

# Learning to deliver telecoms infrastructure for the new economy

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## Abstract

This paper shows how a telecommunications infrastructure provider, Cable & Wireless (C&W), has responded to changes in the external environment and has had to develop new capabilities as it re-learns how to deliver telecoms infrastructure that meets the demands of companies in the new global internet economy.

For many years, C&W was a typical telecommunications company selling mainly international voice services. De-regulation of the industry and rapid technological change have increased competition and changed the cost base of the industry. Major customers are going global and they want to source from key suppliers on a global basis. They want telecommunications services delivered end-to-end with guaranteed service levels. To begin with this involved C&W offering managed services, then later to providing network outsource, and on to providing IT and network outsource, and finally on to applications service provision as the gap between networks and computer operations closes. The advent of the Internet facilitated this globalisation process.

C&W has faced this challenge by completely re-organising itself. It has withdrawn from some markets such as mobile, residential and entertainment services to the public in order to focus solely on business-to-business customers.. The rest of the paper describes these changes in the organisation, what C&W has learnt along the way, and how they tried to capture and transfer this learning.

**Keywords:** telecommunications, outsourcing, learning, capabilities

## 1. Introduction

This paper shows how a telecommunications infrastructure provider, Cable & Wireless (C&W), has responded to rapid and radical changes in the external environment (both market and technology). These changes have necessitated the development of new capabilities as the company re-learns how to deliver telecoms infrastructure to meet the demands of its customers in the global internet economy.

The paper begins with a brief look at the history of C&W from its origins in the last century up to the present day. We then examine how the company has changed its strategic direction and made organisational changes to accommodate the new requirements. We report on the learning that took place and specifically at the development of a CD-ROM learning tool to help pass on knowledge from early attempts to win business in the new emerging markets. Finally we present some of the challenges still facing C&W as it makes the transition to deliver the new infrastructure.

## **2. From Cable and Wireless to Cableless and No Wireless**

C&W's history is tightly linked to the geography of the British Empire. Founded more than 125 years ago, C&W has carried the telegraph and telephone traffic internationally to support both government and trade over the huge physical infrastructure of undersea cables and wireless transmitters it built up around the world. Generations of young men were trained and sent overseas to man the repeater stations that ensured that traffic was safely delivered. C&W was nationalised in 1945 and, as a provider of communications infrastructure slipped from the public gaze.

This was to change in 1981 when the UK Government liberalised the telecommunications market and C&W was privatised. At the same time as deregulation, technological advances in both digital signal processing and optical fibre changed the cost base of the industry. The old telecom cartels started to disintegrate as new entrants flooded into the marketplace and the idea of global communication companies took hold.

C&W was originally a de-centralised organisation with outposts all over the world with the skills and authority to manage locally. As global communications improved, it moved back to centralised control before privatisation and then de-centralised to manage local telephone companies in each of its local regions round the world. C&W always retained its global perspective and staff with multicultural skills. It was a typical telecommunications company, selling mainly international voice services, but in an industry poised for change.

The industry had bilateral agreements for international services between local telecoms companies that split the revenues to the monopoly suppliers at each end. For the customer, every international circuit had to be ordered from two suppliers and the split responsibilities meant that service levels and provisioning lead times could be unpredictable.

This helped build the demand for a global infrastructure that could service the multinationals. C&W formed Worldwide Services in 1989 to build this global infrastructure, the Global Digital Highway, and the underlying global products to allow the delivery of global services from one supplier. In 1993 this became C&W Business Networks (BN) with the remit to engage with global customers and to bid for global opportunities. Although BN was responsible for winning the business, the revenues continued to flow to the regional operating companies.

In 1996, the company pursued a new strategy by withdrawing from regional operations where it had little control and focusing on creating integrated communications services in the group's

market regions.. C&W's major customers were going global. These customers manufactured or sold services globally, marketed products globally, managed themselves globally and wanted to buy from their key suppliers globally. The old distribution hierarchies of global, regional and branch offices driven by centralised decision making, gave way to organisations dispersed across the world and requiring all parts to communicate with each other. These global customers are primarily in the IT industry, the first global banks, travel and transport organisations and the pharmaceutical companies.

In order to service their customers more fully, C&W formed the Global Markets division in 1997 as a business owning customers globally together with the global service delivery and product functions. In 1998, the volume of international data traffic overtook the volume of global voice traffic driven by the Internet and a new protocol, IP, which could handle data, voice, video and messaging, simplifying the complexities of global communications, but adding a requirement for a high level of security between the internal and external network.

