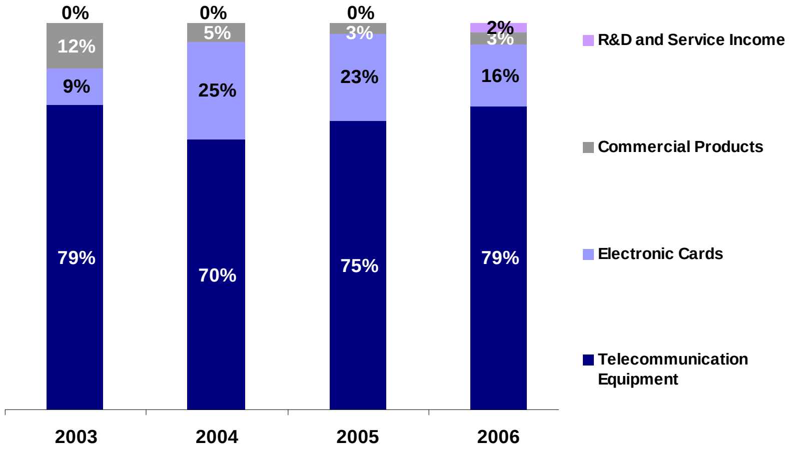
As a further technological incentive, Karel has provided nearly US$1.0mn of funding from TTGV (Technology Development Foundation of Turkey) at attractive financing terms for the development of specific projects. TTGV cuts such funding by 4% during project applications, the development of which may take around two years. If the project is approved, TTGV will cut funding by a further 5%. In turn, Karel starts distributing payments once the project is completed, with a one-year grace period, followed by the repayment of principal in seven semi-annual payments with no further interest. This effectively corresponds to an annual interest of only around 1.5%.

International Operations

Karel exports 20% of its production

Karel exports to more than 20 countries with its own brand in the Middle East, Central and South Asia, Africa, and Europe. Karel uses 25 main local distributors in PABX sales and its own centralised sales network in rural exchange sales tenders. International sales comprise telecom equipment (PABX, rural exchanges, accessories) as well as electronic control boards. Karel generates 29% of PABX revenues from the international markets by selling rural exchanges, which comprise roughly two thirds of export revenues and are priced higher with more lucrative margins. The share of Karel's exports rose from 14% of total sales in 2003 to 18% in 2006. While the share of exports in total sales hovers between 15-20%, it accounts for 21% of production. The Company plans to expand its exports business by improving relations with local telecom operators and participating in larger-scale tenders.

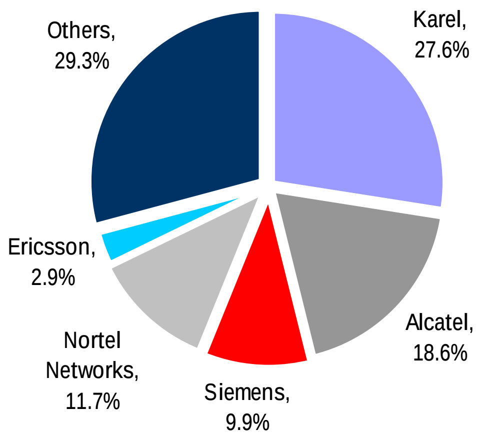
Figure 14. Karel – Breakdown of International Revenues



C.I.S. countries have gained importance in Karel's export strategy

According to the latest data provided by Gartner Dataquest, Karel has been the leading provider of PSE (Premises Switching Equipment) to the Middle East & Africa region with a 27.6% market share in 2005 and the preceding two years. The C.I.S. countries have, in particular, been gaining importance as export destinations for Karel after the Company's successful penetration into the Azerbaijan market with rural exchanges. Azerbaijan, Kazakhstan and Georgia are the foremost export markets in Karel's telecom equipment shipments (i.e. rural exchanges).

Figure 15. Karel – Middle East & Africa Region PABX Line Sales Market Shares (2005)



Karel also exports electronic control boards, which comprised 23% of export revenues in 2005, and 16% in 2006. Karel's main customer for this product is the British AEP (Applied Energy Products Ltd.), a manufacturer of heating, water and air management products, which uses Karel electronic boards in heating appliances and air conditioners.

Figure 16. Karel – International Electronic Board Sales (units)

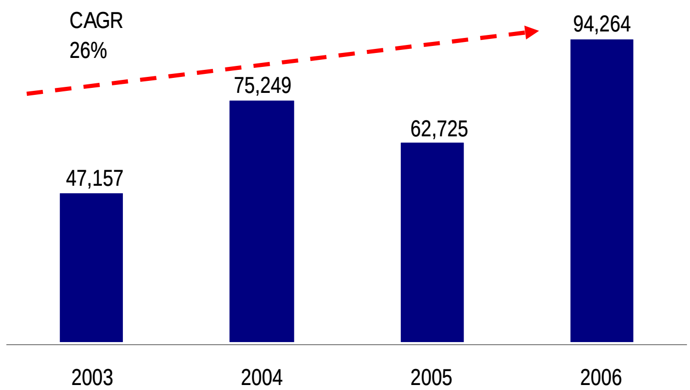
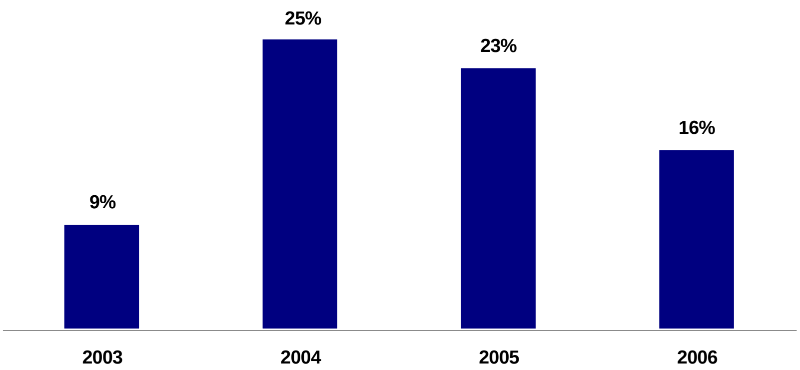


