

## **Benefits of eProcurement in Government**

### **Abstract**

This paper identifies the benefits that have been achieved through implementing an eProcurement system in the Public Sector. It establishes the business case for investing in eProcurement based on the process benefits occurring in invoice settlement rather than online ordering which is counter to the “perceived” theories. The paper will recognise the current restraints and confusion that is deterring the Public Sector from making progress in the use of enabling technology. It suggests that integrated ERP implementations must be carefully considered based on Value For Money (VFM) with the eProcurement functionality proven before “best of breed” applications are discarded.

Key words: eProcurement Government UKAEA

### **Background**

In 1999, UKAEA a government-funded non-departmental body UKAEA completed a Purchase To Pay (P2P) review that concluded that purchasing needed to move from a paper-based to a computer based system in order to gain a number of benefits. The Project, called the New Ordering System (NOS) started with an OJEC pre-qualification tender in the autumn of 2000. The P2P had stated that an on-line ordering system would be implemented in April 2002. Receipt and assessment of tenders in June 2001 allowed just enough time for this. But in the event, the creation of processes and procedures to fit the chosen product; the decisions on hardware management; negotiation with the supplier; the training plan; and the necessity of applying a number of software upgrades/changes meant that the system was not piloted as initially planned. This was a calculated risk where bad publicity and loss of team morale (all of whom had other full-time jobs) was judged a bigger threat to the success of the project. UKAEA also engaged the services of an independent consultant from the private sector, who had eProcurement and Government IT experience, to advise on the project.

### **Initial Aims**

The initial aim was to improve the internal processes and the external presentation of UKAEA to their suppliers. Most UKAEA orders were sent out on handwritten forms with copies circulated internally - with all the usual problems of trying to trace documents when goods and services were delivered and invoices were received.

### **Extended Aims**

#### *Invoicing Solution*

Whilst UKAEA wanted to make significant inroads towards having everything online they understood that this could not be achieved immediately. They had, for example, to overcome the reality of 95% of invoices being produced in a paper form by suppliers. RS Components who are an exemplar in online sales only have 15% of their current sales generated online, have 100 pilot systems and only one customer (UKAEA) with a fully rolled out system. They do not electronically invoice any of their customers and are working with UKAEA who are expected to be the first.

Maximising the use of the technology involved an amount of Business Process Reengineering (BPR) “Obliterate don’t automate” (Hammer 1988) and the opportunities afforded by of “Process Innovation: Reengineering Work through Information Technology (Davenport, 1993). Confronting this issue involved the biggest change and led to the complete centralisation of invoice settlement on one site. Previously invoices were sent to four different sites spread over a geographical area from the north of Scotland to the West Country. Each site had a small section dealing with invoices with a manager in charge

Having all invoices sent to one site and using Electronic Document Management to scan them into the system allowed substantial improvement through economies of scale. A prerequisite (and part of the BPR) was that requisitioners were required to receipt all goods and services online. This enabled immediate three-way invoice matching through unique reference numbers which activated automatic payment by the BACs systems with automatic FAX notification to suppliers that was already in place. In financial terms, this improvement alone justified the business case in terms of cash releasing savings over a two-year period as the staff headcount reduction achieved will be ~60% once the transition is complete.

#### *Punch-out Technology*

The scope was further extended to include state-of-the-art eProcurement technology where possible but only where it was justified on a VFM basis. This includes, for example, punch-out technology and direct links with XML to supplier catalogues. Whilst in theory this is straightforward, in practice it can be more complicated because of the variations of XML standards. Each agreement to "punch-out" had to be negotiated with the software supplier and the catalogue owner.

#### *Request For Quote*

It was further decided that the software had to allow for requests for quotes and for ad hoc individual requirements that were not in a catalogue. By using a free text facility within the e-procurement software and the catalogue software (supplied by Wax Digital), UKAEA have achieved total flexibility in ordering online. Supplier quotations, UKAEA specifications, risk assessments and any other document can be attached to the requisition and, ultimately the purchase order. Potentially, all documentation associated with the order is potentially accessible from the one database.

#### *Interfacing*

Interfacing with UKAEA’s ERP system was done in a very simple way. Rather than having total integration, which provides complete live-update of information, UKAEA concluded that it was acceptable that updates on a mixture of a daily and weekly basis would provide the appropriate level of Management Information. Transfer via simple "flat" files was the solution and this made the interfacing relatively straightforward, low risk and inexpensive which contributed to the value for money requirement.

