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Egypt Information Technology Report Q3 2007

Including 5-year industry forecasts

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Information Technology Report Q3 2007

Including 5-year industry forecasts by BMI

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With Egypt's IT market size expected by BMI to be on course to increase a value of around US$1.3bn in 2011, from US$889mn in 2006, the market is one of the most promising in the MEA region over the forecast period. With strong real GDP growth likely over the next five years, led in part by two sectors with huge potential for IT vendors (real estate and telecommunications), as well as growing foreign investment, strong growth in IT revenues is likely. Egypt's rise up the regional IT rankings as revealed in **BMI**'s regional overview is being fuelled by regional trade liberalisation with around 40% of the direct investments fuelling spending in key verticals such as telecom and finance coming from GCC countries. The same trend is also stimulating new spending by smaller and medium companies on applications, hardware and services with predictions from regional distributors that Egypt could soon surpass regional giants the UAE and Saudi Arabia for computer sales.

BMI therefore expects the Egyptian IT market to exhibit relatively strong all-round growth over the forecast period, with considerable opportunities in both the public and private sectors and the rate of computer penetration rising for both households and enterprises. While computers remain a luxury item for many, a series of factors should drive household sector penetration. Private consumption is expected to grow at around 5% annually over the forecast period, boosted by an expansionary monetary and fiscal policy. Moreover, the increasing popularity and affordability of notebooks is also emerging as a major driver of PC sales in the country, providing an opportunity for foreign vendors to strengthen their market position. Despite all this however, limited disposable income and wide economic disparities will remain constraints on the market for the foreseeable future.

The administration of Prime Minister Ahmed Nazif seems likely to remain committed to promoting IT as part of its overall development strategy and vendors of hardware systems, packaged software, peripherals and IT services should all benefit. In addition, a number of vertical sectors are providing particularly strong demand. The telecoms sector is growing at an unprecedented rate, with the award of 3G licences to three service providers certain to generate new spending on IT products and services from this sector. The banking vertical, led by the **Central Bank of Egypt** and other financial institutions, is also building on earlier IT installations.

Industry Developments

IT Minister Tarek Kamel said in June that Egypt was implementing a new strategy of expanding IT services to Education, Health and Transport areas. The moves are in line with President Mubarak's policy of supporting national development by applying modern technology to government services. Kamel also signed a number of other protocols in June extending e-services into other domains.

Meanwhile, the Egyptian government is continuing with its plans to make ICT a major contributor to Egypt's economy and exports. A recent report by Egypt's IT Industry Development Agency (ITIDA) found that Egypt's ICT exports were currently US$25mn, and forecast that they would reach US$1.5bn annually by 2010. Tarek Kamel himself recently claimed that the Telecoms and IT sector had contributed EGP25bn to the Egyptian economy over the past eighteen months.

Competitive Landscape

International vendors are strengthening their position in the fast growing Egypt PC market and challenging the earlier dominance of local companies. The development in part reflects the growing demand for notebooks, where foreign vendors generally have an advantage. Notebook growth was over 100% in Egypt in 2006, whereas desktop growth was in single figures. However, desktops still dominate computer sales in absolute terms with around two-thirds of shipments compared with around 30% for notebooks.

The growing dominance of foreign vendors was reflected by the fact that **Dell** is to open a representative office in Cairo before the end of 2007, whereas previously the company covered the market through four business partners including **Raya** and **Quest**. According to Dell regional figures, its Egypt sales increased by 79% in 2006 to 12.9% of the market. Growth is continuing to increase in 2007. Overall, **HP** is the market leader with Dell and **Acer** in the runner up positions right now, and combined the top three vendors accounted for more than 40% of revenues in 2006.

Computer Sales

Hardware (including communications hardware) still dominates the Egyptian IT sector, accounting for approximately 58% of the total market. With rates of PC penetration still low, and the 2007 launch of the 'Nation Online' phase of the 'PC for Every Home' programme, this dominance is expected to be maintained. In 2006 Egypt spent US$507mn of its IT budget on hardware, driven by initiatives like the 'Computer for Every Student' and 'PC for Every Home' projects. There is room for considerable growth in the next few years, given the current low level of computerisation, which is much higher in the business sector than in the population at large. The number of internet users is expected to rise from around 5mn currently to more than 15mn by 2011, representing a substantial opportunity for hardware vendors. Increased competition in the telecoms sector, with the entry of a third operator should also create an environment to support growth.

Egypt accounts for as much as 50% of total computer sales in Arabian Levant countries. Desktops still represent over 95% of the PC market and, despite a recent government laptop initiative aimed at business executives, desktops are likely to remain the mainstay of the market. Fastest growth should come from the fast developing SME and education sectors. Some 20%–25% of unit sales are accounted for by households, with almost 1mn–1.5mn households said to possess a computer at present.

Software

Overall spending on software remains rather low, amounting to US$124mn in 2006. The estimated 14% share of the total Egyptian IT spending accounted for by software reflects the relative immaturity of Egypt's IT market. Another explanation for low spending on software is piracy, with up to 80% of some IT goods being counterfeit. Another important factor is, of course, low income. The high costs associated with operating systems such as Windows have led some players to champion the cause of Linux. However, the domestic software sector is expected to grow at a CAGR of around 6% over the forecast period until 2011.

With more than 50% of the regional business community comprising of SMEs, this sector is likely to emerge as the main driver of enterprise application spending over the next few years. Vendors such as **Oracle** are looking to rapidly expand their opportunities in this market. Among important verticals, banking and telecoms are likely to provide the most opportunities. Leading banks such as the Central Bank of Egypt, which has partnered with **Sun**, and **United Bank**, which is working with **Misys Banking Systems**, are undertaking major projects to modernise solutions and applications. The entry of a new operator in Egypt's telecoms market in 2007 should spur spending on OSS and BSS systems as well as applications and service platforms.

Services

IT services were worth around US$258mn in 2006, accounting for about 29% of Egypt's total spending on IT. Egypt's fast growing IT sector is starting to create demand for larger projects, with larger customers becoming more demanding in terms of their IT expectations, particularly in sectors such as banking, which is increasing looking to use IDC hosting solutions. However, basic support and maintenance services represent around one-third of IT services spending. Following the government's recently announced plan to make Egypt an outsourcing and call-centre hub, this sector should be one of the faster growing over the forecast period.

E-Readiness

The recent award of 3G licences to three mobile telecoms service providers is likely to provide opportunities for IT vendors. Egyptian mobile operator **Mobinil** was the latest company to be granted a 3G licence, in July. This followed awards for **Vodafone Egypt** and new entrant **Etisalat** earlier in the year. As well as generating additional spending on IT products and services from the telecoms sector, the growing popularity of mobile data applications should provide a boost to the PC market over the next few years.

A similar story could be told about broadband, where the number of users expected to triple from around 5mn in 2006 to 15mn by 2011. However, while the rate of internet penetration will reach 19% by that year, broadband penetration will lag far behind at just 6%, equivalent to around 5mn subscribers. In a bid to increase access to computers and the Internet, the Egypt government’s Social Fund for Development signed an agreement with **Intel** recently focused on providing technology to SMBs.

