



BT and ICT: two case studies

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BT and ICT: two case studies

In 2004, Mike Cansfield wrote a paper called 'Beyond managed services: how far can a telco go', which concluded that the fusion of IT and telecommunications to form ICT (Information and Communications Technology) offered great prospects for telcos. BT was one of the first to realise the potential of ICT (or Networked IT Services, as it calls it) in revenue terms, but also in how approaches common in the IT industry can now be applied inside the telco.

Ovum view

BT was one of the first telcos to identify the convergence of IT and telecoms and the potential of the resultant ICT. BT has had a number of high-profile wins; for example Royal Mail and Unilever in the UK, and Unilever and Fiat in Europe. Initially these wins were in conjunction with its partners CSC and Accenture, but increasingly BT is winning business in its own right and also outside its traditional expertise of communications. BT's role in the UK's National Health Service (NHS) illustrates this point.

BT has found a winning formula in the market, although whether it can continue to do so is unclear. BT has been able to limit itself to the parts of ICT that suit it best, such as networked IT services, but if telecoms and IT continue to converge (as in the NHS deal) it may have to reconsider this position.

BT's 'One IT' programme is innovative in its approach and transformational in its impact, but it is risky – it has not been tried before. We applaud the bold approach, but would like BT to be more open with RFT (right first time – meaning no repeat faults) and RCT (reduced cycle time – therefore reduced transaction costs) measures. In doing so it will reveal how successful One IT has been, and signal the pace of transformation in the business. These are likely to be as revealing of BT's health as financial and network measures.

Key messages

- ICT has been the major driver behind BT's growing revenues over the past three years. Whether this will continue in years to come is unclear.
- BT's ICT offer is not just restricted to the corporate sector – small and medium-sized enterprises (SMEs) and consumers are also increasingly important.
- Applying IT approaches to the way it processes information is central to BT's cost reduction and efficiency programmes, as well as revenue generation. It is the One IT project that will enable it to realise the savings identified by its next-generation network (NGN) programme.

- BT is a major supplier to the UK's NHS National Programme for IT (NPfIT). BT's contract is to provide the national network and customer record system, as well as the access technology and image storage systems for London. The first of these is straightforward for an incumbent, although the latter three require far more IT skills than BT would be expected to have. This is indicative of how BT has evolved from a communications supplier to an ICT supplier.
- BT is transforming the way it conducts business through the use of IT, bringing IT and communications together within the company. This began as the IT element of BT's NGN programme (called 21st Century Network, abbreviated to 21CN). The vision is of one IT 'stack' to go with the one converged all-IP network. This has now expanded to cover the whole of the company, with the creation of the central Group Strategy and Operations division.
- BT is beginning to adopt new metrics to measure performance in this new age of ICT. These new measures, which include RFT and RCT are just as important as financial (for example return on investment – ROI) and operational (for example, mean time to repair – MTR) metrics. BT is probably the industry leader in this respect.

What is ICT, and why is it so important to BT?

In this short paper we examine not just the range of services BT is providing under the banner of ICT (the broad picture), but more specifically what BT is providing to one specific customer (the UK's NHS). To put this into context, it is important to be clear about what we mean by the term ICT, how it is driving BT's revenues and why it is central to addressing BT's cost base.

What is ICT?

In our research three years ago it became apparent that the term ICT meant different things to different people, depending on whether you approached this from the telecoms or the IT perspective. The best definition we found came from the *European Information Technology Observatory 2004*, which defined ICT as comprising four areas with 15 sub-categories, as shown in *Figure 1*.