#### *Hitting The Target On Time And On Budget*

From April 2002, all orders have been created online within the constraints of the technology used by UKAEA’s current suppliers on an inclusive basis. This is counter to

the conventional fully integrated approach through total supplier adoption in order to meet the “holy grail” of e-procurement that actually excludes most suppliers. A downside of the "all-supplier" integrated approach is that management information is not gained at an early date because the process of supplier adoption takes many years. This is the reason why many organisations are failing or floundering while trying to implement eProcurement. The reality is that few suppliers can or are willing to integrate, fully, with their customer base using a plethora of technologies and the costs can be difficult to justify. The result is that few suppliers are adopted and a “glass ceiling” of use can be quickly reached. Paying large amounts of money for a stationery ordering system does not provide VFM.

When considering ERP systems clients tend to see real time integrated systems with “one version of the truth” as the most important driver. They are being persuaded by software suppliers and consultants that systems integration is the only way of achieving live information. There is limited competition for such solutions and prices are likely to reflect the normal supply and demand of the marketplace. The Return On Investment (ROI) for an eProcurement module in an ERP can be swept up or ignored in the Business Case for a fully integrated ERP that follows the slow supplier adoption route based on commodities for integrated eProcurement.

### **Cultural Change**

Selling all this to the UKAEA user-community was achieved because most computer literate people prefer to do things on a computer - when they are easier to do so. Simple “click” buying is far more attractive than writing out in long hand but the practicalities of this has had little real exposure in practice because of the general confusion surrounding e-procurement in the marketplace. Cultural change is held up as a real barrier but it can ignore a basic human dimension that (masochists apart) people prefer to do things the easy way. The high levels of computer literacy enjoyed by UKAEA certainly helped. The road shows (describing the system with demonstrations) around all the UKAEA sites generated interest, enthusiasm and motivation for it to work. This was an important part of the communications strategy together with posters, intranet website, e-mail and newsletters.

However, some UKAEA staff contend that NOS requires more work than the old paper system reflecting the fact that they are now responsible for the complete process rather than merely passing a paper requisition, receipt document or invoice to someone else to input. This can be viewed as extra work as a result of BPR with the benefits that accrue in the audit trail and speed of invoice settlement being ignored by the requisitioner/buyer.

### **Procurement Benefits**

The clearest benefits for the user are ease of use, the speed of authorisation and delivery together with more buying being right first time. Moreover, interrogating the system can dispel any doubts about progress. To give a comparison, authorisations of expenditure that may have taken three weeks can be done in a matter of minutes. Delivery times are speeded up accordingly because the supplier receives the order so much earlier. And if an order is stuck because someone is on leave the system has an escalation procedure that automatically sends an e-mail to managers in the workflow to facilitate action.

The largest cost saving is in invoice settlement as described previously. The other big benefit is in workflow and authorisation. Other benefits - less maverick spend leading to

supplier rationalisation and increased use of framework contracts leading to better prices need a lot of effort to identify and have not yet been quantified. A less obvious but perhaps equally important benefit is that UKAEA now has a complete audit trail of the whole procurement process. Management information on spend that can now inform sourcing strategies, benchmarking and cost reduction.

Benefits of spend leverage are easy to argue when suppliers know that all procurement is undertaken via NOS. If their catalogue is the only one on the system all spend will be with them. Framework agreements therefore have more influence. Moreover, within catalogues some products are over-specified rather than fit for purpose. By merely turning off the 100 gm paper that cost twice as much as standard 80 gm paper, savings can be made.

### **Strategic benefits**

NOS has enabled UKAEA to standardise all purchasing procedures across all of its sites no matter where the individual is located. It is expected that HM Customs and Excise will give permission for all invoices to be destroyed once they have been scanned into the system thereby reducing the paper mountain of retained records.

An overall benefit is that quicker approval of work related to projects means that core work is becoming more successful through meeting project milestones. This is of strategic importance to UKAEA's future aim to continue to manage the decommissioning of UKAEA sites for government. Procurement's contribution to this strategic aim while difficult to quantify, is certainly becoming apparent.

### **Meeting Government Targets**

UKAEA originally aimed at the Cabinet Office target (Modernising Government White Paper March 1999) of "90% of low value orders to be purchased electronically by March 2001". This aspirational target was not met – even by UKAEA - (All-Party Committee meeting May 2002) and has now been subsumed in the following.

