SJ20130213103016460

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:30:16
Dokumentnr.: 8199
Titel: Summary meeting with Smartmatic and KMD (03.09.2012) [DOK1028178]_RC_v1
Dokumenttype: I
Dokumentdato:
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 24-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:

Oplysninger:

Datoer:

Erindringer:

økonomi og indenrigsministeriet

Enhed
Kommunaljura

Sagsbehandler
DEPMP

Sagsnr.
2012-00363

Doknr.
5082

Dato
4.9.2012

Summary of technical dialogue meeting with Smartmatic and KMD on 3 September 2012

FOR INTERNAL USE ONLY

The purpose of the meeting was to give the Ministry an overview of existing technical solutions and the foreseeable economic implications of holding trials with electronic voting in Denmark, thus giving the Ministry a better ground for drawing up the requirements for a future e-voting system.

1. Presentation of Smartmatic and KMD

Representing Smartmatic were Gilles Souche, Frans Gunnick, Fernando Hernández, Raul ~~Pereira~~Correia~~,~~ ~~Frans Gunnick~~ and ~~Gilles Souche~~ Amanda Moleiro.

Representing KMD were Mette Helmer, Leif Hernø, Lars Nørgaard and Claus Nørgaard.

Mr. Leif Hernø gave a short introduction to KMD and their experience with electronic election solutions to the Danish municipalities. KMD has delivered election solutions to the Danish municipalities for 30 years and therefore has the knowledge and skills to translate legislation, complex working processes and good administrative practice into effective IT-solutions. Furthermore KMD has a very skilled service and support division.

Mr. ~~Fernando Hernández~~Gilles Souche from Smartmatic then gave an introduction to Smartmatic and their experience with electronic voting and counting solutions. Smartmatic is a privately owned multinational company that designs and deploys end-to-end, customized technology solutions concentrated around 3 key business divisions: Electronic and auditable voting systems, Identity management and Smart Cities. Smartmatic started with elections in 2004 and today employs 500 people. Smartmatic operates in Latin America, Europe, the United States and Asia.

Smartmatic and KMD offer a modular electoral management solution that covers the whole electoral process from start to end – the solution includes a new and revised KMD solution built on the existing solution from KMD containing the Digital Voters List, the registration of parties and candidates, etc. (~~but~~ it is up to the customer to decide which modules they wish to include in the solution) - as well as electronic voting solutions.

Since 2004 Smartmatic has successfully organized and performed multiple national presidential and parliamentary elections, regional and local elections and constitutional referenda in Venezuela using an electronic voting solution with a voter-

verified paper audit trail that has been assessed as the most advanced in the world by several observer missions (OAS, EU, Carter Center) for its audit possibilities, security features and reliability. Seventy-five million counted and tailed votes, hundreds of audits, more than 57.500 voting machines installed in more than 12.000 polling centers simultaneously and over 6000 operators and supervisors trained. All projects delivered on time.

2. Demonstration of the electronic voting and counting system

Smartmatic demonstrated an electronic ballot generator and counting solution, i.e. an electronic voting and counting system based on a touch screen unit that prints an encrypted ballot paper and a ballot box connected to a computer that reads and tallies the encrypted ballot paper.

The solution contains:

- An election management machine that produces USB sticks for opening the election
- An Eelectronic voter's' lists machine
- An voter card activation machine "president machine" (non-dedicated hardware)
- a A ballot generator/voting machine (vote selection and ballot printing machine with smartcard reader.)
- a A ballot vote verification machine (with encrypted barcode reader)
- a A smart ballot box, comprised by a ballot box with an encrypted barcode reader and
- A a computer connected to the ballot box that counts and stores the votes smartcard activator
- A tally machine that consolidates votes into final results and prints legal reports
- smartcards Smartcards for voters and polling station staff
- Electronic voter's lists

The solution shown hasIt is a modular design with commercial off the shelf components. The machines are not connected/ linked to each other in any way, and have no wireless communication.

Election process overview

Formateret: Skrifttype: Kursiv

At the beginning of the election preparation process, The the election data is stored on the electoral mainframe, a new and revised KMD system. From here The the data is then mapped into EML and exported into an election management system that can export the data to the new digital voting system.

The whole election is stored on USB devicessticks (the candidates, software, codes, etc.) to be sent to the municipalities. The USB devices sticks and the unique logins and passwords to open an election are sent separately to the municipalities by mail, courier or safe https.

To open an election on election day, The the USB device stick is initially plugged into a the "president machine"smart ballot box (one at each polling station)., then the voter card activation machine, voting machines and verification machines are configured using the same USB stick USB devices for the election machines at the polling station and smartcards (including a master smartcard) are configured on the "president machine".

To start the election, ~~Each~~ each machine is ~~on election day initially~~ unlocked by the Presiding Officer at the polling station by use of the master smartcard and code. The voting machines perform a test-vote before use to ensure that everything is functional. ~~Equally, each ballot box is unlocked by the Presiding Officer at the polling station by use of a smartcard and code. No data is stored on the voting machines.~~

During the voting process ~~In order to be able to vote,~~ each voter ~~has to~~ unlocks the voting machine with an encrypted smartcard, which the voter is handed by the appointed elector, when he or she has been identified as a registered voter on the digital voters list. The smartcard does not hold any information about the voter ~~but~~; it is only a key to get access to the machine. Each smartcard is locked after use and has to be reconfigured before reuse.