Figure 17. Karel - Share of Electronic Board Sales in Export Revenues



Aims to raise the share of export revenues in total sales to 30-35% levels by 2010 and to 45-50% by 2007

Karel aims to raise the share of export revenues in total sales to 30-35% by 2010, and 45-50% in ten years. In this respect, the Company will focus on R&D activities for new product development with higher margins. Apart from further penetrating into the markets where it is currently operating in, the Company aims to enter the U.S. market in 2007 with a new IP-enabled digital PABX product. Karel plans to establish a joint venture with the U.S. firm Bicom and market this product in the OEM market, utilising the latter's extensive distribution network.

Major Export Destinations

Rural exchange exports boast lucrative margins

Azerbaijan. *Rural exchanges* are especially favoured in C.I.S. countries. This is a highly value-added product for Karel with higher margins. Rural exchanges do not yet offer an attractive market in Turkey, yet Karel is considering the development of a system integrating broadband internet for utilisation in Turkish villages. The Company's public-switching concept offers comprehensive solutions to a multitude of requirements arising in connection with supplying sparsely-populated areas with a telecom infrastructure. Karel has added rural exchanges to its product portfolio as of 2002, and Azerbaijan has been the first market for this product, which is used alongside the existing telecom infrastructure of the incumbent fixed-line operator. Karel has also been the leading supplier of rural exchanges in the rapidly-growing Azerbaijan market since 2003, where it has supplied rural exchanges mainly to state-owned Aztelekom's network. Karel realized US$3.3mn worth of revenues from tenders in Azerbaijan in 2006.

The digitalisation and capacity increase process of the telecom infrastructure in Azerbaijan has led Karel to also consider production in this market after its recent opening of a representative office in Baku. Some 60% of the 535,000 lines in the Aztelekom network are still analogue, although these will totally be digitalised by 2008, presenting a significant replacement demand. Over the next two years, Karel projects that it will sell twice as much as it has sold in the last three years. Thanks to its lower-cost R&D, flexible production, and cultural proximity advantages, Karel aims at geographically further expanding in neighbouring markets, such as Kazakhstan, Georgia, Uzbekistan, Tajikistan, and Turkmenistan. Furthermore, the Company is planning to market its rural exchange product also in the Middle East and South Asian countries.

Karel has a broad list of international clients

Figure 18. Karel's Major International Customers

Country	Client
Azerbaijan	Aztelekom
U.A.E.	Future Information Technology
Bangladesh	Communication Systems Limited
Bulgaria	Diel Engineering
Morocco	Setronic SARL
South Africa	Karel S.A. (Pty) Ltd.
Georgia	Minitelsy Ltd.
Georgia	United Telecom of Georgia (UTG)
India	Intellicon Pvt Ltd.
India	Quest Telecom Pvt Ltd.
Iraq	Electronic Industries Co.
England	Balton Cp Ltd.
Iran	Kara Telephone
Spain	Opalia Internet S.L.
Kazakhstan	Telenet Ltd.
Malta	Strand Electronics Ltd.
Egypt	Telecom Misr Establishment
Naxcivan	Naxcivan Transportation Ministry
Poland	Telesis
Romania	Vlamir Impex SRL
Russia	Combeta International
Syria	International Business Center
Ukraine	Abaka Ltd.
Greece	Teletechnika

Plans to double Indian PABX market share in 2-3 years

India. The Indian telecommunications market is developing rapidly. A state-supported-and-financed reform program foresees an increase in the number of telephone lines from 46 million at the end of 2005 (teledensity of 9.11%) to 70 million by the end of 2007 (teledensity of 22.5%). Karel had a 6% market share in India's PABX market in 2005, and aims to raise this share to 10-12% in 2008. Karel's competitors here include a number of local producers, Panasonic, NEC, Ericsson, Samsung, and Siemens.

Karel started to win orders from large-scale state tenders in 4Q04. The Company plans to spend US$1.0-1.5mn on the establishment of a company in India with its local distributor, Intellicon, and start local production in this market as local production is governmentally subsidised. Karel plans to focus on the rural exchange market in the short term by signing contracts with the local telecom operators MTNL and BSNL. The Company also plans to participate in tenders called by the Indian army, as well as state organisations, such as transportation agencies and the police department.

Bangladesh. The Bangladeshi Government has announced a development plan to increase teledensity from 0.8% in 2005 to 10% in 2010. Karel considers local production of PABX in Bangladesh and has signed a 5-year preliminary agreement with Telephone Shilpa Shangstha (TSS) to start local production if feasibility studies spell positive outcomes. TSS is the local-assembler of Siemens' PABX systems.

Iran. Iran plans to double its number of PSTN lines from 16.5 million to 30 million according to its latest 5-year development plan. Karel's distributor in Iran, Kara Telephone, has 40 dealers throughout the country. Karel may also consider local production in Iran going forward.

Central Africa. The British firm Balton CP distributes Karel's PABX products in Central Africa. Ghana, Kenya, Zambia and Tanzania have been the first four countries in the region to sell Karel products over the past two years. Karel also aims to add Nigeria, Uganda, Ivory Coast, Senegal, Mali, Ethiopia, and Algeria to its exports portfolio in the 2007-2009 period.

South Africa. Karel has a local distributor in South Africa, where it has been active for more than 13 years. Karel aims to directly sell its DS200 digital public exchange to state institutions and corporates to build its client base in South Africa.

Kazakhstan. Kazakhstan will serve as a regional hub for the Company, from where it will also direct exports to Uzbekistan, Tajikistan, and Turkmenistan.