- i. The overarching objective of the UK Online programme is "to make all Government services available electronically by 2005."
- ii. eEurope 2005: An Information Society for All (May 2002) recommended that "by end 2005 Member States should carry out a significant part of public procurement electronically. Council and Parliament should adopt as quickly as possible the legislative package on procurement." (OGC Website)

UKAEA are well ahead of meeting the Government's target for 2005. They have been able to demonstrate the system to other government departments including the Department for Work and Pensions, the Home Office as well as a County Council, a university, a community of other non-departmental bodies and private sector organisations.

UKAEA feel that joined up government supports sharing best practice as a corollary of improving public services in general and have therefore added to its website an explanation of the system, issues, and background. This can be found on [www.ukaea.org.uk/news/eproc.htm](http://www.ukaea.org.uk/news/eproc.htm)

## Business case

The business case was founded on a ROI and meeting critical success factors as follows.

YEAR	2001/02 £000	2002/03 £000	2003/04 £000	2004/5 onwards £000
COSTS	434	93	93	93
SAVINGS	0	300	500	685
NET (COST)/SAVING	(434)	207	407	592
CUMULATIVE	(434)	(227)	180	772

### Success Criteria (SC)

- 1 90% of Orders/Requisitions placed via NOS by 30 June 2002.
- 2 Ordering from 4 Framework Suppliers to be from a NOS/e-catalogue route by 30 June 2002.
- 3 Achieve 25% improvement in Purchase Invoice processing throughput (to be measured by 30 September 2002).
- 4 To reduce full cycle processing cost from £35 to £25 per Order (to be measured by 30 September 2002).
- 5 Reduce number of Suppliers on the Supplier File by 25% by 31 March 2003 (target takes account of introduction of Purchase Cards alongside NOS).

All the above are being met with the exception of SC5. This is because the monitoring of suppliers has not been resourced due to higher priority work. SC1 has been exceeded by 200% as there has been a virtual doubling of orders because many lower value orders were not previously being recorded. On SC2 UKAEA managed to include 18 framework suppliers in their catalogue and two others are accessed via their own web-sites.

### **Restraints and Confusion**

The dotcom boom and bust has left the Private and Public sectors in some confusion as to the real costs, benefits and risks of eProcurement. The Office of Government Commerce (OGC) has progressed through the "Shopping Mall" concept (discarded); eTendering (discontinued as supply-side not ready); eProcurement pilots (experiment and information gathering) with limited success. OGC's current strategy (eProcurement Cutting through the hype 2002) "...comprises three core elements enabling central civil government to work together with its suppliers to achieve successful eProcurement: 'eHub' a technical solution providing a number of services to improve and standardise buyer-to-supplier electronic interactions". There is currently a study into the feasibility of such a system (Supply Management 2003).

Meanwhile the requirement placed on Departments and Agencies is to ensure VFM for their expenditure and this is likely to continue to restrain activity in eProcurement, as there has been little real success in practice.

### **But what is eProcurement?**

Definitions of eProcurement are too numerous to list. EProcurement can be defined as “using Internet technology in the purchasing process” (Luitsen de Boar et al 2002). Examples are further defined under

- e-MRO (i.e. Maintenance Repair and Operations)
- web-based ERP (Enterprise Resource Management)
- e-sourcing
- e-tendering
- e-reverse auctioning (suppliers bidding online with lowest price winning)
- e-informing.

By contrast, the Office of Government Commerce (OGC) has three parts:

- a. sourcing (Electronic Tendering, Electronic Request for Quotations, Electronic Reverse Auctions)
- b. eProcurement (Electronic Catalogues, punch-out)
- c. ePayment (Electronic Invoicing, Self billing, Government Procurement Card)

Given the developing nature of eProcurement a general definition of “eProcurement enables best price and processes” and “eProcurement is a journey without end” may be more appropriate to provide inclusion rather than to foster exclusion as technologies develop and mature or are discarded and subsumed.

### **Risks**

The main ones identified were as follows.

*Lack of Senior management buy-in:* This was managed by having the Finance Director as the Senior Responsible Officer and Project Board chairman. Other senior managers sat on the Project Board including the Heads of Procurement, Audit, and IT.

*Making it a contractual obligation on UKAEA to make decisions within 48 hours when requested by the supplier:* This can be the single most delaying factor in IT based projects in government as the risk avoidance nature is not to make quick decisions, quick mistakes and quick corrections. Government Departments are more used to making decisions slowly which can result in more cost, delay and ultimately deferment of business benefits.