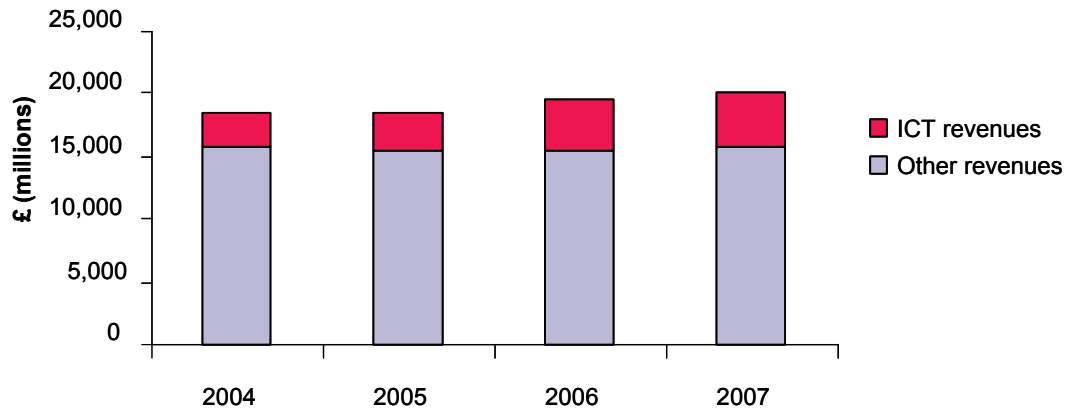
Figure 1 **The component parts of ICT**

Carrier services	ICT equipment	Software products	IT services
<i>Telephony services</i> All voice services, domestic and international	<i>Network equipment</i> LAN hardware; PBX and key systems; packet switching and router equipment; circuit switching equipment; mobile infrastructure; transmission (such as MUX); other data communications hardware (including modems) Other network equipment	<i>Systems software</i> Systems infrastructure software Application tools	<i>Consulting</i> IT planning and design Process improvement
<i>Internet and online services</i> Dial-up Internet access Broadband	<i>End-user communications equipment</i> Fixed handsets; mobile handsets; other devices (fax)	<i>Application software</i>	<i>Implementation</i> Procurement; configuring; installation
<i>Mobile phone services</i>	<i>Computer hardware</i> Server systems; add-on storage; printers; other server add-ons; workstations; personal computers; PC printers; other PC add-ons		<i>Operations</i> Management – help-desk services, software updates; operations (including outsourcing)
<i>Switched data and leased line services</i> Private circuits Switched data services <i>CaTV services</i>	<i>Office equipment</i> Copiers; other office equipment (including calculators)		<i>Support services</i> Maintenance of hardware, software and services

Source: *European Information Technology (EIT) Observatory 2004*

The importance of ICT revenues to BT

BT (along with AT&T) was one of the first operators to identify the convergence of IT and communications into ICT and to consciously target this market. In 2003/2004 ICT accounted for 14.8% (£2.74 billion) of BT's revenues. By 2007 this proportion had increased to 21.7%, or £4.386 billion. Put another way, the growth in ICT revenues over the period is almost as large as the increase in total revenues over the period: £1.646 billion versus £1.704 billion, as shown in *Figure 2*.

Figure 2 **BT: ICT and total revenues 2004-2007**

Source: BT

The division driving this in BT has until now been BT Global Services, which focuses on multinational companies. But BT has recognised there are opportunities elsewhere in the enterprise segment, with SMEs and with consumers (BT's 'IT Manager' home help IT support service is growing rapidly). We can expect ICT to make an even greater contribution to BT revenues in the future.

BT has addressed the ICT opportunity through:

- partnerships – whilst BT recognised the opportunity, it also recognised that it was lacking in IT skills. To fill this gap it entered into partnerships with CSC, Accenture and HP. Through the consortia these companies put together it has been able to access skills it did not have, and also gain credibility as a supplier in the IT services market
- communications – BT began by saying that it intended to offer IT outsourcing services itself. This message was replaced by providing services in the Global Networked Economy, which has in turn been superseded by Networked IT Services. This latter iteration is much closer to what it actually delivers (primarily network-oriented solutions), although this is still not completely accurate. In relation to *Figure 1*, BT is not just a supplier of carrier and IT services, there are elements of equipment and software in there too
- services – what BT offers customers is global ICT and infrastructure services (public networks, WANs, LANs); applications management and assurance services; network applications (and increasingly applications management); ICT outsourcing services (from desktop management through to full network outsourcing; and business transformation (business process outsourcing). These are the convergent services that customers in this convergent sector want to buy
- structure – BT's structure has also evolved over the years to focus on ICT in (primarily) the BT Global Services organisation – the unit facing global multinational customers. In 2005, BT folded its UK-based multinationals into

this unit. Some progress has also been made by BT Retail in providing ICT to UK-based SMEs

- acquisitions – BT has made a number of niche acquisitions to add to its expertise in this area. These include TNS in Wales (a LAN and solutions specialist), the specialist IT programme management company i3IT, and security specialist Counterpane. BT has shown that it is prepared to undertake acquisitions to add to its expertise in this area, although it has not yet been prepared to make large acquisitions as some in the industry have suggested it should.