In 2000, a further reorganisation saw the forming of C&W Global where the entire C&W business is being deployed as a global organisation, managing the customer, the technology and the network infrastructure. At the core of this is the Global Markets division, created from the BN organisation to meet the needs of large multinational companies (MNCs) from a single source. Revenues from the MNCs now flow into GM who 'buy' capacity from the regional operating companies.

Over this period revenues have gone from zero through £10s of millions, £100s of millions and now into the billions. The kind of services being provided have gone from standard telecommunication products to complete service integration solutions for all the global communications requirements of the largest global customers.

The whole C&W organisation has had to change its understanding of what being a global telecoms provider meant. Before, global was about having a presence around the world with local delivery, local pricing, local help desks etc. In the current situation, C&W's customers want to be able to work with them to support their business requirements on a global basis. This means local sales management has to become a globally managed and targeted account team working together and with the customer around the world. Local help desks have to become global service management centres, seamlessly working together and supporting the customer on a 'follow the sun' basis. Local product pricing has to become a consistent global price proposition. Multiple local contracts have to be replaced with global Terms & Conditions and global service level agreements. C&W has had to learn to act locally and globally at the same time.

Cable & Wireless has changed itself radically. It is redirecting itself from some of the communications markets like mobile, residential & entertainment services to focus entirely on the business to business customers. It has even pulled out of its one of its core businesses of cable laying, buying capacity to build one of the largest and most up to date networks in the world based entirely on internet technology. On this network it is implementing major data centres throughout the world to support computer and application hosting services to support e-business, supply chain management, applications services and security services. C&W has had to

switch from its traditional suppliers of equipment to those who deliver the new internet protocol technologies that enable its global customers' demands to be met.

## 2. The move toward total outsourcing solutions for global customers

The move to providing total outsourcing solutions has happened incrementally. To begin with their customers asked C&W to provide the private network infrastructure which they managed themselves. Later, and up until the mid 1990s, customers were happy to demand managed network services i.e. where C&W planned and managed their corporate networks on a standard contract basis. Then some large customers such as Standard Chartered Bank, began to demand more complex and higher-value outsourcing contracts, providing a single point of contact for global communications. The demand for outsourcing is driven by customers' desire:

- to focus on core business rather than run private networks
- to reduce their costs in line with the new industry learning curves that apply
- to have communication services delivered end-to-end with guaranteed service levels - networks that never fail since their own global business depends on having communications available round the clock
- to proof themselves against the risks of technology change and allow themselves unconstrained growth in capacity for multimedia services and links to the outside world and their supplier and customer chains.

Outsourcing solutions involve the transfer of responsibility for various of the customer's in-house functions (e.g. network planning, management and business process functions) and, in some cases, the transfer of the customer's physical assets and staff.

There are numerous differences between standard contracts and major outsource contracts (as shown in Table 1). They are much more valuable (up to £100million a year compared to £5 million). The product is usually complex, highly customised and with tailored pricing.

Table 1. What's different about major global outsource bids

Standard	Outsourcing
lower value - up to £5m	high value up to £100m
standardised product	usually complex customised product
standard pricing	tailored pricing
6 months selling cycle	prolonged selling cycle
supply driven	customer-driven
telecoms manager decision	high-level (board) decision
contractor/customer approach	partnership approach
C&W existing relationship	probable new relationship
small team	large dedicated team
home-based	co-location with customer
matrix organisation	virtual project organisation

The selling cycle is far longer and may be prolonged (over a year) as complex negotiations need to take place between the bid team and the customer to develop the complex solution to the customers' requirements. Ideally this is carried out within a partnership approach not just between C&W and the customer, but also between C&W and its key suppliers who need to be built into the bidding organisation as an integral part of the team. Whereas standard contracts can be handled by a small team, the outsource contracts demand much higher levels of resource which need to be co-located with the customer to allow the detailed interaction necessary to evolve the solution – standard contracts could be bid from London. Finally the organisation structure is different. For standard contracts the usual matrix organisation is adequate but for the outsource a virtual project organisation is required.

