

Comment: The Defence Information Infrastructure

The recent National Audit Office report (HC778 2007/08, 4 July 2008) says that, "The Defence Information Infrastructure Programme will, when delivered in full, incorporate 150,000 terminals for 300,000 users at over 2000 defence sites, including on ships and deployed operations. The parts of the programme which the department has on contract ... are estimated to cost £4.9Bn. In addition to its scale, the DII programme is highly complex". So we had better get it right.

Bill Robins, an Associate Fellow of RUSI and intimately involved, offers some comment.

NATIONAL AUDIT OFFICE EXAMINES DEFENCE INFORMATION INFRASTRUCTURE

From: Bill Robins

Bill Robins, a former MoD Director General of Information and Command Systems, is an Associate Fellow of RUSI and a C4I consultant. He examines the recent National Audit Office report on the Defence Information Infrastructure and comments on the remaining risks to the programme.

The Defence Information Infrastructure (DII) is replacing the previous fragmented and uneconomic ragbag of information systems and services across Defence with a single infrastructure. The contract was let in March 2005 to the ATLAS consortium led by EDS for the installation and management of this infrastructure over 10 years. The key facts are that:

- DII replaces some 300 legacy systems across the Department.
- It has a final build of 150,000 terminals for 300,000 users in over 2000 sites.
- The estimated cost is £4.9Bn for the current contract and support costs with an overall programme cost of £7.1Bn if all of the remaining increments of the Programme which are not yet on contract are implemented.
- Work was needed across the Department to reduce the number of applications from 6000 to 1000 before the contract was let.
- The need for urgent short-term improvements to the service in key areas led to the implementation of an early build called DII (Convergent), notably in MoD Main Building, which is shortly to be upgraded to the full DII suite.

The programme hits the Department at a time of major change in Defence: DII is an important enabler for 10 Defence Change Programmes (DCP) needed to enable the Department to meet its Gershon efficiency targets.

THE NAO REPORT

General

The National Audit Office (NAO) published its report on DII on 4 July 2008. The Report has a succinct and helpful Executive Summary and covers the ground well. Here is a précis.

MoD did a lot of work to understand the scope and risks involved in such a large programme. It paid particular attention to the US Navy and Marine Corps Internet programme which has a similar purpose to DII and is also being delivered by EDS.

But one area which was not given enough attention was the physical condition of many of the sites on which DII was to be installed. This was in many cases of a lower standard than anticipated and the amount of extra work involved has resulted in delays to the programme.

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On the credit side, the contract is robust with an incremental approach to risk and incentives. Payment for performance means that with limited exceptions the MoD pays the contractor only when terminals are installed and working. NAO praised the contract structure and the sound governance and decision-making structures. They have stood the test of time.

Joint Personnel Administration System

The Joint Personnel Administration System (JPA) depends on DII. This dependence was highlighted early in both programmes: negotiations to carve a better deal for DII lasted three months longer than intended, but the Department



needed to maintain the JPA timetable because it was one of the key Defence Change Programmes. The urgency of the JPA timetable and the late start of DII led the Programme to forego the three month start-up phase for DII. ATLAS believed that it would be able to find the premises and staff and deliver in the compressed time period remaining.

Since that time, problems have arisen with two key elements of the programme:

- Rollout of new computer hardware to sites which were in no state to accept it.
- Software development which experienced delays.

These led to major delays in the rollout of the first stage of the programme and adversely affected programmes on which DII depended, notably the Defence Fixed Telecommunications Service (DFTS) and JPA.

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Hardware

The Department contracted to have 62,800 terminals in place by the end of July 2007, but by April 2008 only 29,000 had been delivered. There were also delays to installations in RN ships and submarines. At the time of publication of the NAO report, July 2008, some elements of DII Increment 1 were running 18 months late.

The original Rollout Methodology, which was designed to minimise the management required and was therefore cheaper, could not cope with the problems being experienced on sites. This has resulted in some legacy systems having to be run on longer, and some of the non-financial benefits expected from DII will now be realised later than planned, although the financial benefits have largely been maintained. By the end of 2006 the Fixed Methodology had been replaced by a more flexible approach and this has improved delivery.

Great efforts were made to protect JPA from being impacted by all this and as a result JPA should still realise gross benefits of £972M between 2005 and 2015. But those efforts meant that the rollout of DII was rescheduled and more terminals were needed to support legacy systems for longer.

Software

Inefficient processes for software design and accreditation, issues with the designs themselves and changes in the MoD's requirements for core software have caused delays. The programme has experienced difficulty delivering the

software components to the schedule planned at contract award. These difficulties led to the split of the software into different capability releases, the first of which has been delivered at Restricted level. Full capability including Secret has yet to be delivered.

Partnership

The Partnering approach has been vital throughout this period. The NAO praises the way in which the partnering approach has resulted in some robust governance and the productive engagement of senior management by both partners throughout a difficult period.

The Deployed DII

In September 2007, MoD awarded a further increment of the programme to ATLAS, to deliver a system that can be used to handle Secret material on operations. The system will have 1500 deployable terminals and much the same in UK.