As a result, the range of BT's offerings in the ICT space has expanded since our research in 2004. This was in line with their expectations at the time.

ICT and cost reduction

Between 2003 and 2005, BT invested capital in IT to take out costs, which it described as removing the costs of failure. In this period it reported savings of over £1 billion. But BT recognised it could only go so far along this track. To make further savings BT needed to radically redesign the way it conducts its business. BT's NGN programme, 21CN, was the first manifestation of this. As a technology-based company where networks are at the heart, this was the logical place to start. 21CN was born out of a need to simplify and reduce costs.

But in developing 21CN it became apparent that most of the savings would come from the rationalisation of the systems stack and investment in IT. This prompted a complete redesign, adopting the IT principles of reuse wherever possible. Hence the One IT programme was born to run in parallel with 21CN (see *Case Study 2: BT and its own IT* later in this paper).

Case study 1: BT and the NHS

The National Programme for IT (NPfIT) is a ten-year programme to deliver modern, integrated IT infrastructure and systems for all NHS organisations in the UK. This is believed to be the largest civil IT programme under way in the world.

NPfIT is split into a series of components. BT is the prime contractor for four elements:

- N3SP – the national network, one of the largest secure VPNs in Europe, connecting all NHS sites in England and Scotland. The contract value is £530 million over seven years
- the Spine – a database that will give everyone in England their own electronic healthcare record. The Spine is also a transactional database and messaging system that enables healthcare professionals to access patient records and discuss them in a secure environment. The contract value is £620 million over ten years
- Local Service Provider (LSP) for London – an integrated care record service for the 74 health trusts (hospital groups) and 7 million customers (patients) in the capital. The contract value is £996 million over ten years
- the LSP also includes the Picture Archiving and Communications System (PACS). This system enables images (such as scans and x-rays) to be stored and accessed electronically by health professionals. The contract value is £200 million over ten years.

Further details of these four components are provided below. In addition to the four areas of NPfIT, BT is also the provider of other services which are also discussed below.

The NHS deals have had a very high profile in the UK. Given the government's past poor performance in implementing major IT projects to time and budget, the complexity of the tasks themselves, and a sceptical media fed by disappointed failed bidders, it's easy to see the makings of good media copy. Managing this attention while delivering on commitments has been a complex task.

The national network (N3SP)

BT's contract is to build a dedicated, secure, resilient national VPN for the NHS in England and Scotland. In England this amounts to 18,000 connections, plus a further 1,800 in Scotland, to connect up all the hospitals and GP surgeries. The England contract was completed in January 2007, and the equivalent in Scotland is well on the way to completion. As a result, the NHS now has a private national broadband network. The network components include both BT and non-BT circuits.

- Phase 1 was completed in January 2007. This comprised a network with 18,000 connections, a doubling of bandwidth, plus a high capacity Internet gateway. This creates the basic capability for the NHS to save costs on its

previous solution, said to be in the region of £900 million over seven years. In December 2006, BT achieved ISO 20000 accreditation (a quality benchmark) for this implementation.

- Phase 2 began in March 2007. In addition to adding more connections (now running at 19,000), BT has started to provide IP telephony services to hospital trusts in the UK. BT has also installed a fixed-to-mobile gateway to enable it to extend services and deliver savings into the mobile arena.

This network creates a number of capabilities which the NHS is now starting to exploit. An example of this is the Cornwall and Isles of Scilly NHS trust, where communities of interest (other healthcare professionals) can be linked in to the Cornwall Community of Interest Network (COIN). In this example, N3SP is being used to create a discreet high-capacity network for the wider COIN community, enabling it to provide a better and more efficient service by putting voice, video and data on one network.

The Spine

The Spine is a national database and messaging system comprising over 70 million electronic patient records, which has over 350,000 registered users in England (healthcare professionals) who can access the data. The Spine is envisaged as the central component to patient care that links three elements:

- a demographic record – this element holds demographic details for every patient in England (name, address, unique NHS number) enabling patients to be correctly identified
- a Summary Care Record (SCR) for every patient, comprising allergy and medication data (the information that aids diagnosis in emergency situations) that needs to be accessible across the country
- a more detailed Local Care record that integrates primary and secondary care details (such as information from GPs and hospitals). The Spine will authenticate and control access to appropriate information by healthcare professionals.

