



SWEDEN

Swedish NAO's audit of Electronic Invoice Handling

There is always an increased risk of problems when agencies implement a switch over of important IT Systems. The Swedish NAO reports in their audit of the introduction of electronic invoicing in the Swedish public sector.

Summary

A switch to an infrastructure for electronic invoicing (e-invoice)¹ may be relevant for the administration in other countries and it may become relevant for affected SAs to scrutinise how issues relating to internal control are considered at such a switch. An important purpose of changing to e-invoicing is that invoice handling, after some running-in, is more secure and efficient than previous routines [and any IT support]. In this article, the Swedish National Audit Office (RiR) wishes to pass on some of its experiences in auditing the switch to a new infrastructure for e-invoicing, both observations about different types of problems during system changes, and also the development of audit items. RiR would like to point out that the problems only relate to the switch-over period, and are not permanent after the switch.

In December 2006, the government decided that the period for the administration's switch to a new infrastructure for e-invoicing should be reduced by one year, and the absolute deadline was set at 1 July 2008. Under strong time pressure, all the agencies (around 250), apart from a few, succeeded in implementing the switch-over imposed. From a technical point of view, the switch-over entailed the agencies calling off necessary services, such as e-invoice solutions, scanning operations, archiving functions, etc, from two private sector suppliers. Incoming and outgoing invoices were to be electronic and no longer on paper. For most of the agencies, the switch-over meant that parts

of the infrastructure for e-invoicing were outsourced. The switch entailed changes to the routines and controls of most agencies in the handling of invoices and the e-invoice solution's integration with financial systems.

In autumn 2006, RiR found that a switch-over carried out under strong time pressure increases the risk of temporarily impaired internal control of invoice handling, and, as a consequence of this, a risk of reduced reliability of the agencies' accounts. RiR has therefore audited whether the requirement for good internal control during a switch to a new infrastructure for e-invoicing was fulfilled during the switch-over, both by the agencies and by the framework agreement suppliers of the infrastructure.

RiR found the following two problem areas, caused primarily by the great time pressure:

- **Problems with ensuring the administration and control of authorisation function in a sufficiently secure way.** This type of problem occurred both within the infrastructure from the framework agreement suppliers, and at the agencies in their new invoice routines. RiR assesses that this type of problem increases the risk of errors and improprieties in the invoice handling. It is thus an important issue for the audit to pay attention to.
- **Insufficiently tested functions in the infrastructure for e-invoicing supplied by the framework agreement suppliers.** Problems arose with invoices, for instance in the scanning of invoices, in the invoice file, and when invoices were received

¹ **Electronic invoice handling (EIH)** refers to the internal handling by agencies of an invoice in an electronic workflow. EIH assumes IT support (workflow application for supplier invoices). EIH includes internal electronic distribution of invoices, coding, authorisation and filing. EIH assumes e-invoices or scanning or interpreting paper invoices into an electronic format. An **EIH system** is an IT-based system for electronic invoice handling. The system can either be installed locally or be bought as a service from an external operational service bureau (ASP service). An **electronic invoice (e-invoice)** is an invoice that is both sent and received in electronic format. An e-invoice can be sent direct between two parties or via an intermediary, a so-called VAN service. There are various technical standards for e-invoices. Scanned paper invoices are not considered to be e-invoices.





by the financial systems. Agencies have introduced extra manual invoice controls during a transitional period. RiR has reported the failings to the normative authority, the Swedish National Financial Management Authority (ESV), which has passed the information on to the framework agreement suppliers. Some improvements have been introduced during autumn 2008.

On the basis of RiR's continuous contacts with the agencies, the RiR assesses that there are several agencies which are still, seven months after the switch-over, working on making the internal control sufficiently secure. Agencies have pointed out that it has been more demanding to change invoice routines and flows, in particular with non-government counterparts, than the agencies had expected. According to RiR, the difficulties lead to an increased risk of taking longer than planned to achieve the government's efficiency and savings targets.

A positive and important aspect of the switch-over is that increased focus has been placed on internal control issues.

RiR recommends other SAls to notify agencies at an early stage, ahead of important system switches, of important internal control issues, and in particular when the systems are outsourced. Development of suitable audit programmes is an important aid to auditing. In this way, the audit can help to improve to the agencies' handling of these issues.