### **3. Learning to deliver the new infrastructure**

Because standard contracts are so different from the new outsource contracts, new capabilities are needed to put together the propositions for major outsourcing projects and successfully deliver them. During the course of the initial few bids for outsource business the organisation learnt a lot. One thing that became clear was they needed to forget the old ways of doing things. Some of the established process and routines developed for less complex managed network services bids were no longer appropriate for the more complex major outsource bids. They represented a source of organisational inertia which could prevent a successful move into the more lucrative outsourcing business. With the tacit support of senior management the bid teams for the first few major outsource bids ignored traditional bid document preparation procedures. The approach was characterised by flexibility, informal team dynamics and a willingness to 'break the rules' if they got in the way of coming up with an innovative solution to the customer's problems. The bid teams need to be able to act with a shared vision of what their customer requires and how to deliver it. They need to be able to handle step changes in scale, in service levels and the technology they propose. They need to have a special belief, vision and energy to work ahead of the organisation and pave the way for new services delivered in new ways.

To help them move to this new market C&W recognised they needed to get a balance between using people who understood the existing business and those new to C&W and often the industry, who can create a new vision and challenge the old methodologies. The head of the bid management function tries to recruit half his team from outside the telecommunications industry but with proven records of success in sectors such as the aerospace industry, logistics industries, IT, systems integrators and consultancies. These recruits bring in new ideas from outside the traditional internal paradigm about how things should be done. People who want to move to the global part of the C&W business from elsewhere in C&W and who understand the technologies and the industry in depth - people such as communication engineers who have been suppressed because their ideas have been seen as too difficult but who blossom in the new world of the internet and customer service - are also brought into the team. These are supplemented by a steady supply of new graduates to bring energy, new skills and flexibility to the team.

An essential component is to locate the core bid team close to the customer and co-locate them together; this often means international assignments and travel which adds to the bid cost but this is far outweighed by the level of engagement with the customer and the productivity that results. They also now allow the core team a certain level of self-selection to get the skills they believe are needed. This approach needs a high level of executive support to freeing up resources so they can devote 100% to the activity. This approach to team building can result in a level of trust and bonding that would be impossible to manage with traditional resource planning. For instance, one bid team formed itself with core members from a common business school who shared the same educational experience and definitions on how to approach a particularly demanding project. For these major outsource bids, the core team may typically be about five or six people with an extended team of between 20 to 50 people in support. The bidding cycle is often short an intense over 4 to 8 weeks. However, the full sales cycle can be over nine months with many iterations of propositions and even multiple best and final offers as the team negotiates a creative solution with the customer and moves from bid to contract.

Throughout the bidding cycle, the balance of the team has to change. At the start the emphasis must be on the creative visionary approach, looking at the big picture, thinking laterally and flexibly about how best to address the opportunity in the most competitive manner. During the engagement, the skills have to adapt to much more focussed roles such as defining the deliverables in detail, documenting the specific solution, defining working interfaces and processes and agreeing contractual terms, service level agreements (SLAs) and any rebates for performance. The 'vision' of the strategic direction of the business must be continuously articulated and developed to maintain confidence and a clear sense of direction. However the skill sets required changes over time and the Project Director must adjust his resources throughout the bid cycle to reflect the new skills needed.

#### **4. Capturing the learning**

In the past, bid teams were put together for relatively short periods of time and disbanded once the bid document was produced. Teams rarely worked together as group from one project to another and consequently much of the learning between team members was dissipated. Building trust, having common vision, relationship & methodologies are key in the dynamic marketplace facing C&W now, where change is faster than the ability to document standard approaches. In order to try to capture some of this learning, over a period of two years they tried to keep a core team together for a series of major proposals and develop their learning within the team. This has been very successful, achieving a speed of engagement, ability to respond and a quality of solution that one loses with other virtual teams. It has also preserved the intellectual capital that has traditionally been difficult to document and then transfer between teams. However this does not replace the traditional methods of post-project review.

At the outcome of any project, whether successful or not, a win/loss review is always completed to capture that salient points of a campaign and to allow others to learn from it. This approach has to be handled with care, as it often suffers from a lack of candour from the customer and an unwillingness to address the underlying reasons for a win or a loss. Often these stem from having or not having a sufficiently close relationship with the customer and the consequent trust that ensues from this.