Egypt’s broadband initiative — first announced at ITU Telecom Africa in May 2004 — has been slow to achieve results, despite the active intervention in the market activity by the government to speed up the rate of service uptake. This intervention mainly took the form of investing to increase the country's international capacity 10-fold over the past three years to over 1,000M/bits of international bandwidth. The broadband initiative is seen by the government as another means of enhancing the country's economic competitiveness.

SWOT Analysis

Egypt IT Sector SWOT	
Strengths	▪ Huge potential in domestic market, with a population of 76mn and computer penetration at just 2% ▪ Strong political support, with axis between Prime Minister Ahmed Nazif and his former advisor, now chief minister at the Ministry of Communications and ITMCIT, Tarek Kamel
Weaknesses	▪ Low computer literacy, low market penetration, high costs ▪ Lack of access to finance has proved to be the one stumbling block to greater IT investment and sales for both local players and internationals involved in Egypt's IT sector
Opportunities	▪ Government programmes, such as 'PC for Every Home' and 'Notebooks for Business', although these may favour local assemblers ▪ Regional hub, increasingly used as base for export to other countries in the region
Threats	▪ Global environmental factors, such as terrorism, and possible global slowdown

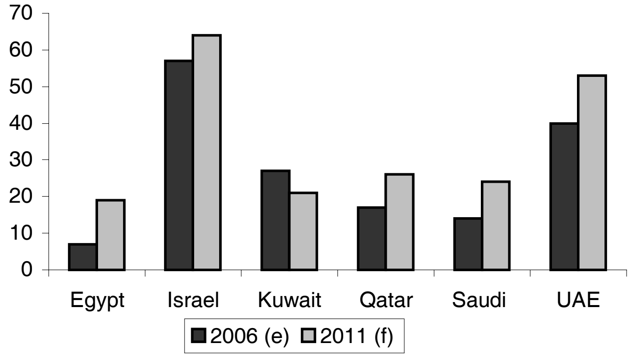
Industry SWOT	
Strengths	▪ The government aims to sell 54 of the remaining 170 state-owned enterprises in 2005 ▪ The geographical location is good for trade, as Egypt has access to both the Mediterranean and the Red Sea ▪ The legal system has issued adjudications in favour of foreign firms, although there are frequent procedural delays, and is closely connected to the executive branch of government
Weaknesses	▪ Egypt is 70th (of 163) in Transparency International's Corruption Perceptions Index 2006 ▪ The labour market is relatively inflexible, with Egypt performing markedly worse than the OECD average, and is also ranked inferior to the regional average on the World Bank's 'Hiring and Firing' workers index
Opportunities	▪ The prime minister, Ahmed Nazif, is likely to promote the development of information and communications technology ▪ A free trade zone between all littoral Mediterranean states and the EU is expected to be in place by 2008 ▪ Bilateral talks on a potential Free Trade Agreement (FTA) with the US started in November 2004
Threats	▪ Patronage networks impede attempts at fighting corruption and cutting bureaucracy ▪ Although levels of education are relatively high, there is a considerable mismatch between the skills taught in schools and those required by most employers

Middle East Regional IT Markets Overview

IT Penetration

Across the Middle East region ICT has become an important focus of development strategy for nearly all governments, and a wide variety of initiatives should therefore ensure continuing progress on e-indicators. In terms of ICT the region more or less divides into two groups: Richer and more advanced technological countries such as Kuwait where more homes already have DSL or WiFi coverage, and emerging countries such as Egypt where there is potential for considerable growth in PC penetration.

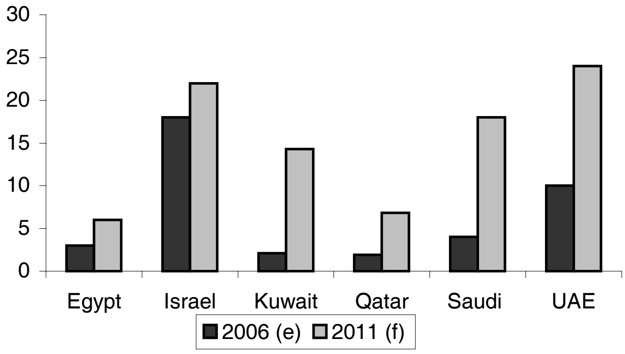
Internet Penetration (per 100 population)



e/f = estimate/forecast. Source: BMI

In the emerging markets in particular, the growing popularity of the internet should be apparent over the next few years with the number of users expected to experience significant growth. Egypt will lead the rankings with 271% growth in internet subscribers forecast by 2011. However, even relatively advanced societies such as the UAE have room for progress, with penetration in the Emirates expected to increase from around 40% currently to 53% by 2011. Israel, where internet penetration is high for the region at 57%, should see a 7% rise, while Saudi Arabia is expected to see penetration rise from 14% to 24%.

Broadband Penetration (per 100 population)



e/f = estimate/forecast. Source: BMI

A similar range is found with broadband penetration, which ranges from 3% in Egypt currently to 18% in Israel. Government initiatives to facilitate high speed internet access are afoot in most advanced countries in the region, ranging from the wireless broadband in Dubai plans to deploy fibre extensively in some countries such as Kuwait. Kuwait is expected to witness the highest percentage growth from just 2.1% to

14.3, but growth will be high in most countries with Egypt seeing a 100% growth from 3% to 6% population penetration.

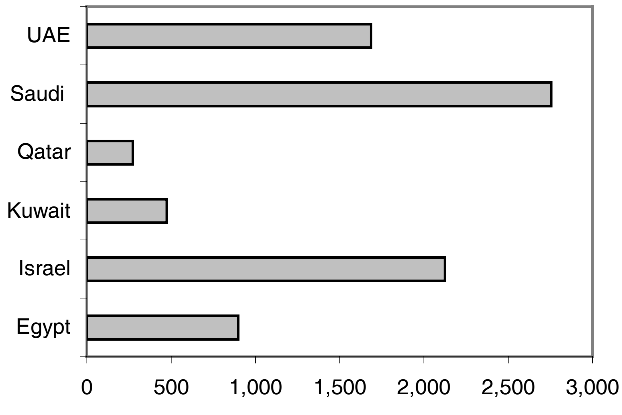
In markets such as Kuwait and Israel broadband will become an increasingly important driver of PC ownership due to the variety of multimedia and communication functions it enables. In general, the growing popularity of internet access should provide a spur to PC markets over the next few years, with plenty of room for growth in many markets given the current low level of computerisation, which is often much higher in the business sector than in the population at large. In February 2007, the Egyptian government launched ‘Nation Online’, the latest phase of the ‘PC For Every Home’ initiative first started in December 2003.

In general, government initiatives will remain important drivers of information society development and an important support to regional IT markets. In the UAE the government is working towards a target of getting 90% of businesses online by 2007, while computers for education is back on the agenda. Like many countries in the region the Emirates is making good progress towards its e-government targets. In general, there is a focus by regional governments on how ICT will affect citizens and businesses with particular application to sectors such as Education and Healthcare.

Market Growth And Drivers

2007 is expected to see most regional markets continue their upwards trends with a strong and diversifying regional economy expected to ensure continued growth over the forecast period. The largest IT market in the region is Saudi Arabia’s, estimated at US$2.8bn in 2006, followed by Israel (US$2.1bn) and the UAE (US$1.7bn).

IT Market Sizes, 2006 (US$mn, est.)