When fully populated, the Spine is expected to be one of the largest transactional databases in the world.

The Spine also supports a number of applications, such as the electronic transfer of records between GPs and the electronic prescription service (EPS), and it enables patients to select and book appointments online. The Spine also supports GP payment systems, QMAS and payment by results, which helps the NHS run more efficiently.

So far BT has:

- built the framework for the database and messaging system, and loaded the demographic data. The last 14 software drops have been completed on time
- begun to handle transactions. Up to 2 July, 25.6 million EPS messages had been passed (approximately 3 million per month), and over 4.2 million 'Choose

and Book' appointments had been made (source: NHS). The volume of transactions is expected to increase significantly by the beginning of 2008

- commenced working with the NHS on an early adopter trial for the SCR in Bolton. This trial is reportedly progressing well, and has the consent of the vast majority of patients.

The Spine is all about automating and bringing together health records so that UK citizens can interact with the NHS more easily and efficiently.

Local Service Provider (LSP) for London

BT is the lead provider and integrator for IT in the London region for hospitals, clinics and GP surgeries. It provides access to the Spine and N3SP, both of which integrate fully with LSP. BT is working with three key suppliers on LSP: Cerner for acute care; CSE Servelec for community care and mental health; and InPractice Systems for primary care.

So far BT has deployed significant systems to more than 70% of trusts, including over half of mental health trusts in London (more than 150 implementations to date). One of the first Cerner deployments is the Barnet and Enfield Chase Hospital Trust in north London, which is currently in the process of loading all patient records onto the system.

This project has had a lot of publicity, particularly at the beginning. Part of this was due to the reasons noted above, but also because London was always going to be the most challenging part of the NPFIT programme. BT also changed supplier to Cerner part-way through the contract, which fuelled another round of publicity.

Picture Archiving and Communications Systems (PACS)

PACS in London was completed on 30 March 2007; it allows all x-ray and scan images to be stored and retrieved digitally for viewing on-screen. BT has installed this capability in 21 trusts (the remaining nine had it already) and is in discussions with the NHS in London about running a PACS data centre on behalf of all London trusts. Information is accessed through LSP.

Other services provided by BT to the NHS

BT is also providing the NHS with:

- a National Service Operations Centre (NSOC) in Sheffield, to monitor all of its NHS contracts. This has end-to-end monitoring capability that enables BT to detect and fix problems, often before they impact patient care. BT also has a fully staffed back-up in nearby Derby with permanent links to ensure resilience. By placing the two NSOCs a few miles apart they achieve the technical requirement for back-up, but also enable collaborative working between the two centres
- wireless services. There used to be concerns that wireless technologies could interfere with hospital equipment, and so mobile services were not used. Now

that this fear has proven to be unfounded, BT is helping hospitals introduce wireless technology. This includes the BT-managed Vocera solution: a voice-activated lapel badge that enables healthcare professionals to contact each other instantly anywhere in the hospital. BT also provides community nurses with secure mobile access to patient records

- patient logistics and asset management. The Theatre Standalone Service for London is being deployed across the capital. The service automates scheduling and recording of procedures in theatres, for both elective and emergency surgery
- blood tracking. BT has also implemented the Olympus osYris barcode and scanner system to help trusts achieve end-to-end control of blood administration and blood group matching
- flexible working. BT has enabled hot-desking in a number of locations, along with secure remote access, enabling healthcare staff to gain access wherever they are, rather than having to return to their base. BT pioneered this approach within its own organisation some years ago.

As the incumbent operator in the UK, we would expect BT to be a major supplier to the NHS. What is interesting about these four areas is the way they show that BT is much more of an ICT supplier than a traditional calls-and-lines vendor to the NHS.