Throughout this series of initial bids for outsource business, C&W worked with two of the authors of this paper, researchers from the CoPS Innovation Centre in Brighton. Over a period of months the researchers interviewed key members of these bid teams both in the UK and in the USA when they had to co-locate with the customer organisation. Having finished these interviews the researchers produced a short (15 page) report which summarised the views (often conflicting) of the various bid team members, but showing the strengths and weaknesses of the way the proposition was presented. It was the intention of the researchers for this document to be circulated to all of the interviewees for validation/verification purposes. However, one of the senior members of the contract team thought it was too controversial in places to circulate widely because of sensitivities in certain parts of the organisation. The manager of the bid management function (the other author of this paper) was keen to develop a useful learning tool. Initially he had been thinking about a paper-based written output in the form of a guidebook (he knew about such a tool that the researchers had helped developed for another company collaborating in their research), but the difficulties in preparing a text that would meet with everyone's approval led us to consider an alternative.

One of the researchers had read an article about how a company had started to videotape end of project review meetings rather than prepare written reports. It was clear from the interviews that individuals had strong feelings about the bid process requirements for these new types of projects but these had been hard to get across in written form. It was suggested that perhaps a more useful medium for getting across the individual ideas would be videoclips of the team members 'telling their own stories'.

The bid management manager really liked the idea so the learning tool was redesigned to develop it in a new format. The 15 page report was condensed into more bullet point style which were to be enhanced by embedded videoclips. By coincidence, a professional film company was at that time filming various members of the Global Markets senior management team. We were able to ask a few extra questions related to the new bid processes and were able to use the footage on the proposed CD-ROM learning tool. To supplement these clips we hired a specialist multimedia team to film other key members of the bid team who had previously been interviewed by the researchers. Some of the key members of the bid teams were still located in the USA and it was not possible to film them at the same time.

In all 8 hours of videotape were produced. The researchers then worked their way through this footage to select short (from 30 seconds up to 2 minutes) clips which could be used in the CD to amplify/illustrate what the text was saying. This culminated in the development of a draft CD. Once the draft CD was produced and sent out to the USA the few remaining key team members who had not been videotaped arranged for themselves to be filmed. Within a few weeks they had sent over video-footage to be included in the final version. This footage was then edited and the final CD-ROM put together. These CDs represent a presentation of the experiences of the 'pioneer' bid teams which can be reviewed by other C&W employees. This is a powerful medium for the transfer of knowledge and makes many of the key points real for the reviewer. In time, this kind of material will be made available over the C&W intranet so that it can be accessed by other teams around the world. This new way of passing on information and understanding of the critical points that make the difference between winning and losing a major

opportunity could become a useful means of ensuring the transition to the new market is successful.

But the collaboration between C&W and the researchers did not only facilitate learning for C&W. The researchers found that the long time they spent interviewing the key bid team members and the repeated iterations needed to create the learning tool provided deep insight into what was going on in the company. They were able to marry this experience with that gained in the other case study (where they had developed a paper-based project guidebook) to gain a deep of understanding into how learning takes place in project based organisations. Developing the tools led them to see that the project offered lessons to different levels of the organisation – the strategic level, the functional level as well as the project level. This has led to the development of new theories of capability development in project-based organisations (see Davies and Brady, 2000).

### **5. Challenges for the future**

Although C&W has transformed itself to try to make the transition into the internet infrastructure world, the rate of change in the industry means that each new opportunity presents new demands on creativity to maintain differentiation and be able to show value-add to the customer. This needs Executive sponsorship to endorse and take forwards the new approaches and build high level relationships with the customer. The move to outsourcing is not yet complete. It has moved from ‘private network’ to ‘managed services’; ‘managed services’ to ‘network outsource’; from ‘network outsource’ to ‘IT and network outsource’ using hosting centres and onto ‘applications service provision’. The gap between networks and computer operations is closing fast. In the past, C&W operated at the bottom levels in what it calls the ICT value stack (see Figure 1).

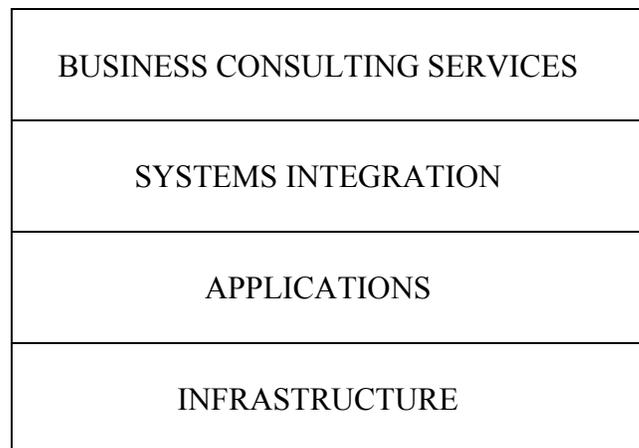


Figure 1: The ICT Value Stack

Currently, Global Markets creates and manages global solutions for multinational customers with an integrated portfolio of advanced voice, data and IP-based services from a single source, tailored to the requirements of individual customers. In the future, C&W intends to continue to move further up the ICT value stack based on the new IP platform. Ideally, they would like to provide ‘total integrated solutions’ ranging from telecoms infrastructure to applications such as Microsoft Office, corporate applications, systems integration and into consultancy services.