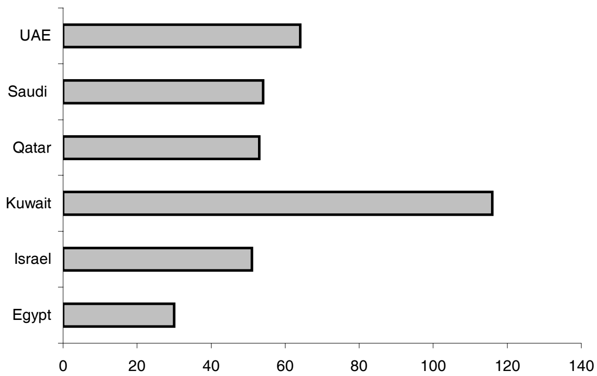
Source: BMI

Buoyed by defence spending Israel’s IT market is also clearly largest as a proportion of national GDP (3.25% in 2006, increasing to 3.75% by 2011). This places it well ahead of oil rich neighbours such as Qatar (0.48%) and Saudi Arabia (0.71%). However, across the GCC region recent high oil prices, despite fuelling a wave of IT spending, have masked the progress of governments in increasing the relative importance of the non-oil economy. By 2011 this should be more evident, with IT’s share of GDP rising in these countries.

A number of factors will underpin growth across much of the region. In general, economic conditions should provide strong support for IT spending going forward. High oil prices are still supporting general economic buoyancy. Oil and gas companies are looking to optimise cost structures, while in the financial sector banks are implementing solutions to increase business flexibility and introduce new services, including Islamic Banking. Governments are also getting in on the act, with a wave of new e-government initiatives launched, and an increasing number of state institutions offering online services.

IT markets in the region will therefore experience compound growth ranging from high single into double figures, reflecting that even in developed markets there is plenty of room for growth in PC sales. Generally strong growth in both computer sales and associated services is being driven by high oil prices and substantial budgets allocated for e-government infrastructure development. In the enterprise sector, smaller companies are realising the opportunities to apply IT to achieve efficiencies in such areas as finance and logistics as well as marketing and other functions.

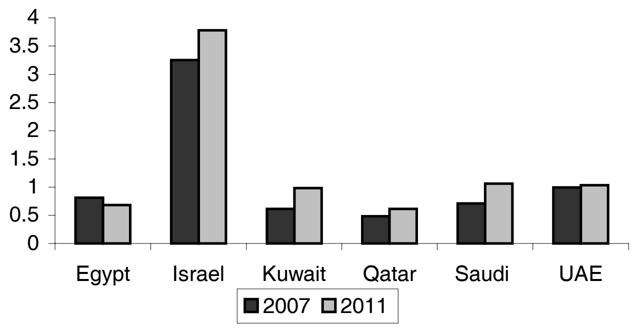
IT Markets Compound Growth, 2006-2011 (%)



Source: BMI

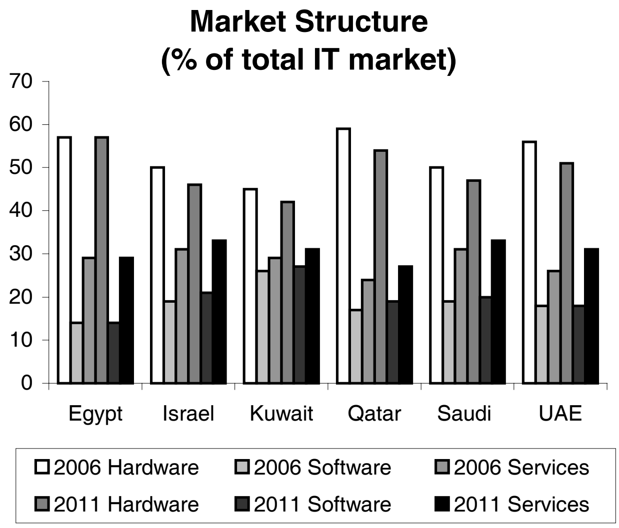
The highest growth IT markets over the forecast period are now expected to be Kuwait (116%) and the UAE (64%) due to a confluence of many of the major growth drivers in the region, such as high oil prices, modernisation programmes, and booming property and telecoms sectors. However, even countries such as Egypt should experience strong all-round growth over the forecast period, with computer penetration rising and considerable opportunities in both the public and private sectors. Across the region, however, generally positive growth scenarios could be threatened by a slowdown in the global or US economy.

IT Market Sizes As % Of National GDPs



f = forecast. Source: BMI

Sectors And Verticals



Source: BMI

Hardware still dominates the regional IT spend, accounting for between 45% and 59% of the total for all markets. While there is a trend in the more mature markets towards greater demand for applications and services, the hardware share will largely be sustained by initiatives like Egypt's 2007 launch of the 'Nation Online' phase of the 'PC for every Home' programme

Across the region there is room for considerable hardware sales growth in the next few years. The number of personal computer users in use should continued to rise steadily over the forecast, driven by falling prices as well as programmes such as the Saudi 'Home Computing Initiative,' which offers low price computers in easy instalment payment schemes. Laptops are providing much of the growth in the PC category, and will often account for more than one-third of sales over the next year or two.

Spending on software as a share of total IT spending is as low as 14% in Egypt and below 20% in a majority of markets. One explanation for low spending is the presence of software piracy: across the region up to 80% of software is counterfeit. Another important factor is of course low income, and the high costs of operating systems such as Windows and has led to activity to promote open source in countries such as Egypt, championed by **IBM** and other vendors.

However, increased IT budgets and the launch of Windows Vista should mean growth in regional spending on software in 2007. **BMI** predicts plenty of room for growth in the forecast period as numerous untapped sub-sectors still exist. Key verticals include process manufacturing (mainly oil and gas), followed by the finance sector. Other key segments are telecoms and the public sector. During the next five years, in addition to CRM and ERP, high-growth categories are set to include business intelligence, storage and security products.

Meanwhile, **BMI** predicts that IT services will be the fastest-growing segment of the region's IT industry, with strong double digit growth seeing the Services category increase its share of the IT spend in many countries. Currently that share ranges from 24% from 31% in the countries covered by **BMI**. Services are becoming an increasingly important component of many deployment contracts in the more advanced countries, as evidenced by recent projects by leading UAE corporations such as **Emirates Airlines** and

Etisalat. Outsourcing is predicted to be a growing trend, with recent landmark outsourcing deals in the UAE and Saudi. Even in less mature markets such as Egypt, fast growing IT sectors are also starting to create demand for larger projects, with larger customers becoming more demanding in terms of their IT expectations.

Basic support and maintenance services represent around 1/3 of IT services spending in much of the region. However other groups are growing particularly fast, including outsourcing and training services. With an increasingly competitive business environment, more enterprises are looking at outsourcing of non-core functions.

Market Overview

Government Authority

Government Authority	Ministry of Communications and Information Technology
Minister	Tarek Kamel

Starting in 1999, the Ministry of Communications and IT (MCIT) has pursued its ambition of making Egypt an ICT hub and encouraging businesses to invest through the liberalisation of market access, the introduction of tax exemptions, and free zone status for foreign companies.

History And Market Structure

At the end of the 1990s, Egypt's rate of PC penetration was just 1%, and there were long waiting lists for telephones. Things started to change in October 1999, when Ahmed Nazif was appointed the nation's first minister of communications and IT, and set about implementing a national ICT plan. In a wide-ranging series of initiatives, the government lowered tariffs on computers, computer equipment and software to 5%, and followed a competition agenda for the telecoms and IT markets.