Georgia. With a teledensity of just 4%, Georgia is another attractive market for Karel, where it already has 3 rural exchanges and 1,000 ports.

Other markets. Karel has established relationships and started activities in the PSTN markets of a number of other countries, including Russia, Ukraine, Sri Lanka, Iraq, Somali, Nigeria, Kenya, Angola, and Mozambique.

Sales and Marketing

Karel boasts a widespread, talented, and financially-sound sales and distribution organisation, a key competitive strength

Karel's target customer profile comprises mainly of business premises throughout Turkey, as well as individuals and households. Its major clients in telecom equipment sales are business enterprises of all sizes, public entities, banks, Turk Telekom and Aztelekom, while for sales of electronic control boards its biggest clients are Arcelik, Aselsan, Turk DemirDokum and AEP. All of the Company's products are sold under the "Karel" brand name. As pre-sales and after-sales consultancy and technical service is very important in determining consumer behaviour in Karel's business, the widespread, talented, and financially-sound sales organisation is a crucial factor.

Local Distribution Channels. Karel's domestic sales organisation consists of 318 authorised dealers, 5 wholesalers, and 83 telephone dealers. Authorised Karel dealers offer sales and after-sales service throughout Turkey. The bulk of the sales are carried out through dealers, while the remainder are through internet and larger retail chains. Some of Karel's sales are made on a tender or project basis, while some are directly made to larger public institutions and banks.

Worldwide Partnerships. Karel offers user-friendly and internationally-approved telecommunication solutions to end-users in its international markets. The Company focuses on international marketing by exporting 20% of its overall production, and seeks to implement a distribution network similar to the domestic one in the international markets. To ensure rapid market penetration and customer satisfaction, Karel collaborates with its distributors and provides technical support for Karel products worldwide. In addition to export activities, Karel collaborates with well-known vendors of telecom equipment, and consequently, has introduced fax machines, GSM phones, CT-1, DECT handsets, and many other well-sought products into the domestic market.

Use of IPO Proceeds / Capital Expenditures

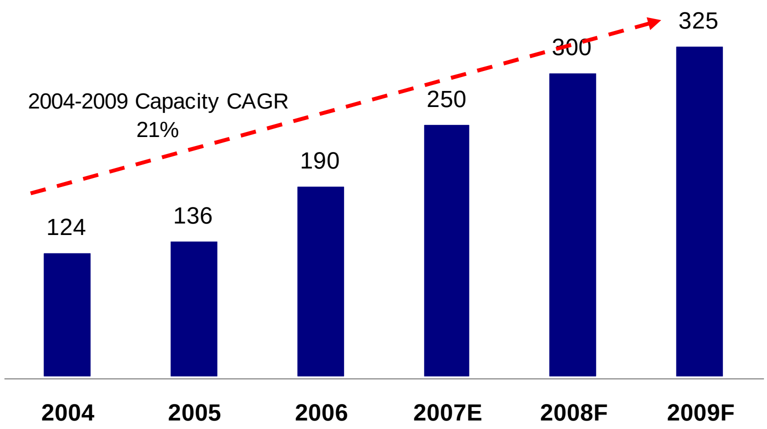
Karel's realised net proceeds of around US$11.8mn in the capital increase in its IPO in late 2006. The company's investment plans for the use of the IPO proceeds are as follows:

- **Investment in R&D activities for new product development with higher margins (US$6.2mn)**. Karel plans an R&D outlay of US$6.2mn between 2007-2010, the bulk of which will be spent on personnel as roughly 80% of R&D expenses relate to personnel expenditures. R&D spending for 2007-2010 will entail an increase in the R&D headcount from 79 to 140 by 2010, as well as investments in equipment and intangible assets, including the outsourcing of some system solutions. R&D investments will primarily focus on communications systems and electronic board production. Karel is also considering stepping up its R&D studies in defence industry solutions to benefit from the Ministry of Defence's plans to increase domestic procurement of defence technologies.

- **Capacity increase investments (US$3.0mn)**. The Company will spend US$3.0mn on raising its automated component-insertion rate from 245,000 to 325,000 units per hour. Every increase of 100,000 components per hour would correspond to additional production potential of 1,285,000 PABX lines or 1,627,000 electronic control boards.

Component-insertion capacity to increase by 70% in three years

Figure 19. Component-Insertion Capacity (comp. / hr)



Note that Karel has no other major CAPEX requirements. Depreciation and amortisation expenses amount to roughly 4% of sales, and the Company does not have to invest heavily in fixed capital to increase its production.

- **Raising efficiency in domestic operations, Sales & Marketing investments (brand promotion, sales & distribution channels, etc.) (US$3.0mn).** Karel will spend nearly US$3.0mn on its sales & distribution network to support its competitiveness in the local market and promote its brand.

Eyeing the U.S. market...

- **Further penetration to export markets (US$3.5mn)**. Karel aims to raise the share of exports in total revenues to 30% by 2010 to diversify and expand its customer base. The Company aims to develop its exports by investing in marketing and distribution channels and entering new markets, which will entail opening up bases and production facilities abroad as well as marketing expenses. Karel plans to convey its know-how and technical expertise in the Azerbaijan market - where the company now commands a number one position - to neighbouring markets, such as Kazakhstan, Georgia, and Russia. Moreover, Karel also plans to enter the U.S. market with a new IP-enabled digital PABX product, which may pave the way for further export potential, targeting the U.S. and European markets. The Company also plans to build production facilities, primarily in Azerbaijan, as well as India and Iran, in order to benefit from certain cost advantages of local production over imports to these markets.

Karel targets further growth with the IPO proceeds through investments in R&D, production capacity, brand promotion, and export penetration

- **Renovation expenses in plant building (US$1.0mn).** Karel started renovation in July 2006 at its production plant building in Ankara, which is expected to be completed by the end of 2007. Karel is a tenant in this property.