### **Security**

Many concerns are raised on security especially where Government Departments and Agencies are involved. The need to meet BS7799 and the vision to have all Government web access through the Government Secure Intranet (GSI). The CESG responsible for standards throughout Government has, in recent years, adopted a more risk management approach to ICT solutions rather than risk avoidance. The de facto acceptance of the (so far) inherent safety of the Internet has recently made security less of a concern for users

despite numerous examples of web and supplier security lapses. NOS had to comply with the obligations of UKAEA Security Code of Practice defined by the Office For Civil Nuclear Security” (OCNS) which was already in place which covers physical as well as technical security. NOS meets this standard.

## **Catalogues**

The Catalogue creation process was outsourced to a catalogue specialist (Wax Digital) who compiled the initial catalogues from supplier lists and then agreed and passed back the updating process to UKAEA. Wax Digital continue, for now, to host and manage the catalogues. Whilst it is normal practice for the suppliers to update catalogues UKAEA wished to have control over price changes. This has worked well in practice. Versions of the live catalogues are also available on UKAEA’s intranet to allow “window shopping” without being logged onto NOS.

## **Pilot or “test”**

It is generally accepted practice to pilot eProcurement systems before rollout across an organisation. While this can better manage the risk of fully testing the system/proof of concept there is a danger that “Perfection will be the enemy of the good” i.e. until the system performs perfectly in pilot then rollout will be delayed. This has led to many systems remaining at the pilot stage.

To meet the April 2002 date there was effectively no time to pilot and the decision was between meeting the date or delay through piloting. A User Acceptance Test regime was drawn up by the Project Team and they carried this out, agreed changes with Transmit, and repeated the tests until satisfied.

## **"Big Bang" or phased roll out**

The risk of bringing in a new IT system site-by-site or department-by-department is that the first project bogs down in the first chosen area. The risks of "big bang" are clear but UKAEA had a well-established network architecture, high levels of computer literacy and the decision to adopt "big bang" coincided with a general drive from the chief executive towards homogenous UKAEA-wide solutions to problems. The big bang approach was therefore adopted. It is too early to draw conclusions on whether the big bang approach is appropriate for eProcurement but it still must be considered high risk given the developing nature of the software.

## **Training**

It was decided that a “train the trainers” approach would be adopted for two main reasons. Firstly, the cost would be significantly lower using in-house staff and secondly the cultural change would be facilitated by colleagues understanding how the new system would integrate into the current culture and be able to rationalise it. Colleagues have the advantage of not having to “sell” elements of the system and could, if necessary, be critical of parts of it therefore building camaraderie for acceptance of the whole. Senior managers with varying levels of computer literacy also had to be trained on the system. It was decided that the best way to approach this was to have more intimate sessions with senior

managers and their secretaries, as this would accommodate different levels of competences and understanding without compromising anyone's ability.

## **Lessons Learnt**

Implementing an eProcurement system in Government was a steep learning curve for UKAEA and Transmit. The following are some of the lessons learnt.

*Three questions to ask prospective software suppliers:*

- Is the functionality that you describe included in the current version of your software?
- Where is it being used now?
- Can I have the telephone number of the Project Manager of that organisation?

*Learn by doing:* Get started and overcome the problems by quick decision-making. There is too little experience to always make the right one but a wrong one can be quickly corrected. Do not wait for the perfect solution. There are substantial benefits to be obtained today rather than chasing the "rainbow" of better technology tomorrow.

*Take risks:* the biggest risk to an eProcurement project is not taking any risks. It is the management of them and by whom that is important.

*Keep it simple:* a flat file (CSV) is adequate to transfer information from one system to another. Use a CD to get started if necessary.

*Continuous improvement:* once the system is running develop it. Do not try to get everything perfect before it is used.

*Contract for trading online:* whatever stage of IT development within a Government organisation all contracts should now be tendered based on online trading.

*Staff buy-in:* you can never over-communicate. Use the intranet for FAQs. Communicate to everyone instantly there is a problem by e-mail. Be honest and explain the issues as they occur as understanding encourages compromise and flexibility. Include in newsletters; congratulate success; and obtain feedback.

*OJEC Tendering:* Use the negotiated route combined with a supplier meeting.

*Write a Business case with critical success factors and ROI:* Develop it jointly with a consultant to supplement in-house expertise and to provide objectivity.