In 2002, partly as a response to the global IT slump, the ministry launched a new phase of IT initiatives designed to drive PC adoption and internet usage throughout the country. In mid-November 2002, the 'Computers by Instalments' programme was launched (a scheme requiring a 10% down-payment, then monthly instalments of between EGP70–100 at a low interest rate of 7%), with a long-range annual target of 150,000 computers. The ministry also set up 615 IT clubs nationwide to enable low-income families that could not afford to purchase a PC to access the internet. A comprehensive e-government project was launched.

Egypt has been making real progress, particularly in the last year or two, and recent figures show that it is now the third-largest market in the Middle East for newly acquired PCs. In 2004 over 170,000 sales of branded computers were recorded, a figure that is beginning to close in on those of the UAE and Saudi Arabia. Egypt's local PC assembly sector is also developing, with Egyptian companies such as **Centra**, **Metra** and **Prosilab** all occupying top-five places in the desktop market. Despite the advantages enjoyed by local companies, foreign companies are moving into Egypt at an accelerating rate, bringing with them knowledge and technology that benefits the sector as a whole. In September 2003 Egypt inaugurated the 'Smart Village Pyramids' project, a hi-tech business centre specifically targeted at attracting foreign direct investment (FDI) into the hi-tech industry.

Consolidation among local IT companies is also stepping up as they merge to compete more effectively against international companies. However, the PC penetration rate only rose by a single point, from 1% to 2%, between 1999 and 2002, suggesting that Egypt's IT development still has a long way to go. The global economic depression and subsequent depreciation of the Egyptian pound hit the IT industry hard during 2001–2002, with 2003 sales for the government 'PC for Every Home' initiative below the government's targets. Previous initiatives, including buying home computers on instalments through utility bills, were also only a moderate success, with sales just under the 100,000 mark.

Following several initiatives of the current government, led by Prime Minister (and former MCIT head) Nazif, there is, however, general optimism for the future development of the IT sector.

Hardware

Hardware (including communications hardware) still dominates the Egyptian IT sector, accounting for approximately 58% of the total market. With the rate of PC penetration still low, and the 2007 launch of the 'Nation Online' phase of the 'PC for Every Home' programme, this dominance is expected to be maintained, and **BMI** has upwardly revised its forecasts for PC sales. In 2006 Egypt spent US$507mn of its IT budget on hardware, driven by initiatives like the 'Computer for Every Student' and 'PC for Every Home' projects. There is room for considerable growth in the next few years, given the current low level of computerisation, which is much higher in the business sector than in the population at large. The rate of computer penetration was just 2.4% in 2005, but the government is prioritising campaigns to raise levels of IT use in schools and generally to promote computer literacy. The number of internet users is expected to rise from around 5mn currently to more than 15mn by 2011, representing a substantial opportunity for hardware vendors. Increased competition in the telecoms sector, with the entry of a third operator should also create an environment to support growth.

Egypt accounts for as much as 50% of total computer sales in Arabian Levant countries. Desktops represent over 95% of the PC market still and, despite a recent government laptop initiative aimed at business executives, desktops are likely to remain the mainstay of the market. Fastest growth should come from the fast developing SME and education sectors. In volume terms, recent local media reports have revealed that Egypt's annual computer market is in the range of 300,000 to 350,000 units. Some 20% to 25% of unit sales are accounted for by households, with almost 1mn–1.5mn households said to possess a computer at present.

Local assemblers continue to dominate the price sensitive PC market, with around 80% market share, and look set to benefit further from government programmes. Local leaders include Centra Technologies, state-owned **Banha Electronics**, and **International Electronics**. Internationally known brands make greater headway in the mobile arena, and are also often favoured by medium and larger businesses. Among international vendors, HP has the number one spot with around 30% of the mobile market and

12% overall, while Dell, IBM and Acer are other leading players. HP is one of several international vendors taking advantage of a trade agreement between Egypt and Saudi Arabia to export PCs to Egypt from Saudi-based assembly plants.

Software

Overall spending on software remains rather low, amounting to US$124mn in 2006. The estimated 14% share of the total Egyptian IT spending accounted for by software reflects the relative immaturity of Egypt's IT market. Another explanation for low spending on software is piracy, with up to 80% of some IT goods being counterfeit. Another important factor is, of course, low income. The high costs associated with operating systems such as Windows have led some players to champion the cause of Linux. However, the domestic software sector is expected to grow at a CAGR of around 6% over the forecast period until 2011.

With more than 50% of the regional business community comprising SMEs, this sector is likely to emerge as the main driver of enterprise application spending over the next few years. While large corporations have long understood the business case for deploying technology, SMEs are increasingly beginning to see such investments as important if they are to avoid being overtaken by more tech-savvy competitors. Correspondingly, vendors such as Oracle are looking to rapidly expand their opportunities in this market. Among important verticals, banking and telecoms are likely to provide the most opportunities. Leading banks such as the Central Bank of Egypt, which has partnered with **Sun**, and United Bank, which is working with Misys Banking Systems, are undertaking major projects to modernise applications. The entry of a new operator in Egypt's telecoms market in 2007 should boost spending on OSS and BSS systems as well as applications and service platforms.

Microsoft has benefited from its privileged position in Egypt, where it has been the government's partner in a number of public initiatives aimed at expanding internet and computer usage among middle-class Egyptians and students. The 'PC for Every Home' initiative, for example, makes cheap computers available along with discounted Microsoft software such as Windows XP.

Services

IT services were worth around US$258mn in 2006, accounting for about 29% of Egypt's total spending on IT. Egypt's fast-growing IT sector is starting to create demand for more substantial projects, with larger customers becoming more demanding in terms of their IT expectations, particularly in sectors such as banking, which is increasingly looking to use IDC hosting solutions. However, basic support and maintenance services represent around one-third of IT services spending. Following the government's recently announced plan to make Egypt an outsourcing and call-centre hub, this sector should be one of the faster growing over the forecast period.

IGS, HP Services and Oracle all have subsidiaries in the market, as well as **Deloitte, SAP** and specialists like **Schlumberger Oilfield Services**. In many cases, staff numbers are substantial, with IBM providing employment to 400 people, Oracle to around 70 and HP to about 50. There are also a substantial number of local integrators with a strong market presence, such as **Raya Integration**.

Currently other major categories of IT services are education and training, internet services, consulting and technical maintenance. IT education and training is particularly important as Egypt looks to develop its domestic IT capabilities.

End-User Analysis

With regard to consumer IT spending, there is the potential for this to go higher, but much depends on support from the government. Healthy growth should continue this year as the Ministry of Education and MCIT provide new funding for PC penetration among schools and the price-sensitive consumer segment. On the corporate side, signs are very positive. Banks and telecoms operators are increasing their IT purchasing and this may well increase as a result of government programmes to increase competitiveness in these sectors. In particular, though the banking sector has often lagged behind government and telecommunications in embracing modern technology, it is currently in the midst of a five-year plan to boost liberalisation and privatisation, consequently encouraging a wave of innovative IT projects. Investment should also be strong in the oil, gas and telecoms sectors.