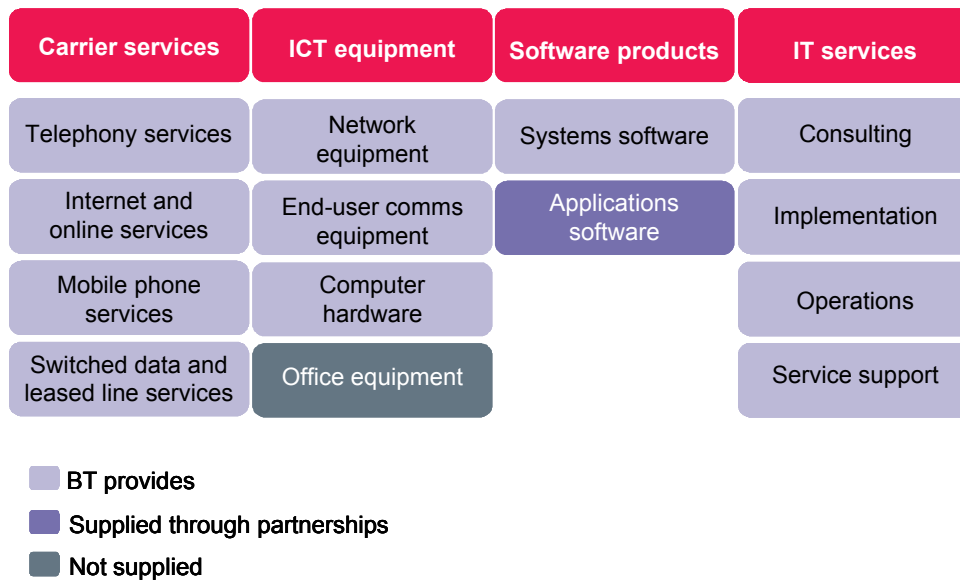
ICT from BT is at the heart of the new NHS

Three points struck us when BT briefed us on the NHS programme.

Firstly, we were struck by the transformational nature of this project. BT's group strategy is to transform itself from what we describe as a calls-and-lines business to a 'services and solutions' business, and the key driver in this is its 21CN NGN programme. This is an example of how the new BT has transformed the services it provides to its customers. In this case there is a network (N3SP) with services (the Spine) at a national level, and solutions (LSP and PACS) in London.

Using *Figure 3* as a framework, we can see how comprehensive BT's offering to the NHS is.

Figure 3 **BT services provided to the NHS**



Source: Ovum

Secondly, we were impressed by the head of the BT Health team, Patrick O’Connell, as project manager. O’Connell’s background is in the US and Europe as both a buyer and provider of military systems. When BT first bid for – let alone won – these contracts, we doubted whether it had the project management expertise and skills to deliver such complex projects on this scale. It is clear to us that this programme has a commander who can lead and has a detailed understanding of project management. BT has clearly learned new skills.

Thirdly, we were struck by the way BT is managing this complex array of components. Building a dedicated NHS Service Operational Centre (NSOC) is applying a private IT sector approach to the public health arena. This network and application management is something BT has considerable experience in, but it is something the public sector has not been successful at in the past.

Case study 2: BT and its own IT

BT’s One IT programme has been running for over three years under the leadership of BT Group CIO, Al-Noor Ramji. The project has two phases.

Phase 1: the story so far

The One IT programme has four threads:

- alignment of BT’s IT with both the needs of its lines of business (Retail, Wholesale, Global Services, Openreach) and its customers – this may seem

obvious, but BT acknowledges that much of its work in the past was initiated by the IT and R&D teams, in areas that interested themselves rather than meeting the commercial needs of the business

- structure and people – the aim is to consolidate BT’s decentralised IT teams (they were previously associated with each line of business and following divergent paths) and restructure, to release resources to enable the new IT projects to take place. On the people side, this has involved investing time and money to develop BT’s IT skills, to replace the largely switched-voice capability with the new all-IP packet required for the future
- rationalise platforms – to break up the old product-oriented silos, as a means of rationalising the platforms used across BT to facilitate re-use, which drives down costs
- process – to transform company processes, by utilising IT to automate and integrate, in order to eliminate reasons for failure. Process changes have also been made to the way BT manages its IT programmes; the two- to three-year mega-projects staffed by like-minded IT folk have been replaced by five-stage, 90-day project cycles, with customers actively encouraged to participate.

For a telco, this is revolutionary. The only comparable programme that we are aware of is France Telecom’s NExT (New Experience in Telecoms) programme which has a strikingly similar aim, although the 90-day cycle approach is unique to BT.