1. Background, starting point and the government's requirements

In Sweden there are around 250 public agencies. In their processes for purchasing goods and services, manual work has featured largely. By manually registering paper-based invoice information in IT systems, the invoice information has been linked to the agencies' IT-based financial systems. However, some, often large, agencies have in recent years increasingly automated invoice handling and integrated it into their financial systems.

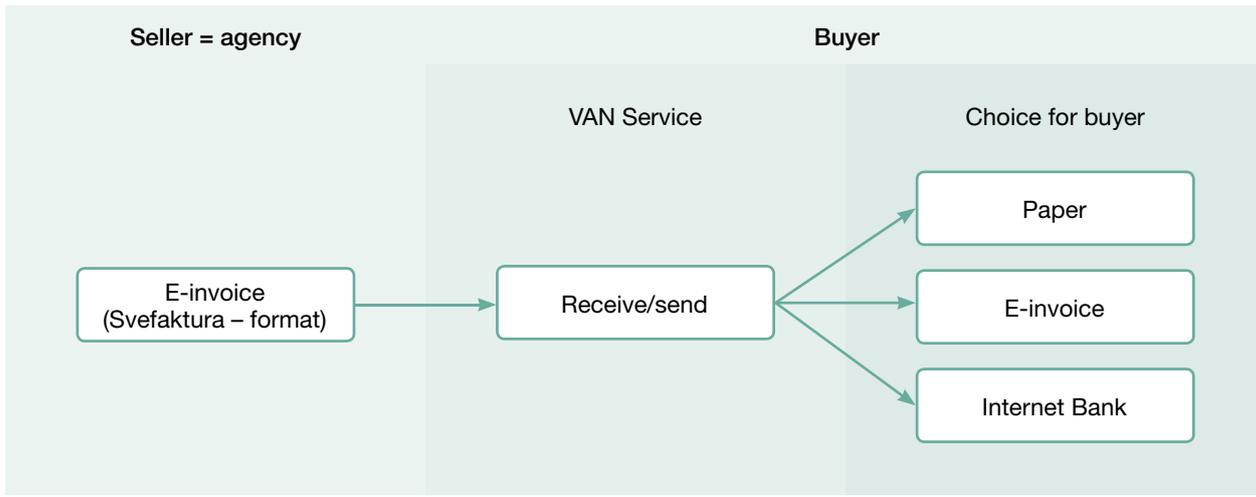
According to the government's action plan for developing e-government (February 2008), public administration should have the capacity to handle its purchasing processes electronically by 2010. Today a large part of this process is manual with some IT support. A first step for the government has been to standardise and automate the final elements of the purchasing process, i.e. invoice handling. Against this background, the government decided in December 2006 that all Swedish agencies should have switched to handling supplier and customer invoices electronically by 1 July 2008 at the latest. The government increased pressure on the agencies by reducing the switch-over period by one year. In practice, the requirement meant that the agencies had 2007 and spring 2008 to implement the switch-over. The government's starting point was that the

new way of handling invoices would lead to savings of around SEK 4 billion over five years, and that this would benefit the core operation. The idea was also that, after some running-in of the infrastructure for e-invoicing, security in and around invoices would increase.

In short, the requirement meant that all invoicing done between public agencies should be created, transferred, received and handled for payment within an infrastructure for handling invoices electronically. An electronic standard for invoices has been introduced. Paper invoices from a non-public supplier should be transferred to digital format by the authority. The agencies' own customer invoices to non-public recipients should be digital, and in some cases also be transmitted to the customer by electronic means.

The normative authority, ESV, was charged by the government in December 2006 with leading and coordinating the administration's switch to electronic invoice handling. The authority procured the necessary infrastructure for e-invoicing, i.e. services, IT support and scanning operations, etc, for two private sector framework agreement suppliers. Each authority has thereafter assessed its own need for e-invoicing solutions. A simpler solution (outsourcing) means that services and systems are held by a framework agreement supplier. A more comprehensive

Figure 1: Infrastructure – Buyer Invoice



solution entails the new system being integrated into the authority's own IT environment. In both cases, the same solution exists for the external scanning operation. The different alternatives lead partly to differing communication solutions for incoming and outgoing invoices respectively, and for the integration of the e-invoicing solution with the financial system. The simpler solution is also administered by a special service authority, providing administrative service to many small agencies.