- **Potential for acquisitions.** Karel may consider potential acquisitions in the future if and when opportunities for synergies arise from a vertical or horizontal integration standpoint.

Financials

Karel's reporting currency is the New Turkish Lira (TRY). However, USD-based results are presented in this report for the convenience of the reader. Income statement items were converted at the average exchange rate for the period, while balance sheet items were converted at the end-of-period exchange rates.

Sales of more-profitable telecom equipment dominate Karel's product portfolio

Figure 20. Karel – Sales Breakdown According to Business Lines*

Total Sales Breakdown (US$mn)	2003	2004	2005	2006
Telecommunication Equipment	14.5	19.7	20.4	24.2
Telephone Systems	11.4	14.7	15.1	17.9
Console	1.4	2.2	2.1	2.5
Accessories	1.8	2.8	3.2	3.7
Electronic Card	7.6	10.2	6.8	11.1
Project-based Revenues	4.4	3.2	0.7	1.4
Commercial Products	4.5	7.0	6.3	5.6
R&D	-	-	0.1	-
Service Income	0.6	0.6	0.6	0.8
Total Sales	31.6	40.7	34.9	43.1

*Historical figures exclude plastic moulding business for a meaningful like-for-like comparison with 2006

Domestic Sales Breakdown (US$mn)	2003	2004	2005	2006
Telecommunication Equipment	10.9	16.3	15.5	18.1
Telephone Systems	8.2	11.7	10.9	12.7
Console	1.2	1.9	1.8	2.0
Accessories	1.6	2.6	2.9	3.4
Electronic Cards	7.2	8.9	5.3	9.9
Project-based Revenues	4.4	3.2	0.7	1.4
Commercial Products	4.0	6.8	6.1	5.3
R&D	-	-	0.1	-
Service Income	0.6	0.6	0.6	0.7
Total Domestic Sales	27.1	35.8	28.3	35.3

*Historical figures exclude plastic moulding business for a meaningful like-for-like comparison with 2006

International Sales Breakdown (US$mn)	2003	2004	2005	2006
Telecommunication Equipment	3.6	3.4	4.9	6.1
Telephone Systems	3.2	3.0	4.2	5.3
Console	0.2	0.3	0.4	0.5
Accessories	0.2	0.2	0.3	0.4
Electronic Cards	0.4	1.2	1.5	1.2
Project-based Revenues	-	-	-	-
Commercial Products	0.5	0.2	0.2	0.3
R&D	-	-	-	-
Service Income	-	-	-	0.2
Total International Sales	4.5	4.9	6.6	7.8

*Historical figures exclude plastic moulding business for a meaningful like-for-like comparison with 2006

■ Karel used to have a **plastic-moulding** business serving the automotive (90%), consumer durables, and telecom industries. The moulding business accounted for roughly 7% of Karel's consolidated revenues. The company spun off this business on 30 June 2005. In this report, the historical financials of the Company were restated to exclude the plastic moulding activities to enable a like-for-like comparison with 2006 results.

Core telecom equipment sales yield higher gross margins in the vicinity of 50-55%

Figure 21. Karel – Gross Profitability According to Business Lines*

Gross Margin	2003	2004	2005	2006
Telecommunication Equipment	49%	55%	51%	52%
Telephone Systems	52%	58%	54%	52%
Console	32%	36%	33%	51%
Accessories	46%	54%	52%	51%
Electronic Card	7%	8%	7%	11%
Project-based Revenues	13%	16%	11%	25%
Commercial Products	23%	26%	20%	20%
R&D	n.m.	n.m.	n.m.	n.m.
Service Income	n.m.	n.m.	n.m.	n.m.
Consolidated Gross Margin	29.0%	34.4%	36.6%	35.5%

*Historical figures exclude plastic moulding business for a meaningful like-for-like comparison with 2006

Figure 22. Karel – Breakdown of Costs* (US$mn)

COGS Breakdown (US$mn)	2003	2004	2005	2006
Direct Materials	15.9	19.6	14.9	15.8
Direct Labor	1.6	1.7	1.6	2.9
Factory Overhead	4.6	5.4	5.8	8.9
Depreciation	0.6	0.5	0.9	1.1
Total COGS	22.7	27.2	23.2	28.8

Operating Expenses Breakdown (US$mn)	2003	2004	2005	2006
R&D	0.1	0.1	0.4	1.1
Sales&Marketing	2.1	3.6	3.2	3.6
General Administrative	2.4	3.5	2.6	2.1
Total Operating Expenses	4.6	7.2	6.1	6.9

*Historical figures exclude plastic moulding business for a meaningful like-for-like comparison

■ Karel's 2006 revenues rose by 23% YoY to US$43mn on the back of surging electronic card sales. Karel's 2005 revenues had fallen by 14% YoY due to declining electronic card and project-based revenues, which imply a rather volatile trajectory.

o Electronic control board sales surged by 62% YoY in USD terms in 2006, as Karel resumed work with local clients at a high rate. Electronic board sales had fallen by 33% YoY in 2005 due to a deceleration in orders from Arcelik.

o Total sales of telecommunications equipment were up by 18% in 2006, again posting strong export growth, while domestic sales of telecommunications equipment also improved by 16% compared to the 5% YoY decline in 2005.