The outlook for public-private partnerships is bright, with large government contracts for IT and related firms. Major industry players say that government work represents 60-70% of the total market, most going to large multinationals and their local partners. It is still thought likely that the government will lower or abolish taxes and tariffs on many IT products, following the positive response when taxes were lowered to 5% in 2003. As a first step it is possible that taxes on IT products may be lowered within the next few months to 2%.

Industry Developments

IT Minister Tarek Kamel said in June that Egypt was implementing a new strategy of expanding IT services to Education, Health and Transport areas. The moves are in line with President Mubarak's policy of supporting national development by applying modern technology to government services. One recent major initiative is a national project for agricultural register mechanisation. Prime Minister Nazif inaugurated the first phase of the National project of computerising the agriculture-real estate department. The project comes within the framework of the Egyptian Information Society initiative which is being implemented by the Ministry of Telecommunications and Information Technology. Meanwhile, Kamel also signed a number of other protocols in June extending e-services into other domains. These include updating Commerce Chambers IT infrastructure at a total cost of EGP10mn.

Meanwhile, the Egyptian government is continuing with its plans to make ICT a major contributor to Egypt's economy and exports. To meet the skills demand this will generate the government is to offer IT training to graduates of universities and institutes in partnership with domestic and foreign firms. The move comes as a recent report by Egypt's IT Industry Development Agency (ITIDA) found that Egypt's ICT exports were currently US$25mn, and forecast that they would reach US$1.5bn annually by 2010. Tarek Kamel himself recently claimed that the Telecoms and IT sector had contributed EGP25bn to the Egyptian economy over the past eighteen months. The ITIDA said that the IT industry was able to help Egypt achieve an unprecedented leap in both social and economic levels.

The Egyptian Government is proceeding with a tender for broadband wireless access licences in a development which is sure to provide a boost to the country's PC market. From Mexico to China, broadband has become an important driver of PC sales due to the variety of multimedia functions it enables. Fixed wireless broadband, which adds mobility to the equation, has been a particular spur of notebook sales and the announcement of the 3.5GHz spectrum tender was therefore welcomed by IT vendors. The fixed wireless broadband tender is the latest move to liberalise the country's telecommunications sector, and follows on the US$2.9bn award last year to Etisalat of Egypt's third GSM mobile licence. For vendors, the entrant of a new mobile operator is likely to mean more spending on IT systems especially BSS/OSS and ERP applications by both new entrant and incumbents.

In February 2007 the government launched 'Nation Online', the latest phase of the 'PC For Every Home' initiative started in December 2003. The new phase, launched at the Cairo ICT 2007 exhibition in the presence of IT & Communications Minister Kamel, aims to broaden computer and internet usage to new sections of Egyptian society. According to the IT minister, under the programme PCs and notebooks will be provided at affordable prices through cooperation with around 17 private-sector IT companies. Partners in the initiative, besides the IT ministry and the 17 vendors, include the Ministries of Education and Higher Education, as well as **Telecom Egypt**, the **National Bank of Egypt, Banque Misr**, and the IT Industry Development Agency (ITIDA). The starting price for PCs to be made available under the programme is expected to be around EGP158.5, with purchase being possible by monthly instalments of EGP42. Laptops will be available at prices starting from EGP399, with the monthly instalments set at EGP114. Acer has announced its ambition to be the largest supplier of computers under the scheme.

Meanwhile, President Mubarak announced that 2007-2016 will be Egypt's 'decade of science and technology'. Underlining the strategic importance of the sector, it was revealed that Egyptian IT exports had reached a total of EGP350mn by the end of 2006. Mubarak called for more co-operation with IT partners in a number of fields. He underlined the importance of science and IT in particular to not only promote economic growth and competitiveness in the economy, but also to further social development.

In the past year or so, an increasing number of tech firms have been taking advantage of lower costs to set up in Egypt, where previously they might have chosen the UAE.

The ongoing implementation of Egypt's banking sector reform plan is continuing to provide more opportunities for IT vendors. The Central Bank of Egypt's announcement that it is to modernise its information technology infrastructure as a basis for a reform of work practices through the application of IT is one major driver. Sun Microsystems is to be the bank's main partner in the implementation of the project and will provide data-centre applications and solutions as part of a project with an estimated budget of EGP16.3mn. The bank is establishing an integrated data centre as part of its plan to modernise the bank's internal systems. The banking sector in Egypt has traditionally suffered from low profitability and poor asset quality, creating a significant opportunity for the application of IT. Recently leading authority **Moody's Investors Service** praised Egypt's implementation of banking reforms and the application of best-practice in a number of fields, including IT.

According to an announcement in June 2006, the Ministry of Planning & Local Development had targeted EGP7.3bn for investments in the local IT & Communications sector during that year. Of this sum, it is anticipated that only 12% would come directly from government agency budgets, the remainder being supplied by new private sector investments. Planning & Development minister, Dr Mohamed Osman, said that Egypt's IT sector was targeting 12.5% growth in 2006. Within the plan for the ICT sector, there was a target of increasing fixed telephone lines to 1mn, and mobile lines to 18mn. IT Ministry figures reveal that the capital value of the domestic industry reached US$680mn at the end of April 2006, up US$43mn in just one month, while capital investments rose to US$865mn from US$838mn the previous month. The number of IT companies in Egypt, as of the end of May 2006, stood at 1,494.

Another key government ICT-related development initiative is to eliminate illiteracy. In 2006 Egypt signed a memorandum of understanding (MOU) with 12 companies in a consortium led by Oracle to provide ICT hardware, software, digital contents and teacher development to secondary schools. Egypt is the fifth country to participate in the NEPAD e-schools demonstration project. Implementation by Oracle began at three schools in March 2006. The consortium also included Intel, **Fujitsu-Siemens, Xerox, Hitachi** and various local companies. The e-Africa Commission-led NEPAD e-schools initiative is to provide ICT equipment, skills and knowledge to primary and secondary school students. In February 2006 HP signed a similar MOU with the Government and Commission, with three schools being allocated to the HP consortium.

Industry Forecast Scenario

2007 sees Egypt's position within the regional IT market on the rise, with recent predictions from regional distributors that it could surpass regional giants the UAE and Saudi Arabia for computer sales in 2007. There are other signs too of Egypt's growing importance. Leading regional distributor EMPA, which previously managed Egyptian contracts from Dubai, has announced its intention to broaden its presence in Cairo with a distribution facility. A growing number of multinational vendors are being attracted by low costs to establish facilities in Egypt that previously might have gone to the UAE or elsewhere, **Satyam** being the latest example.

BMI therefore expects the Egyptian IT market to exhibit relatively strong all-round growth over the forecast period, with computer penetration rising and considerable opportunities in both the public and private sectors, despite constraints of low incomes and economic disparities. Overall IT market size is expected by **BMI** to increase from US$889mn in 2006 to around US$1.3bn in 2011, with computer penetration rising for both households and enterprises. While computers remain a luxury item for many, a series of factors should drive penetration of the household sector. Private consumption is expected to grow at around 5% annually over the forecast period, boosted by an expansionary monetary and fiscal policy.

The Nazif administration seems likely to remain committed to promoting IT as part of its overall development strategy and vendors of hardware systems, packaged software, peripherals and IT services should all benefit. The economic environment is also broadly favourable, with **BMI** having revised our 2006 real GDP growth forecasts from 5.5% to 5.7%, driven by revised oil-price assumptions. The IT market will outperform GDP, growing at a CAGR of 7% in 2006–2011.