Deployed DII is scheduled to cost £385M between 2008 and 2015. Currently it is running to schedule with the first users live in early 2009. Installations for Royal Navy ships and submarines, originally part of the delayed element of Increment 1 of DII, are now part of the deployed programme.

Risk mitigation has been a substantial part of the work underpinning the Deployed DII programme. This more rigorous approach to risk has now been extended to the work to define the approach to the Top Secret (TS) element of DII.

Operational pressure has led to ATLAS assisting the Department by developing and installing two interim systems for deployed work, notably in Afghanistan: OVERTASK supports command and control and linkages to key targeting systems, and J1/J4 Interim Operating System (J1/J4 IOS) supports administration and logistics. These are both successful and are delivering operational benefits in Theatre.

Performance Measurement

A recent customer satisfaction survey was described by NAO as "encouraging". Where ATLAS measured performance indicators, its performance has generally been good. However, it is not yet measuring all the Key Performance Indicators (KPIs) agreed in the contract. And users who need changes to their systems or have more complex problems are described as "having a more negative experience of the quality of ATLAS service".

Costs

The Department estimate of delivery costs for the elements of DII on contract are £4.9Bn. The total cost to the Department to deliver the work, including programmes on which DII depends (£1.2Bn) is some £6.1Bn.

Direct forecast costs to the programme have increased by £182M, some 3% since contract let in March 2005. This is a relatively low figure for a programme of this scope, scale and complexity.



The Department currently estimates that it will need to spend £984M for the remaining parts of the programme not yet on contract. The total cost to the Department of DII, including the cost of related programmes, will then be some £7.1Bn. This estimate includes some additional capabilities for the Deployed environment which were not in the original scope of DII. The Department has found most of the money for completing the programme, but has not yet identified how it will meet the full cost.

On the credit side, the Department estimates that it has already achieved or enabled benefits to date of £916M, including £640M of costs avoided by placing the contract.

Conclusions

NAO concludes that DII is a very complex and demanding programme, running at a time of high operational pressure, departmental churn and pressure for economies. The Department has a strong rationale and business case for DII, both in terms of improved operational effectiveness and better support to the Defence business, especially in supporting DCP initiatives.

The Department calculated that an approach different to that taken, i.e. not placing a service contract with the private sector, would have cost more. It is also clear that the Department has to a large extent protected its financial position. But despite the relatively small cost increase to the Department (some 3%), key elements of the programme are still running 18 months late, and some non-financial benefits remain unrealised although financial benefits have materialised

Furthermore, significant risks remain to the delivery of the programme:

- **Software development:** weaknesses in the design and accreditation of core software.
- **Implementation:** as the rollout moves to sites with more capable legacy systems it may become difficult to transfer users to DII, bearing in mind the Department's decision that users would not be moved to DII until it was at least as capable as their current capability.

Recommendations

The NAO makes five key recommendations:

- In any major business change programme, the Department should pay more attention to the condition of the Defence Estate.
- The Department should adhere to the principle of paying for service only when terminals are installed and are in use.
- The Department should run risk mitigation and piloting phases for the remaining increments, similar to the approach used for the Deployed element of DII. This should happen no matter how straightforward the requirement may seem.
- Persistent weakness in design and accreditation of core

software could still delay remaining elements of the programme: if large elements of Release 1 and Release 2a software remain undelivered, the Department should oblige ATLAS to bring in additional expertise to deliver the solution.

- The Department has been prepared to accept claims from ATLAS for problems with the rollout methodology and the physical condition of the estate, only when it was culpable. If the rollout of hardware should stall because core software is not available, the Department should maintain the same principle in settling claims from ATLAS.

COMMENT

In a programme of this size and complexity, it would be surprising if problems did not arise. In particular there have been serious delays in delivery and a few serious failures in performance of the installed system from time to time. These have not helped the reputation of DII in the Department and will colour the view of many people for some time to come.

And problems remain: the new approaches to software design and accreditation have yet to show results. At the time of the report the rate of hardware installation has yet to increase enough to meet the revised timetable.

Both of these offer a remaining risk to the programme, but the adoption of a more flexible rollout methodology and a more open and dynamic approach to software development and accreditation, now led at a more senior level than before, should produce results. And there have been areas of which the team is justly proud:

- The management arrangements for system accreditation were raised to a higher level early in 2008 to gain a faster and more comprehensive grip on the problems.
- The successful deployment and operation of OVERTASK and J1/J4 IOS have enabled UK forces in Afghanistan to operate more effectively.
- The Single Point of Contact (SPOC) arrangements have in general worked well.
- The programme has successfully supported JPA in delivering over £900M worth of benefits.

The key areas where the Department could have done better were a failure to put in place earlier a more rigorous regime for assessing the condition of the Estate, and a failure to grip the software development issue earlier at a higher management level.

As a result of the problems and the delays they caused, the programme has suffered some reputational problems throughout the Department. However the leadership team both within the Department and industry have gripped the issues. The improvements they have put in place and have planned will produce the system that Defence needs, whether in London, at PJHQ, at front-line commands, in Abbey Wood or in the sands of Afghanistan. ■