Figure 23. Karel – Income Statement* (US$mn)

Income Statement (US$mn)	2003	2004	2005	2006
Net Sales	31.6	40.7	34.9	43.1
Cost Of Sales	(22.7)	(27.2)	(23.2)	(28.8)
Other Income from Operations(R&D Incentives)	0.3	0.5	1.1	1.0
Gross Profits/Losses	9.2	14.0	12.8	15.3
Operating Expenses	(4.6)	(7.2)	(6.1)	(6.9)
Net Operating Profits	4.5	6.8	6.6	8.4
Income from Other Operaitons	1.3	1.3	1.0	1.9
Expenses from Other Operations	(0.2)	(1.0)	(0.5)	(0.7)
Financial Expenses	(0.4)	(0.5)	(0.3)	(0.8)
Operating Profits	5.2	6.7	6.9	8.8
Net Changes on Monetary Positions	(1.8)	(0.8)	-	-
Minority Interest	0.0	(0.0)	(0.0)	(0.0)
Income Before Taxes	3.4	5.8	6.9	8.8
Taxation on Income	(0.3)	(1.5)	(1.1)	(0.5)
Net Profit After Taxes	3.1	4.4	5.9	8.3
EBITDA	5.5	8.3	8.6	10.1

Historical figures exclude plastic moulding business for a meaningful like-for-like comparison with 2006

- Karel's 2006 margins were almost unchanged on a YoY basis, despite a rising share of sales from in-house production, reaching 82% in 2006 from 78% in 2005. Karel's 2006 margins were curtailed by surging slimmer-margin electronic board sales. It is also worth noting that rising sales boosted electronic board margins due to economies of scale, with the prospect of better figures going forward. While electronic board margins are hovering at around 10%, telecom equipment yields lucrative 50%+ margins.

The cut in the corporate tax rate from 30% to 20% drove the 2006 bottom-line higher through lower current tax expenses and a deferred tax benefit

- In 2006, the corporate tax rate in Turkey was cut from 30% to 20%, reducing both current tax expenses and deferred tax liabilities. As a result of the decline in Karel's deferred tax liabilities, the Company recorded a deferred tax benefit in 2006, positively affecting its reported earnings.

Balance Sheet

- 86% of IPO proceeds were injected into Karel's balance sheet as capital with the remainder to be shared by the selling shareholders. Even prior to the IPO, Karel had a fairly liquid balance sheet with current assets and shareholders' equity both corresponding to 64% of total assets, and cash comprising 23% of current assets.

Fairly liquid balance sheet...

- The bulk of the cash position is held in TRY deposits to generate interest income, as Karel enjoys a fairly comfortable cash flow while its short-term export loans carry relatively low interest.

- Karel's cash balance doubles its short-term financial debt, while it also has a US$1.2mn in long-term financial debt related to the previously-stated funding from TTGV for the development of specific projects.

- Karel's balance sheet is fairly square in terms of FX exposure as it has a long FX position of US$1.8mn as of end-1Q07.

- Karel has an average cash cycle of around 135 days, which increases working capital requirements in periods of rising sales activity. The company's hefty cash position and managers' reluctance to take on debt has been the main reason behind the rising working capital requirement.

Forecasts

In our projection model, we forecasted that sales revenues would grow at a CAGR of 11% over the coming decade. This may appear a somewhat conservative estimate, given Karel's growth prospects in the telecom equipment sector in international markets, and in the electronic control board product line and turnkey projects domestically. Nonetheless, we are not taking into account any possible major change in Karel's revenue stream in the interests of maintaining a conservative approach.

The Turkish telecommunications sector is expected to post 12% growth in 2007 and sustain this pace over the next five years. Karel is relatively well-placed to benefit from the overall sector growth, although the growth in the PABX market may be a bit slower. Nevertheless, Karel's strong market penetration and pricing advantages, replacement demand, the ever increasing number of enterprises and the government's efforts to stimulate the business volumes of alternate operators are likely to ensure that demand remains buoyant for Karel's telecommunications products. We are also expecting a better growth performance in international operations, with CAGR levels reaching 14% over the next decade on the back of the company's vigorous efforts to seek opportunities in the Middle East, Central and South Asia and Africa. The share of exports in total revenues should increase going forward on the back of further penetration in the aforementioned unsaturated markets.

Karel is also anticipated to increase its electronic board and turnkey project revenues. Strong growth in the Turkish white goods sector, combined with the Government's intention to increase domestic procurement of defence technologies should drive electronic card revenues higher in the coming years. Turk Telekom's increasing post-privatisation investment spending, the race for enhanced customer services and market share among mobile telecom operators, as well as further penetration of alternate operators may present attractive opportunities for Karel to augment its turnkey project revenues.

We forecast Karel's gross margin to fall from 35% in 2006 to 28% in 2016 due to rising share of less profitable electronic board and turnkey project revenues in the sales mix, as well as slightly easing telecom equipment margins. This would, however, be to some extent compensated for by the gradually improving electronic control board margins, thanks to economies of scale. Karel's EBITDA margin is also likely to remain pretty much near its current levels in the coming years, with the narrowing in the gross margin offset by a slow improvement in operating expenses. We are projecting a 2 percentage-point contraction in EBITDA margin to 21% over the forecasting period. In light of our estimations, we forecast the net margin to decline from its current level of 19% to 13% by the end of our forecasting period. However, it is worth bearing in mind that we may see an improvement in Karel's net margin if the government enacts prospective legislation that offers further tax incentives.

Figure 24. Karel – Income Statement Forecasts* (US$mn)