The government has announced several plans designed to further computer literacy in schools and boost home ownership of computers, many in partnership with private companies. The large expansion of the 'Computer for Every Home' programme in 2006, with more than 1.4mn sales, has been followed in 2007 by the launch of the latest 'Nation Online' phase. This should ensure the continuation of similar programmes over the next two years, especially given the PC penetration rate and predicted growth in internet subscriptions. The difficulty of accessing credit remains a constraint, but one that may be lessened by reforms over the next two to three years. Parliament is reportedly amending the banking law to establish a credit ratings system, which is an encouraging step.

In addition, a number of vertical sectors are providing particularly strong demand. The telecoms sector is growing at an unprecedented rate, with Telecom Egypt now a significant spender on IT, new players and licence awards in 2007, including three 3G mobile licences. The banking market, led by the Central Bank of Egypt and other financial institutions, is also building on earlier IT installations with databases and security among the priorities. Meanwhile, IT is now seen by the government as the key to enabling the private sector and government to operate more efficiently. Levels of computer penetration in the public sector remain low, but there has been a greater emphasis on IT solutions since Prime Minister Nazif took office, education being a particular beneficiary.

Computer penetration is far higher among the business community, but there is still considerable potential for growth, particularly in manufacturing, and corporate IT spending is also showing signs of picking up. Business confidence is improving, while major tax cuts will stimulate economic activity over the forecast period. Government incentives to enhance Egypt's position as a 'regional hub' should also encourage an inflow of foreign investment, although this scenario could be threatened by a slowdown in the global or US economy, or concerns about terrorism.

Overall, the hardware market is predicted to grow from US$507mn in 2006 to US$744mn in 2011, with computer sales rising from US$395mn to US$581mn over the same period. Software spending will rise from US$124mn to U$183mn, and services from US$258mn to US$379mn, as the government aims to help Egypt compete as an outsourcing hub. The number of broadband subscribers is projected to increase to close to 5mn by 2011.

Table: Egypt IT – Historical Data And Forecasts

	2004	2005e	2006e	2007f	2008f	2009f	2010f	2011f
IT market (US$mn)	761	823	889	960	1,037	1,120	1,209	1,306
IT market as % GDP	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7
Hardware (computer market sales) (US$mn)	441	469	507	547	591	638	689	744
Services (US$mn)	221	247	258	278	301	325	351	379
Software (US$mn)	99	107	124	134	145	157	169	183
PCs (incl. notebooks) (US$mn)	344	366	395	427	461	498	538	581
Servers (US$mn)	97	103	111	120	130	140	152	164
Internet users ('000)	2,269	3,800	5,009	7,034	9,511	11,534	13,219	15,207
Internet penetration (%)	3	5	7	9	12	14	16	19
No. of broadband internet subscribers ('000)	732	745	2,277	2,319	3,144	3,204	4,055	4,932
Broadband penetration (%)	1.0	1.0	3.0	3.0	4.0	4.0	5.0	6.0

e/f = estimate/forecast. Source: BMI, EITO, World Bank, ITU, EU, IDC, Gartner, Ministry of Communications & IT, ISI

Macroeconomic Forecast

Confidence Still Sky-High, Growth Outlook Constructive

We have left our real GDP growth forecasts unchanged, believing that there may even be upside risks to this year's projection of 6.7%.

We are standing by the forecasts we ran in our last Business Forecast Report, believing that investment will drive real GDP growth of at least 6.8% in FY06/07 (with risks to the upside). Expansion will then drop gradually over the remainder of the forecast period, coming in at 5.3% in FY07/08, 4.9% in FY08/09, 4.7% in FY09/10 and 3.9% in FY10/11. Consumer and government spending will also boost the rate of growth, while, on the output side, we remain bullish construction, real estate and tourism.

We are forecasting very strong investment growth over the next five years, as Egypt benefits from the positive sentiment towards its reformist pro-market government, which has now been in place for three exhilarating years, and still abundant liquidity in the Gulf. Recently released balance of payments data show that direct investment in Egypt came in at US$9.0bn in the first three quarters of FY06/07, easily beating last year's already stellar US$6.1bn of inflows. A healthy 83.6% of inflows went to the non-petroleum sector, indicating a broad-based confidence that extends beyond the current commodity boom.

With the government's ongoing pro-market policies - it has recently announced the privatisation of **Banque du Caire**, as well as plans to open up Egyptian debt markets to overseas investors by listing local instruments on the Euroclear system - we expect this enthusiasm to continue. We have therefore priced in gross fixed capital formation (GFCF) growth of 10% this year (FY06/07), then 8.0% next year, slowing to 4.0% by the end of the forecast period. However, judging by the FDI performance so far this year, there are upside risks to the FY06/07 forecast, and indeed to our overall real GDP growth forecast.

We are also very bullish on the prospects for consumer spending in Egypt, with inflation and interests rates set to fall, and unemployment firmly on a downward trend. At the time of writing, the last confirmed CPI reading was 10.0% year-on-year (y-o-y) (in May), already a good drop on March's 12.8%, but news reports have suggested that it fell even further to 8.5% in June.

We now see the next interest rate move being down, and are forecasting an end-2007 lending rate of 10.25% (from 10.75% now). Thereafter, we have revised down our interest rate forecasts, based on the benign inflationary environment, our view of ongoing EGP strength and the attitude of the central bank during the recent inflationary spike. In spite of calls for further rate hikes, it kept its tightening to 75bps, stopping when inflation was at a peak, a decision which was validated by later inflation data, but which highlighted the bank's determination to keep rates as low as possible.

As far as net exports are concerned the drag effect will remain in place throughout the forecast period. We are forecasting 0% real growth in exports this year, as non-oil shipments counteract the decline in oil and gas production this year (see Balance of Payments). Thereafter, though, we see strong real growth in the export sector, with gas production coming onstream and non-oil goods benefiting from favourable trade agreements. Imports will continue to grow very strongly, though, keeping the trade balance in deficit, and therefore a drag on GDP growth.

Turning now to GDP by output, this consumer spending uptrend should feed through into the retail sector. While the wholesale and retail industries have not seen the stellar growth witnessed by other areas of the economy (expanding by a respectable 6.5% in real terms in FY05/06, up from 3.1% in FY04/05), they do have strong potential against the backdrop of a low base, lower interest rates, and the wealth effect of real GDP growth and growing employment.

Indeed, our food and drink team is forecasting a strong outlook for that sector: in US dollar terms, we expect overall food consumption in Egypt to increase by 29.2% over the next five years to 2011 to reach US$42.42bn, while per-capita food consumption will grow to US$463. Meanwhile, management consulting firm **A.T. Kearney** ranked Egypt 14th in its Global Retail Development Index, which focuses on opportunities for mass merchants and food retailers, which are typically the bellwether for modern retailing concepts, in emerging markets.