Phase 2: the next step

In May 2007, BT announced a major restructuring – its first for several years. A new Group Strategy and Operations function has been created, to be led by Andy Green (formerly CEO of Global Services). The new unit has the role of designing, building, operating and maintaining services for the customer-facing divisions (Retail, Wholesale, Global Services and Openreach). The new division includes Exact (the IT division) and the management of the network, including 21CN. The chief architect of 21CN (Matt Bross) moved into this new unit, as did Al-Noor Ramji (who was appointed CEO of Design, including the Build function) along with Dina Matta (who was part of the One IT leadership team under Al-Noor Ramji) as Group Transformation Director.

The priorities of this new division are to speed up innovation, maintain operational stability during the period of change, and drive through a new architectural approach. This would seem to capture what this role is all about, and its inherent challenges (managing the conflicting forces of speeding up innovation and maintaining stability). The new architectural approach demonstrates the huge importance of the Design (and Build) and Operate functions to the new BT.

What BT has done here is radical. Taking the network out of Wholesale is probably overdue. This is not a criticism of Wholesale, but recognition that since the Ofcom Telecommunications Strategic Review (TSR – completed in 2005), in the 21CN era there is a need to focus on fully leveraging the opportunities created. This

restructuring brings greater clarity to Wholesale's role going forward (it is now a channel to market, like Retail and others), and probably strengthens the representation of the channels-to-market within BT.

BT is now bringing the 21CN and One IT programmes together into one division. We have long said the latter is just as important as the more famous NGN programme. These two programmes are the motors driving the internal transformation of BT from a calls-and-lines business into a solutions and services one.

It is a popular – yet often overlooked – business school idiom that 'structure follows strategy'. The future of telcos (particularly incumbents) is dependent upon their ability to reinvent themselves in this new era of hyper-competition. Putting someone in charge of transformation is hugely significant, as it illustrates that BT understands this imperative. We think this is the right thing to do and a bold move on BT's part.

Our only real concern is whether this upsets the balance that has existed in BT over the past few years. The new division will be a very big battalion, with a very challenging remit. The new structure has the potential to cause tension between an internally-focused unit driving a change agenda and external-facing channels which focus on customers. Although it is the act of change that will be the cause of this tension, human reaction is to blame for driving it through. The big challenge for BT is whether it can manage the inevitable internal upheaval, and the consequential tensions, and still produce good financial results over a programme expected to take 2–3 years to complete.

New metrics for this new age

Telcos usually report their performance in financial (such as revenues and EBITDA) and operational (number of lines, call volumes) terms. They also need to assess how they are addressing the big issues of today, such as convergence (networks, systems, services and sectors), transformation (automation, e-enablement and ICT) or competing successfully (positioning, service innovation and branding). New metrics are required for a new age.

The metrics we have in mind are:

- customer (not product) profitability – telcos are typically structured along product lines. We would like to see telcos replace products with a customer focus, and in so doing switch the emphasis to how they can provide communications, entertainment and services, increasing the profitability of each customer
- integrated operational efficiency – we would like to see telcos reporting how networks are managed, services provided and customers supported, all within the framework of how the company is performing. Systems to integrate these four areas do exist, as do suppliers who understand how to integrate these hitherto independent silos

- transformation to new business models – because NGNs are designed in an IT-oriented way, business models used in the IT sector can also be adopted. We believe the industry leaders of the future will be the companies that best adapt to the opportunities created by new business models.

We have long held the view that telcos need to behave more like IT companies and measure the performance of their IT in the same way that they pay attention to financial and network performance. The One IT team has identified the key measures as being ROI (clearly all IT must make a return), but also RFT and RCT. BT is clearly making moves to utilise new metrics.

One IT impacts BT both internally (RFT and RCT are efficiency measures) and externally. During this period BT runs 'hot houses', where parallel teams (including customers) compete to design the optimum solution. Embedding customers in the development process enables the cycle teams to design and build solutions that deliver the right customer experience when deployed. Building customers into the process is both admirable and logical, as a means of ensuring that change occurs in ways that benefit customers, rather than just supporting the way the telco operates. In short, this approach meets all three of the criteria noted above.



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