INCOME STATEMENT (US$mn)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Net Sales	**32**	**41**	**35**	**43**	**54**	**60**	**67**	**74**	**82**	**89**	**97**	**106**	**115**	**126**
Sales Growth	*0%*	*29%*	*-14%*	*23%*	*25%*	*12%*	*11%*	*11%*	*10%*	*10%*	*9%*	*9%*	*9%*	*9%*
Other Revenues from operations	0	1	1	1	1	1	2	2	2	2	2	2	3	3
Cost of Sales	-23	-27	-23	-29	-37	-42	-46	-52	-58	-64	-71	-78	-85	-93
Gross Profit	**9**	**14**	**13**	**15**	**18**	**20**	**22**	**24**	**26**	**28**	**29**	**31**	**33**	**36**
Gross Margin	*29%*	*34%*	*35%*	*35%*	*32%*	*32%*	*32%*	*32%*	*31%*	*30%*	*29%*	*28%*	*28%*	*28%*
Operating Expenses	-5	-7	-6	-7	-8	-9	-10	-10	-11	-12	-13	-13	-14	-17
Operating Profit	**5**	**7**	**7**	**8**	**9**	**11**	**12**	**14**	**15**	**16**	**17**	**17**	**19**	**19**
Operating Margin	*14%*	*17%*	*18%*	*19%*	*17%*	*18%*	*18%*	*18%*	*18%*	*17%*	*17%*	*16%*	*16%*	*14%*
EBITDA	**5**	**8**	**8**	**10**	**12**	**14**	**15**	**17**	**19**	**20**	**21**	**23**	**24**	**27**
EBITDA Margin	*17%*	*20%*	*23%*	*23%*	*22%*	*22%*	*23%*	*23%*	*23%*	*22%*	*21%*	*21%*	*20%*	*21%*
Non-Operating Income	1	0	1	1	1	2	2	2	2	2	2	3	3	3
Financial Expenses	0	0	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Net Changes On Monetary Position	-2	-1	0	0	0	0	0	0	0	0	0	0	0	0
Profit Before Tax	**3**	**6**	**7**	**9**	**10**	**12**	**13**	**15**	**16**	**17**	**18**	**19**	**21**	**21**
Taxes	0	-1	-1	0	-2	-2	-2	-2	-2	-3	-3	-4	-4	-4
Net Profit	**3**	**4**	**6**	**8**	**8**	**10**	**11**	**12**	**14**	**15**	**15**	**15**	**17**	**17**
Net Margin	*10%*	*11%*	*16%*	*19%*	*15%*	*16%*	*16%*	*16%*	*16%*	*16%*	*15%*	*14%*	*14%*	*13%*

*Historical financials were restated to exclude plastic moulding business.

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Figure 25. Karel – Balance Sheet Forecasts* (US$mn)

BALANCE SHEET (US$mn)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Current Assets	**13**	**16**	**22**	**44**	**43**	**50**	**56**	**61**	**68**	**75**	**82**	**88**	**96**	**105**
Cash & Marketable Securities	1	2	6	16	24	28	32	35	39	43	48	52	55	61
Receivables	6	7	8	14	9	11	12	13	15	16	17	19	21	23
Inventories	5	7	8	14	9	10	11	12	13	14	15	16	18	19
Other Assets	1	0	1	1	1	1	1	1	1	2	2	2	2	2
Long-Term Assets	**9**	**12**	**15**	**18**	**21**	**24**	**27**	**30**	**34**	**37**	**41**	**44**	**48**	**50**
Receivables	0	0	0	1	1	1	1	1	1	1	1	1	1	1
Fixed Assets (net)	7	8	8	8	11	11	11	11	12	12	12	12	13	14
Other Assets	2	4	7	9	9	12	15	18	21	24	27	31	34	34
TOTAL ASSETS	**22**	**28**	**37**	**62**	**64**	**74**	**83**	**92**	**102**	**112**	**122**	**133**	**144**	**155**
Current Liabilities	**8**	**5**	**7**	**13**	**12**	**13**	**14**	**15**	**17**	**18**	**19**	**21**	**23**	**25**
Loans	3	0	3	6	5	5	5	5	6	6	6	7	7	8
Trade Payables	3	3	2	4	4	4	5	5	6	7	7	8	9	10
Other Liabilities	2	2	2	3	3	3	4	4	5	5	6	6	7	7
Long-Term Liabilities	**3**	**4**	**5**	**4**	**2**	**2**	**2**	**2**	**2**	**2**	**3**	**3**	**3**	**3**
Loans	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Provisions	1	1	1	1	1	2	2	2	2	2	3	3	3	3
Other Liabilities	2	3	3	2	0	0	0	0	0	0	0	0	0	0
Shareholders' Equity	**11**	**19**	**25**	**44**	**51**	**59**	**67**	**75**	**83**	**91**	**100**	**109**	**118**	**127**
Paid-in Capital	1	2	10	13	14	15	16	16	15	15	14	13	13	12
Reserves	2	2	1	15	15	15	14	14	15	15	15	15	15	16
Net Profit	3	4	6	8	8	10	11	12	13	14	15	15	16	16
Retained Earnings	5	11	7	8	14	19	25	32	40	48	56	65	73	82
TOTAL LIABILITIES & EQUITY	**22**	**28**	**37**	**62**	**64**	**74**	**83**	**92**	**102**	**112**	**122**	**133**	**144**	**155**

*Historical results were restated to exclude plastic moulding business

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Valuation

We valued Karel through a blend of DCF analysis and relative valuation, assigning equal weight to both approaches as we believe that a DCF model better reflects Karel's future growth opportunities, while multiples provide a fairly reasonable framework under a perspective of short-term market expectations.

According to our calculations, Karel trades at an EV/EBITDA multiple of 3.9x and a P/E multiple of 6.4x based on forecasted 2007 results, representing quite attractive levels compared to the overall ISE and sector averages. The 2008F EV/EBITDA multiple of 3.4x and P/E of 5.5x cast Karel in an even more attractive light.

Figure 26. Karel – Relative Valuation

		EV/SALES	EV/EBITDA	P/E
	Weight	20%	50%	30%
ISE100	20%	0.8	7.0	12.5
ISE-Technology	50%	0.7	6.9	10.3
ISE-Industrials	30%	0.9	7.6	14.4

Karel - Current Implied Market Cap (US$mn)	**87**
Karel - 12-Month Target Market Cap (US$mn)	**97**

One criticism that could be levelled at Karel's operating profitability measures is that the company capitalises its R&D expenditures, resulting in a relatively high bottom-line and hence lower P/E multiples. Capitalisation of R&D expenditures is indeed in accordance with the CMB regulations. Furthermore, given that the company only conducts development studies (not research) and a return is secured for several years, we also believe such an approach is rational. It is also worth noting that the company prudently writes off those R&D expenses not resulting in a final product. From a valuation angle, the capitalisation of R&D expenses does not affect our fair value estimate, as the capitalised portion of the R&D is treated as a capital expenditure, lowering free cash flows anyway.