Meanwhile, we also reiterate our bullish view on the real estate and construction sectors, both of which will benefit from investment flows. Many of the planned projects - such as a Mediterranean coast resort planned by the UAE's **Emaar Properties** - will also feed through into tourism, which will remain a key driver of growth in the services sector. As the chart shows, tourism continues to grow robustly, with visitor numbers in the first three quarters of the financial year up 11.0% y-o-y on the same period a year earlier. Interestingly, the average length of a tourist's stay has also increased over the last few years: from 7.0 days in 2001/02, it has risen to 10.4 in 2005/06.

Risks To Outlook

One risk to this outlook is that inflation spikes higher, impacting on consumer spending (through less affordable prices, and potentially also higher interest rates) and government spending (as it is forced to spend more on still-subsidised imports, diverting funds away from growth-promoting outlays). Although the outlook is benign now, oil prices are still high - we have upped our end-year average OPEC basket price forecast from US$54.5/bbl to US$62.5/bbl - and liquidity remains strong. However, on the plus side, higher oil prices will keep the Gulf states in surplus, meaning continued strong investment flows into Egypt.

Other than that, the main risk is political, since all of the current confidence is based on the government remaining in place. Any sign that it could be displaced, either forcibly or democratically, could cause investors to panic. However, this risk is minimal at the moment: the government retains a strong hold on power, with support from the US unlikely to wane at this crucial moment in the region.

Table: Egypt – Economic Activity							
	2005	**2006e**	**2007f**	**2008f**	**2009f**	**2010f**	**2011f**
Nominal GDP, EGPbn [1,2]	506.5	581.1	641.8	695.9	751.8	810.7	867.6
Nominal GDP, US$bn [1,2]	92.1	100.7	112.6	126.5	139.2	162.1	180.7
Real GDP growth, % change y-o-y [1,2]	4.5	6.9	6.7	5.3	4.9	4.7	3.9
GDP per capita, US$ [1,2]	1,235	1,327	1,457	1,609	1,739	1,990	2,178
Population, mn [3]	74.5	75.9	77.3	78.6	80.1	81.5	83.0
Unemployment, % of labour force, end of period [1,3]	8.9	8.3	6.9	6.2	5.6	5.2	5.1

e/f = estimate/forecast. Source and notes: [1] Data refers to fiscal year, (July-June). [2] Central Bank of Egypt. [3] IMF

Competitive Landscape

International vendors are strengthening their position in the fast growing Egypt PC market and challenging the earlier dominance of local companies. The development in part reflects the growing demand for notebooks, where foreign vendors generally have an advantage. Notebook growth was over 100% in Egypt in 2006, whereas desktop growth was in single figures. However, desktops still dominate computer sales in absolute terms with around two-thirds of shipments compared with around 30% for notebooks.

The growing dominance of foreign vendors was reflected by the fact that Dell is to open a representative office in Cairo before the end of 2007, whereas previously the company covered the market through four business partners including Raya and Quest. According to Dell regional figures, its Egypt sales increased by 79% in 2006 to 12.9% of the market. Growth is continuing to increase in 2007. Overall, HP is the market leader with Dell and Acer in the runner up positions right now, and combined the top three vendors account for more than 40% of revenues in 2006.

Meanwhile the government has set an ambitious target for the country to capture US$1.1bn of the global outsourcing market by 2010, which would be four times the 2005 level. The target comes at a time when international companies such as Oracle, IBM, and Microsoft are starting to invest more in the country. However, Egypt also faces a number of challenges which must be overcome in implementation of its plan to become the 'India of the Middle East.'

With demand for packaged software still growing fairly sedately in Egypt's hardware dominated IT market, vendors are concentrating on mining opportunities in the most profitable verticals while establishing their position in the market. Oracle recently marked ten years in the Egyptian market during which time it claims to have served over 1800 customers and supported over 80 local partners. Meanwhile main rival SAP Arabia's President Essam Enany made an appearance at the Cairo ICT event this year to restate the company's commitment to the region.

One sector proving profitable to vendors at present is financial services, and this was underlined by the decision earlier this year by Central Bank of Egypt (CBE, one of the main sector spenders) to deploy Oracle's E-business Suite HR system. Central Bank of Egypt has also partnered with Sun Microsystems while United Bank has worked with vertical specialist Misys Software Systems. However, the recent deployment also reveals that HR applications are a key growth area at present, with people related costs often averaging up to 25% of total costs in Egypt, providing an incentive for companies to seek efficiencies from a clear view of number of staff of payroll, employment records and compensation records.

Aside from Banking, and Telecoms, the future of the market will belong to those vendors which can successfully develop the SME sector. This is the focus of SAP's most recent promotions, which have focused on development of a hosted suite of business applications for the midmarket, including mySAP ERP, mySAP CRM and supply chain management and supplier relation management. With more than 50% of the regional business community comprising of SMEs, this sector is likely to emerge as the main driver of enterprise application spending over the next few years. Vendors such as Oracle are also looking to rapidly expand their opportunities in this market. Other key sectors for software vendors, besides those already mentioned, will include government and real estate.

Meanwhile, vendors have taken note that, driven by the latest phase of the government sponsored 'Computer for Every Home' initiative, Egypt looks likely to be the biggest computer market in the Middle East this year with more than 1mn unit sales. Strong growth was recorded in 2006 and this looks set to continue in 2007, with government spending an important driver. Egypt's huge population makes it an attractive market for vendors, particularly with greater availability of credit for PC purchases. As revealed last quarter, Acer Middle East, the top selling notebook vendor in the region, is aiming to take first place in share of PCs sold under the initiative after receiving a high rating from the Egyptian government in the vetting stage. The plan has so far approved ten government partners, seven Egyptian and three international vendors, although international vendors have a three to two majority in the notebook tender.

According to government estimates by the end of last year, the initiative has already delivered 1.4mn computers to Egyptian homes. More than 90% of sales under the programme to date occurred in 2006. In February 2006 the scheme received a new boost when the government signed a partnership agreement with Microsoft for the production of a new low-priced PC in Egypt with an expected retail price of between EGP1500 and EGP1800. With flexible financing generally an essential component of success for such plans, the computers for the next phase were to be available for purchase through monthly installments ranging from EGP34 to EGP53, backed by Banque Misr**.** The computers will have 'streamlined' operating systems, such as Windows XP Starter Edition, and will be Arabic-enabled. Egypt is the first country in the region to benefit from the Microsoft initiative.

Company Profiles

IBM Egypt

Services	Revenues
Provides IT solutions and services to a wide range of customers in IBM's usual range of vertical market segments. Cairo Technology Development Centre (Cairo TDC) is the largest software development laboratory owned by a multinational in the region, and the base for IBM's Arabic software development.	IBM revenues in Europe and the Middle East rose 13% in Q207 to US$8.2bn, faster than the Asia Pacific region. Estimated revenues from IT services in 2004 were US$28.7mn.
Recent Developments	**Presence**
IBM is finding growing service opportunities, as demonstrated by the recent contract for implement a SAP HR system for local company **Kapci**. Last year IBM and MCIT signed an MOU with the goal of increasing staffing at Cairo TDC, increasing IBM's software export activities and its ability to support Egypt's e-government initiatives.	400 employees
Future Plans	**Sectors**
IBM is increasingly active in Egypt in advocating the cause of Linux software. At IBM's annual forum in Cairo at the end of 2005, the company announced that open source software would be playing a central role in a number of IBM's products and services.	IBM has partnered the government on high profile projects such as National ID numbers; Social and Pension Insurance; People's Assembly; Commercial Registry Authority; Ministry of Foreign Affairs and the National Post Service.