2. Results of the switch-over by the administration to electronic handling of invoices

All public agencies (around 250), apart from a small number with dispensation from the requirement, implemented the switch-over project during the period 1 January 2007 – 30 June 2008. In a few cases, the agencies have not complied with the government's requirement. This applies in particular to large and decentralised organisations. The dispensation allocation was restrictive and limited to agencies in the process of closing down, and some agencies covered by special secrecy requirements.

The majority of the agencies chose the simpler solution for handling invoices electronically. Of these, around 60 have chosen to let the special service authority provide the services. A smaller number of agencies chose the more comprehensive solution, and integrated this into their own IT environment with the financial and other systems.

3. RiR's audit of the administration's switch-over to handling invoices electronically

In autumn 2006, RiR assessed that there was a need to increase its monitoring and scrutiny of the switch-over by the administration to a new infrastructure for electronic invoicing (e-invoicing). As from the autumn of 2007, RiR has carried out the following measures:

- Audit of internal control of the private sector framework agreement suppliers of services and systems for electronic invoice handling.
- Audit of the individual agencies' preparations ahead of the switch-over to handling invoices electronically.
- Audit of the agencies' internal control after the switch to a new infrastructure for e-invoicing.
- Audit of the service authority providing services and systems for electronic handling of invoices.

The following section recounts more important observations of different types of problems that have arisen temporarily during the administration's switch-over to infrastructure for e-invoicing.

Audit of the private sector supplier of services and systems for electronic invoice handling

The solutions chosen by the agencies meant that parts of the financial systems were outsourced to private sector suppliers of services and systems for invoice handling. The requirements on the internal control of financial systems of the agencies also apply to these outsourced parts. RiR has a responsibility for checking whether the agencies comply with the requirements for good internal control

in these parts as well. RiR audited the infrastructure for electronic invoicing procured by the normative authority, ESV.

RiR's audit programme focused on the following questions:

- Whether the suppliers' internal management and control of the operation of the services procured by the government were in line with relevant frameworks and current legislation. The focus of the audit was on the supplier's organisation, division of responsibility, risk and vulnerability analyses, follow-up, etc, of the operation with services and systems for electronic invoice handling.
- Whether the suppliers fulfilled both the specific requirements made by the government in accordance with the framework agreement procurement of the individual services, and important requirements on internal control in accordance with established frameworks. The focus of the audit was the individual parts – invoice portal/web EDI, VAN service, scanning operation, IT system – and how the requirements of these were fulfilled.

The starting point used in the audit was established practice, including CobIT, for internal audit of IT systems:

- scrutiny of the internal control in and surrounding the e-invoice solution: the supplier's management and control of services and systems;
- use of standards for development and management of systems;
- authority administration and control;
- operational security;
- availability;
- logging and traceability of activities;
- incident handling;



- continuity handling;
- physical protection;
- archiving and removal of scanned invoices;
- logical protection of data;
- archiving and removal of electronic invoices, transactions, logs, etc; and
- the presence of special requirements for encryption and data protection.

RiR assessed that the suppliers' system control and internal controls at the beginning of 2008 were sufficient to support reliable handling of the agencies' electronic invoices. A type of problem assessed as serious by RiR was failings in the framework suppliers' administration of authorisation to the various e-invoice solutions, and the control of these authorisations. These failings of the supplier cannot be prevented by the individual agencies. RiR reported all failings to ESV, who in some parts introduced counter-measures during 2008.

Audit of the individual agencies' preparations ahead of the switch to a new system for handling invoices electronically

In March 2008, RiR carried out a joint follow-up of the agencies' preparations ahead of the switch to infrastructure for e-invoicing. The basis for the follow-up was, among other things, an audit programme that considered the following audit items:

- the management's internal management and control of the work with the switch-over;
- projects for the switch-over;
- purchase services and systems for the e-invoice solution from suppliers;
- handling of incoming invoices;

- encouragement of invoice suppliers to switch to an electronic invoice standard;
- outgoing invoices and encouragement of recipients;
- scanning paper invoices;
- reception function in VAN service;
- invoice portal/web EDI;
- the internal routines allowing the authority to handle invoices electronically;
- special analyses (legal issues, IT security, archiving) which the authority should carry out; and
- support from the normative authority, ESV.