Note that even if R&D expenditures were fully expensed, the company would have been trading at an EV/EBITDA of 5.5x and a P/E multiple of 9.3x based on 2007 forecasts, still undemanding when compared with the aforementioned multiples.

Another significant point is that Karel's average cash cycle of 135 days spells the prospect of rather demanding working capital requirements going forward. Nonetheless, we are expecting a shortening of the cash cycle, also in line with the management's expectations. Karel currently imports raw materials in large quantities and stores for an average of 100 days. The company has been paying for some of the goods procured from suppliers in cash. The company's substantial cash position and the management's reluctance to take on debt have been the main factors behind rising working capital requirements. However, it should be noted that these steps are rather arbitrary and facilitating measures could ease the burden from the relatively higher working capital needs.

With the growth in revenues followed by a rise in working capital requirements, we believe the company will quickly take steps to improve its cash cycle. To this end, the company is planning to initiate an inventory management program to handle carrying costs of inventory and increase the inventory turnover ratio. The management may also consider extending the days payable to meet the increasing cash needs going forward. We are expecting these steps to develop at a moderate pace.

We are of the view that the company should also take steps to increase electronic card margins, which are currently hovering at around 10-12%. Lower margins in electronic cards present an investment risk, as they could erode the company's equity value along with higher working capital requirements. Nonetheless, we are expecting electronic card margins to improve from 2007 onwards on the back of economies of scale and diversification of the customer portfolio. Electronic card margins are expected to gradually edge up to 15% by 2016 from their current level of 10%.

Figure 27. Karel – DCF Valuation (US$mn)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EBITDA	**12**	**14**	**15**	**17**	**19**	**20**	**21**	**23**	**24**	**27**
Cash Taxes (-)	-1	-2	-2	-2	-2	-3	-3	-4	-4	-4
Cap-Ex (-)	-10	-6	-6	-7	-7	-8	-8	-9	-9	-10
Change in Working Capital	-1	-2	-1	-2	-2	-2	-2	-2	-2	-3
Free Cash Flows	**0**	**4**	**6**	**6**	**7**	**8**	**9**	**9**	**9**	**10**

WACC Calculation	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Global risk-free rate (US treasury, 10-yr)	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%
Turkish sovereign spread	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%
Turkish sovereign risk (TR 10-yr Eurobond yield)	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%
Additional Turkish equity risk premium (50% of sov.spr.)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Beta	0.64	0.67	0.71	0.74	0.78	0.82	0.86	0.91	0.95	1.00
Cost of equity	10.5%	10.7%	10.9%	11.1%	11.4%	11.6%	11.8%	12.1%	12.4%	12.7%
Corporate debt premium over Turkish sovereign rate	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Pre-tax cost of debt	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Tax rate	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
After-tax cost of debt	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
WACC	**10.5%**	**10.7%**	**10.9%**	**11.1%**	**11.4%**	**11.6%**	**11.8%**	**12.1%**	**12.4%**	**12.7%**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Discount Factor*	1.01	1.12	1.24	1.37	1.53	1.71	1.91	2.14	2.41	2.71
PV of Cash Flows	0	4	5	5	5	5	5	4	4	4
Total Discounted Cash Flows for the Forecasting Period	**38**									
Terminal Growth Rate	2.5%									
PV of Terminal Value	**38**									
Fair EV	**77**									
Net Cash	8									
Current Fair Equity Value	**85**									

*Cash flows discounted from mid-year

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Figure 28. Karel – Target Valuation (US$mn)

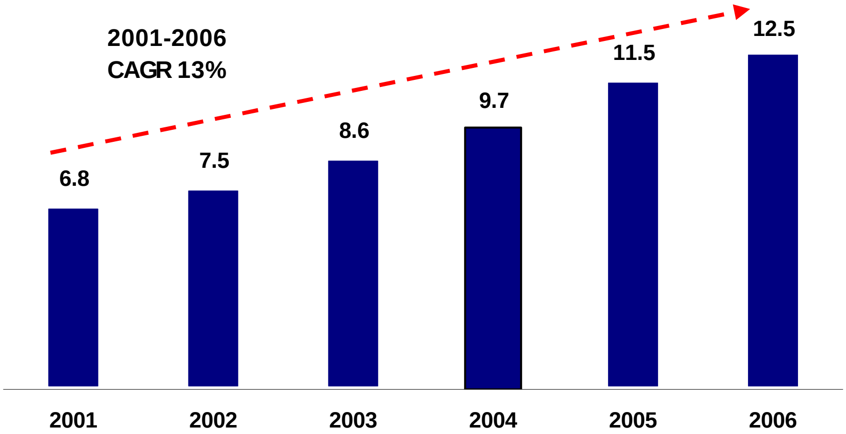
Implied Market Cap (DCF)	**85**
Implied Market Cap (Relative Valuation)	**87**
Blended Fair Equity Value	**86**
12-month Target Mcap	**96**
Current Mcap	**54**
12-month Upside Potential	**77%**

Appendix: Turkish Telecommunications and Telecom Equipment Industry

The Turkish telecommunications industry grew from US$6.8bn in 2001 to US$12.5bn in 2006, posting a CAGR of 13%. The size of the Turkish telecommunication market corresponded to 3% of GDP, lagging significantly behind Eastern European averages. The number of fixed lines per 100 inhabitants, at 27 in Turkey, is also well behind Eastern European average of 35, pointing to further penetration potential.