Raya Holdings

Services	Revenues
Raya Integration (IT services subsidiary) provides SI, professional services, networking, value added reseller services, and e-business consulting, to over 250 corporate and SME customers in Egypt.	Raya Holdings Information Technology division reported revenues of EGP345mn in 2006, up from EGP296mn the previous year. However, profit margin was down from EGP73mn to EGP69mn.
Recent Developments	**Presence**
Raya Holdings has announced that it is establishing a banking services unit. Initially, the new operation will provide integrated services starting with ATMs and related infrastructure, IVR and call centre services. Over the past 18 months, the company has announced several significant e-business projects in the Gulf, Levant and North Africa regions.	1,300 employees
Future Plans	**Sectors**
Raya is to focus on opportunities associated with the government's plan to develop Egypt as an outsourcing centre, and is building up its contact centre division. Raya is also expanding geographically, with the founding of Raya Saudi (under a new Saudi investment law that grants Raya full management rights), the setting up of Raya Gulf inside Dubai Internet City, and the company's entry into North Africa. The year 2003 saw the establishment of Raya US.	Sectors in which the company is active include finance, telecoms, government and education, oil and gas, manufacturing and hospitality.

Oracle

Services	Revenues
Software development and services for clients.	Oracle reported revenues of US$6bn for the EMEA region in 2006, a 35% increase. Estimated US$4.9mn locally derived IT services revenues in 2004.
Recent Developments	**Presence**
Oracle had a number of prestigious contract wins in 2006. The Bank of Alexandria announced the implementation of Oracle Collaboration Suite. Egypt's Social Fund for Development chose Oracle E-business suite, Oracle Collaboration suite and Oracle technology platform. Finally, MCIT licensed a range of Oracle technologies to link up more than 5,000 financial units throughout the county.	70 employees
Future Plans	**Sectors**
Oracle executives are forecasting that SMEs will emerge as the main drivers of Egyptian applications spending over the next five years. Oracle has recently been hosting a series of events targeted at the SME sector across Egypt. Oracle is promoting a tailored approach to the SME community, providing solutions that are rich in features and yet easy to manage.	Oracle is reportedly the most used database for production data warehousing in Egypt, with 51% of respondents deploying Oracle technology – more than all of the other vendors combined.

HP

Services	Revenues
Technology services, consulting & integration.	In Q107, HP's EMEA revenues were up 14% to US$10.7bn, which it claimed made it the first IT company to exceed US$10bn quarterly revenues in the region. HP was the market leader in the Egypt PC sector in 2006 and remains there in H107. Locally derived IT Services revenues were estimated at US$9.9mn in 2004.
Recent Developments	**Presence**
In 2007 HP announced a redesignation of the HP EMEA framework starting May 2007, with greater focus being placed on the Middle East. Egypt was described as one of the key potential high growth markets Among local clients is the Central Bank of Egypt for which HP deployed a data and disaster IT solution. The $1.2mn contract saw HP implement its XP12000 Disk Array technology, providing a new data centre and a disaster recovery solution.	50 local partners include Raya Integration and Optimum
Future Plans	**Sectors**
HP is the leader in the PC segment and is continuing to drive sales through its worldwide marketing campaign, 'The Computer is Personal Again' and through an increasing product portfolio. HP is aiming to reduce the price advantage enjoyed by local assemblers by using its Saudi based assembly plant to export PCs to Egypt. The company is one of several taking advantage of a trade agreement between Egypt and Saudi Arabia.	Today, HP's focus is on more personalised campaigns, which drive higher cross-sell. Like IBM, they are now leveraging those capabilities into the SME segment. On the enterprise side, HP adopts personalisation not only per customer but per user within the customers, focused on a number of key target accounts.

Microsoft

Services	Revenues
Software plus consulting and support services.	Microsoft expects double-digit growth in its Middle East revenues over the next three to five years. Revenues have increased 25% annually for the past five years.
Recent Developments	**Presence**
In 2007 Microsoft announced that **TE Data**, Egypt's fastest growing data communications and Internet service provider, has selected Microsoft® Customer Care Framework (CCF) to unify its call centre applications with the aim of radically improving customer service, increasing sales opportunities and upgrading working processes. The company is starting to promote Windows Server 2008 in the country.	Microsoft has doubled its Middle East workforce over the past four years, and is planning to hire more staff in the future.
Future Plans	**Sectors**
Microsoft Chairman Bill Gates said that his company plans to double its US$150mn Egyptian investments, opening a new Innovation Centre in Egypt that will train young computer engineers.	Microsoft has benefited from its position in Egypt, where it has been the government's partner in a number of public initiatives aimed at expanding internet and computer usage among middle class Egyptians and students. The 'A PC for Every Home' initiative, for example, makes cheap computers available to consumers along with discounted Microsoft software such as Windows XP.

BMI Forecast Modelling

How We Generate Our Industry Forecasts

BMI's industry forecasts are generated using the best-practice techniques of time-series modelling. The precise form of time-series model we use varies from industry to industry, in each case being determined, as per standard practice, by the prevailing features of the industry data being examined. For example, data for some industries may be particularly prone to seasonality, i.e. seasonal trends. In other industries, there may be pronounced non-linearity, whereby large recessions, for example, may occur more frequently than cyclical booms.

Our approach varies from industry to industry. Common to our analysis of every industry, however, is the use of vector autoregressions. Vector autogressions allow us to forecast a variable using more than the variable's own history as explanatory information. For example, when forecasting oil prices, we can include information about oil consumption, supply and capacity.

When forecasting for some of our industry sub-component variables, however, using a variable's own history is often the most desirable method of analysis. Such single-variable analysis is called univariate modelling. We use the most common and versatile form of univariate models: the autoregressive moving average model (ARMA).

In some cases, ARMA techniques are inappropriate because there is insufficient historic data or data quality is poor. In such cases, we use either traditional decomposition methods or smoothing methods as a basis for analysis and forecasting.

It must be remembered that human intervention plays a necessary and desirable part of all our industry forecasting techniques. Intimate knowledge of the data and industry ensures we spot structural breaks, anomalous data, turning points and seasonal features where a purely mechanical forecasting process would not.

IT Industry

Forecasts
There are a number of criteria that drive our forecasts for each IT variable.

IT forecasting is complicated due to the fragmented nature of the market, with little transparency of vendor data, and low apparent agreement between many sets of figures in terms of market definition, base, and methodology. In addition, forecasts are naturally affected by consideration of a variety of internal and external political and economic factors.

Within best-practice techniques of time-series modelling, **BMI**'s quarterly updated forecasts are improved substantially by intimate knowledge of the prevailing features of each local market.

Individual variables taken into account in creating each forecast include:

- overall economic context, and GDP and demographic trends
- underlying 'information society' trends
- projected GDP share of industry
- maturity of market structure
- regulatory developments and government policies
- developments in key client sectors such as telecommunications, banking and e-government
- technological developments, and diffusion rates
- exogenous events

Estimates are calculated using **BMI**'s own macroeconomic and demographic forecasts.

Sources

Additional sources used in IT reports include national ministries and ICT regulatory bodies, national industry associations, and international industry organisations such as the International Telecommunication Union (ITU), officially released company results and figures, and international and national industry news agencies.