*Project Management:* Work in parallel, rather than linear, doing three strands of work i.e.

1. supplier adoption: building designing catalogues, process innovation, technical
2. implementation: product development, testing, training, and interfacing
3. business process re-engineering: internal process change

IT based projects tend to slip a day at a time. By the use of e-mail, video-conferencing and the mobile telephone minutes, hours, days and weeks where all optimised to keep the project on schedule. Communication is always vital as detecting where the delay is occurring is not always apparent.

## **The Future**

No organisation or technology stands still and continuous development and change is always on the horizon. Some of the changes will encompass the following.

*UNSPSC coding: This is planned for identifying products based on line item detail. This was not done in the initial roll out as it was considered a step too far given the time constraints. Moreover the standard for government had not been decided when the system was being designed.*

*Travel: Travel proved too difficult for UKAEA to include at the outset. Whilst car-hire and taxi bookings are on NOS, flights, hotels and rail are not. This, and the continued use of Purchase Cards, are the only major areas of external expenditure not covered by NOS.*

*Interfacing: UKAEA are looking to replace their ten year old finance system in April 2004 with a new ERP and NOS will initially interface with it until it is proven that the eProcurement module of the ERP is functionality capable of replacing NOS.*

## **Conclusion**

There is a lot of confusion surrounding eProcurement; starting from the definition of what eProcurement is and what it can and should achieve. “Best practice” cannot be simply interpreted as what is technologically possible without reference to costs. In respect of Government procurement, there is, perhaps, a concern over “automating a mess at substantial cost in order to meet a target”. This reflects the view that good procurement practices need to be in place as a corollary of eProcurement which relies on adopting fully integrated suppliers. Whilst UKAEA’s procurement practices were fairly well developed, using technology as a catalyst for change and improvement proved effective.

Differentiating between what is “fit for purpose” based on the right technologies available at the right price, at the right time and involving the right level of risk in order to achieve appropriate practice will usually be justified. Articulating this in a business case that constructs the VFM argument based on lifetime costs, business benefits and a Return On Investment should really be considered essential for the Public Sector.

The UKAEA experience provides a persuasive argument to “grasp the nettle” and start with “e-ordering” using a system that allows free text ordering of all goods and services on the system rather than the integrated supplier adoption/electronic catalogue route. Once everything is being purchased on the system then continuous improvements can be made. The initial approach provides the management information on what is bought by whom at what price from which supplier that most procurement departments lack.

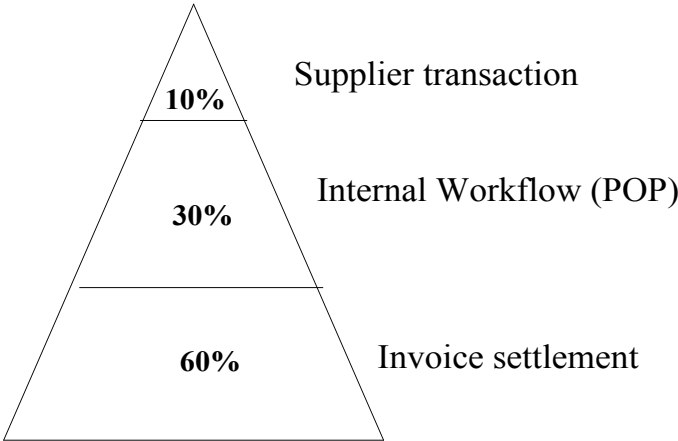
Finally, whilst the Private Sector has greater freedom to speculate on new technologies to further its unique selling point and maintain or increase its competitive advantage, there is perhaps a lesson to be learnt from Government. Given the relative embryonic state of eProcurement, VFM with a ROI and direct business benefits are likely to provide a safer criterion for investment in eProcurement than will be provided by state-of-the-art implementations that are sold on a vision of future best practice or leading the field.

**References**

**Figure 1. Statistics for NOS use for the period 8April 2002- 31 March 2003.**  
 (NB. Final month extrapolated).

<b>PERIOD</b>	<b>Number of orders</b>	<b>Value £m</b>
Day 1	45	.001
Week 1	700	5
Month 1	2,900	20
Month 11	41,500	286
Month 12	46,000	300

**Figure 2. Process efficiency savings obtained by UKAEA through using NOS**  
 (NB. The 60 % invoice settlement reflects cash releasing savings. All other savings are efficiency gains or value for money improvements).



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