The challenge it faces is to develop or acquire the necessary capabilities to allow them to make this move up the value stack. C&W’s skill base is very much concentrated at the base of the stack, thinning out to virtually nothing at the top (see Figure 2).

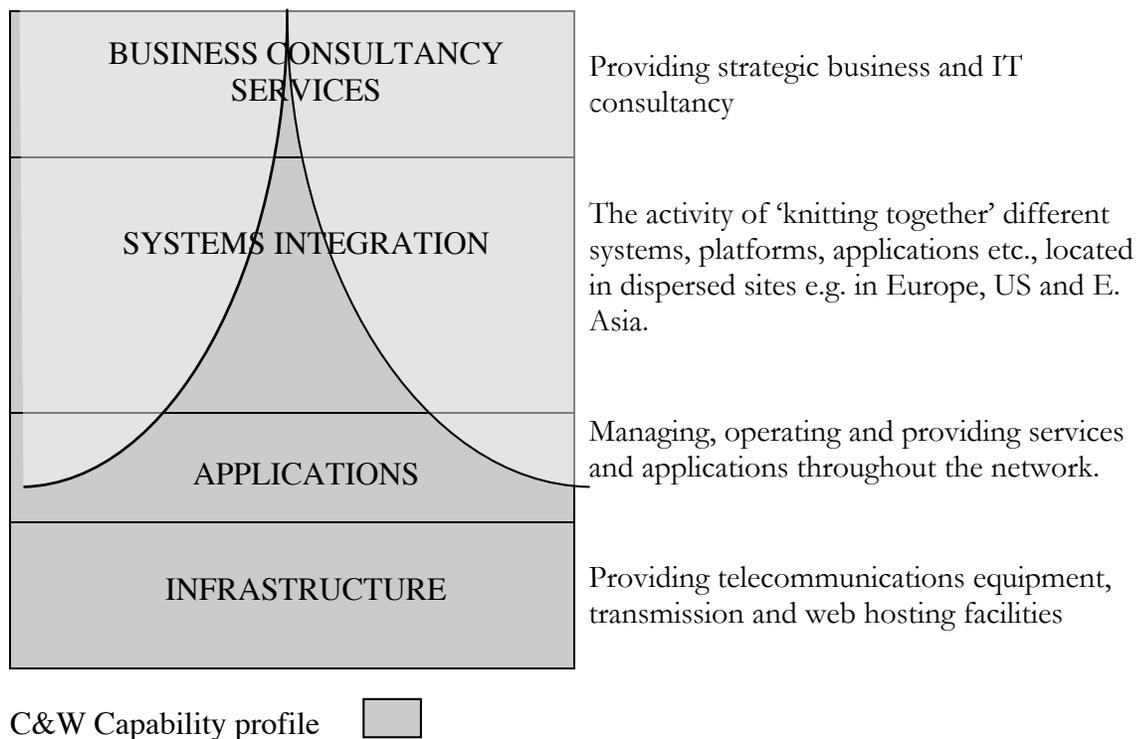


Figure 2: C&W’s capabilities in the ICT Value Stack

To deliver the range of services they want (ranging from IP migration and outsourcing to security platforms, to e-commerce, to ASP services and to business integration) C&W must partner with other firms who have the appropriate knowledge and experience to fill in the gaps in its own portfolio. Such partnerships might include hardware firms (e.g. Cisco Systems, Nortel, and Lucent Technologies); business consultants (e.g. Accenture, Price Waterhouse Coopers); software firms (e.g. Microsoft, SAP), and system integrator organisations (such as Logica). They also need to change customer perceptions of what C&W does. Many potential customers still view C&W as a telecoms carrier. To change these customer perceptions, C&W is having to build a wider knowledge of the integral components that make the total solution in the ICT value

stack. To reach the higher levels it will need to enter into partnerships with the large business consultancies that have the channels to market and breadth of capabilities necessary at this strategic level of business.

## **References**

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