An important observation was then that the majority of the agencies had not reached so far that an implementation of the new infrastructure for e-invoicing had occurred, although only a short time remained before the deadline of 1 July 2008. RiR found in April 2008 that usually much work remained for the agencies to implement systems before the deadline.

At the agencies that had implemented the new systems, two types of problem emerged: on the one hand, problems with authorisation, controls and security in the authority's internal invoice flow, on the other hand problems with the functionality of the e-invoicing solution (such as difficulties in attaching appendices to the standardised electronic invoice, or sending invoices via Internet banks to private individuals, or in the scanning of invoices, and also problems with integrating the new systems with the authority's financial system). RiR's hypothesis is that this type of problem arises partly because the functions were not sufficiently

tested before implementation of the infrastructure for e-invoicing, and partly because the agencies were late in starting their preparations. The failings were reported to ESV, which is working on correcting them.

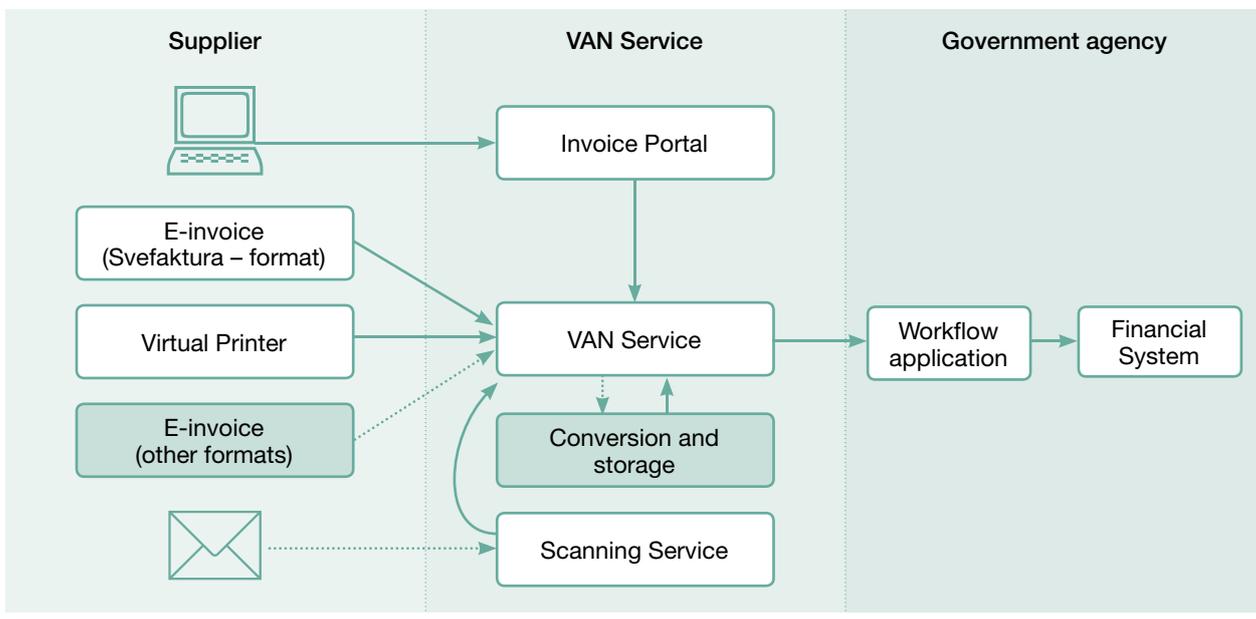
Audit of the agencies' internal control after the switch-over to electronic invoice handling

The focus of financial audit since autumn 2008 has been how the agencies work with organisation and issues of internal control during and after the implementation of the new infrastructure for electronic invoicing. A special audit programme has been developed, focusing on the following issues:

- system documentation and handling history;
- requirements for approving invoices;
- functions for approving and authorising invoices;
- control and logging of the route and handling of the invoice;
- traceability to the original invoice;
- integration between parts of the e-invoicing solution and invoice portal/web EDI;
- integration and information exchange between parts of the e-invoicing solution and the financial system; and
- routines, etc, for operation and administration of the agencies' own systems for e-invoicing.