Turkish telecommunications industry is posting double-digit rates

Figure 29. Turkey – The Size of Telecommunications Industry (US$bn)



Turk Telekom (TT, Turkey's incumbent fixed-line operator and the owner of the third largest GSM operator, Avea) is meeting its telecom equipment needs via various tenders. Since 1990, TT has invested an average of US$500mn per year in its network equipment and systems (switching systems taking the lead). Akin to many other telecom operators worldwide, TT, which alone generates the bulk of the domestic switching systems demand in Turkey, cut its investment spending significantly after 2001 due to the downturn in the telecom industry. There were internal reasons as well, such as the tight fiscal policies employed in the aftermath of the severe 2001 economic crisis, and a halt in investment policies in later years pending TT's privatisation.

Turkey's telecom industry is going through a restructuring phase designed to facilitate competition along the lines of EU legislation. In 2000, the Turkish government passed a unilateral law bringing forward the opening of the market for basic telecom services to 1 January, 2004. However, sector liberalisation had not really become fully effective prior to TT's privatisation, with TT practically maintaining its domination and control of the industry, as well as enjoying government backing. Moreover, the transformation process has not been completed as the initial periods of the liberalisation era have passed with preparations and setting of new regulations. As such, despite Turkey's regulatory regime favouring new telecoms entrants, the actual development of fixed-line services has been rather constrained by lack of external capital due to the slow pace of market liberalisation.

Going forward, the effective deregulation of fixed public voice network and services is expected to increase the number of telecom equipment providers' potential clients in fixed-line services (hence the amount of investment flowing into the telecom sector) within a matter of few years, as has been the case in many other countries. This will translate into the further progressing of a flourishing business segment comprising alternate operators (e.g. long distance service providers, ISPs, utility companies, CATV operators, etc.); hence further client diversification for equipment providers. On the other hand, the deregulation will also bring about a harsh tug of war in pricing of service providers. This may have mixed consequences. On one hand, there may be the negative pass-through effect of stiff competition's likely pressure on equipment manufacturers' product margins. On the other hand, declining telecom service prices can encourage enterprises to further invest in telephone systems and equipment, while the flourishing market size via new entrants' value-added services should also compensate for any pricing pressures.

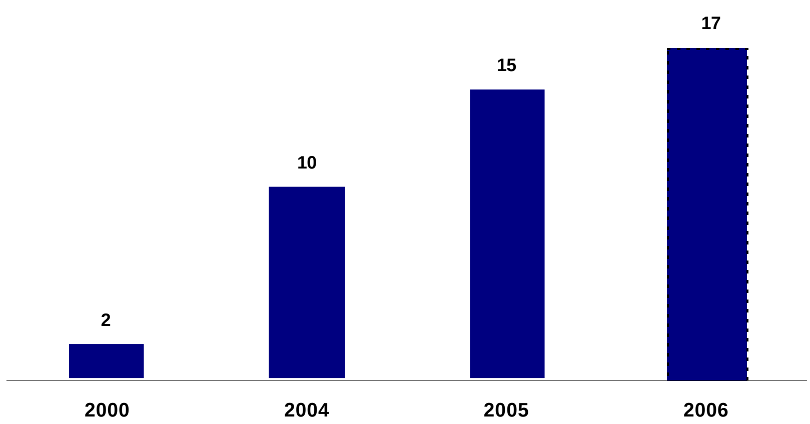
Telecom investments are expected to accelerate the trickling into equipment providers following the recent privatisation of TT and sale of the second largest GSM operator Telsim to Vodafone. In the context of the liberalisation of Turkey's fixed telephone network sector, TT is initiating new projects to reinforce its capacity as the leader of the industry. TT's investment spending has indeed started to recuperate as of 2004 with a shift of focus towards more value-added investments. TT has recently made significant progress in the area of ADSL broadband access for high speed internet access in terms of infrastructure and subscriber growth. To support this growth, it has also made considerable investments in transmission and access areas, on the brink of convergence of data, video and voice. To enhance and improve Turkey's telecom infrastructure further, TT is planning to invest a lump of US$500-600mn annually over the next five years.

From a different angle, soaring demand for wireless telephony on the voice side seriously curtailed the demand for fixed lines in the 2000s. Meanwhile, the number of GSM subscribers caught up with that of fixed-line subscribers in 2001 and currently approached 75% of the population. The telecom equipment business has also been progressively shifting focus towards mobile networks over the last decade. In the near future, Vodafone Turkey is expected to speed up its investing in infrastructural improvements that it had been unable to undertake for many years due to problems with its ex-owner, while the consolidation of Avea's infrastructure will also add to industry spending. Furthermore, the largest GSM operator Turkcell's growing operations abroad and segment-based new market strategies to preserve its dominant market position, as well as industry investments taking place in the GSM access and core systems, will be further drivers of sector growth stemming from the mobile segment.

Broadband penetration is rapidly picking up, prompting telecom equipment providers to optimise their networks for increasing data traffic in the context of data / voice integration

Another driver of growth, broadband penetration, is also rapidly picking up. The number of internet users in Turkey rose from 2 million in 2000 to 15 million in 2005 and 17 million in 2006. It is estimated to further increase to 19 million in 2007, prompting telecom operators to optimise their networks for increasing data traffic in the context of the integration of voice and data through applications such as VoIP.

Figure 30. Turkey - # of Internet Users



In a nutshell, a whole new range of services involving all kinds of content and service solutions aimed at increasing per-subscriber revenues in other than purely voice-related income have begun to gain importance for the operators. In this regard, applications such as Blackberry, Push to Talk, high-speed internet access over EDGE, and mobile TV have become popular. It is now expected that core Next Generation Networks (NGN) applications will start being used and that, following regulations by the Telecommunications Authority (TA), new investments will be made in the area of 3G, where operating licences are expected to be distributed later this year.

Under the leadership of the TA, liberalisation of the industry gradually continues. Following the regulation of Long Distance By-Pass Services in 2004, the Authority has launched several other regulations, such as Infrastructure Operation, Cable Platform Services, Broadband Fixed Wireless Access, and UMTS/3G.

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