In its day-to-day contacts with the agencies, RiR has noticed that some agencies have introduced limited changes in the design of the internal control. Other agencies have instead introduced comprehensive supplementary controls at different stages

Figure 2: Infrastructure – Supplier Invoice



of the invoice handling. This has been done initially to verify that the electronic invoice handling functions in a satisfactory manner. Examples of measures are that supplementary controls have been introduced over different logical connections in the accounting, or that both electronic and scanned invoices are subjected to a extra manual control by the accounting department.

The following types of problems have been noticed by RiR:

- **Electronic invoice exchange with private counterparts is still limited.** RiR's contacts with agencies also indicate that the administration does not fully have an electronic invoice exchange with private counterparts. This may partly be caused by private actors not using the e-invoice standard implemented by the government, partly by problems in getting the right information quality in the invoice content. Agencies state that this creates unnecessary extra work for the authority. In the relationship with private suppliers/customers, some technical functions required for transferring the invoice electronically have become too time-consuming.
- **Increased risk of errors and improprieties in the electronic invoice handling.** Routines for approving invoices have deteriorated at several agencies, such as the requirement for two persons to handle invoices no longer being complied with. In several cases, the agencies have handed out administrator accounts that are too comprehensive. These failings are serious and must be dealt with in order to achieve proper internal control of the invoice handling.
- **Serious failings in the scanning of paper invoices.** During contacts with some agencies, instances have emerged of problems, such as amounts sometimes being wrongly interpreted during scanning, or credit invoices sometimes being interpreted as debit invoices,

and of significant invoice information sometimes not being read, or being read incorrectly. Capacity problems have sometimes arisen in the scanning itself, and in its support.

Audit of the service authority providing services and systems for electronic handling of invoices

RiR has audited the services and systems for electronic invoice handling provided by the special service authority to around 60 agencies as from 1 July 2008. The following types of problems have been noted:

- Problems with functionality for control and monitoring of the authorisation administration. The functionality that exists is not used by the service authority for control and monitoring of the authorisation administration.
- Problems with some functions of the e-invoice solution. It has happened that double copies of invoice files have not been stopped directly, but have been allowed to get too far in the system before any counter-measures, often manual, have been taken.
- Problems with integration of the e-invoicing solution with financial systems. There is no figure at which additional controls should be made before payment is made from the financial system. The agencies' payment orders from the financial systems are sent off by the service authority and executed by payment mediators without any further control against underlying, approved invoices.

4. Conclusions and recommendations to other SAls

There is always an increased risk of problems arising when agencies implement a switch-over of important IT systems. It is important that agencies handle the risk of failure in information security through, for instance,

authorisation controls and key controls of the system flows. The risk of problems in the operation increases further if the system switches are carried out under heavy time pressure with an absolute deadline, which becomes the governing feature of the implementation. The risk of failure in internal control increases further if many agencies introduce the same type of system switch at more or less the same time, and then use the same system supplier with limited support resources. This was the case when all public agencies in Sweden switched to a new infrastructure for electronic handling of invoices by 1 July 2008 at the latest. In such a situation, the experiences of the SAI can benefit the administration's preparation by bringing up important issues concerning internal control, which must be fulfilled in and around the new IT systems.

RiR has found that a positive and important aspect of the switch-over to a new infrastructure for e-invoicing is an increased focus on internal control issues on the part of the agencies.

Against the background of the efforts made by RiR concerning the switch to EIH by the agencies, the RiR would like to point out some risk areas which other SAls should consider when agencies implement important system switches over a short period:

- Risk of insufficient knowledge about how the internal control in and around the new IT systems should be designed.
- Risk of insufficient authorisation administration and control in and around the IT systems – risk of improprieties.
- Risk of insufficiently tested functions of the IT systems – risk of incorrect handling of data.
- Risk of insufficiently tested integration between new IT systems and other IT systems – risk of incorrect decisions. ○



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