The ~~ballot generator~~voting machine is operated by the voter using the touch screen. When unlocked, the screen will show a list containing the names of the political parties and independent candidates that run for election and an option to vote blank in the first level, and the names of the candidates of each political party in the second level.

The voter then ~~casts the vote by marking~~ selects his/her choice on the screen. It is on all levels possible to go back and start over again. When the voter has ~~cast~~ selected his/her ~~vote~~ option he/she has to confirm the vote on the screen. The machine then prints a ballot paper containing both the name of the party/candidate or "blank vote" and an encrypted unique barcode, containing the vote.

The encrypted barcode in the ballot paper can be subsequently verified by the voter using a separate ~~ballot~~ vote verification machine with encrypted barcode reader, placed at the polling station in a separate booth (instead of next to the voting machine) to ensure the voter that the voting machine does not just remember the last vote received and displays that vote, this verification step is optional ~~(optional)~~.

When the voter ~~has cast~~ is satisfied with his ~~or~~ /her vote, the ~~vote~~ ballot paper is read (and counted) with an encrypted barcode reader on top of the smart ballot box ~~connected to a computer~~ that stores the digital votes. When the encrypted barcode on the ballot paper is read and counted the computer informs the voter that the vote has been registered. The voter then inserts the ballot paper into the ballot box.

Throughout the complete election process no data is stored on the activation, voting or verification machines.

At the end of the election process, ~~The~~ the transmission of the result from the ~~computer that has stored the votes (e-ballot box)~~smart ballot box to the tally system ~~computer that~~ to consolidates the results ~~(the RTS machine)~~ is done via USB devices.

3. Notes -on different issues

Accessibility

With regard to accessibility for voters with disabilities, Smartmatic's solution includes a read aloud solution for blind and visually impaired voters. The visually impaired voter can control each step of the voting-procedure including the ~~cast~~ candidate selection~~of the vote~~ by using an "incorporated remote control" with specially designed buttons. The same solution can be used by voters with partial or major mobility restriction. Instead of using the "incorporated remote control" ~~with special designed buttons~~, if required by the customer, these users can navigate and cast their vote through "buddy buttons" (2 large buttons) or "Sip & Puff" devices.

Voters with disabilities are given a smartcard with a special profile so the ballot generator will know that the screen should load the special application for audio voting

as described above. During the procedure, the screen will show the text: "audio voting".

Advantages of e-voting

KMD and Smartmatic stated that one of the main benefits of e-voting is reliability ~~(as no~~ it is impossible to have invalid or null votes~~,~~.
Another important benefit is that the ~~the~~ voter counts his/her own vote, which is a crucial moment during the election. The counting is not relegated to the time the polling place closes and done by a third party.~~) and security.~~
~~-~~Furthermore, it provides support for people with disabilities, which allows them to vote without any assistance.

Disadvantages and risks

Biggest risk is the voters' perception of the system. Information to the public is very important. Transparency of the process is crucial.

Security

- Software and hardware can be **audited** by a third trusted party.
- Secured **login + password** access for every module of the solution.
- Automated **reports for control** during election preparation (customization).
- System supports the **verification of parties and candidates** by creating previews of all ballots of the election.
- **Digital signature, encryption, redundancy and constant verification** of sensitive files.
- Control mechanisms to **feedback the user** about the correct operation of the system.
- Full **hardware diagnose** at warehouse before the election.
- Automated **hardware diagnose** when election starts.
- **Test vote** required to open the election.
- Voter identification and smartcard activation guarantees **one citizen one vote**.
- **System logs** for every event throughout the system.
- **Ballot paper printed** by voting machines last for more than one month.

Audit and further development

~~Smartmatic stated that t~~The ~~software~~ electronic voting software used by Smartmatic ~~is easy to update~~can be updated and adjusted to the requirement of the Ministry~~, also by others~~.

~~-The operating system is Linux based.-~~Software and hardware can be audited by a ~~third~~ trusted third party. The software used in Belgium has been certified by PricewaterhouseCoopers.

System Smartmatic electronic election solutions hasve been audited by OAS, EU and the Carter Center.

Training

Smartmatic and KMD offer education of election officers and education of municipal IT-workers in the deployment of election hardware

Costs and expenses

KMD and Smartmatic's financial estimates:

Election equipment indicative price*	[redacted]
Election Preparation system	
Voter card activation machine	
Voting machine with ~~accesibility~~accessibility module	

Vote verification station
Smart ballot box
Tally system

*Indicative prices based on Belgium hardware setting, excluding software, and services, for about 18,000 voting machines.

The price of an election (equipment + software + all services) for 15 year commitment and 8 elections is in the range of [redacted] Additional costs for additional software development.

Additional premises:
180 voters per voting machine
5 voting machines per smart ballot box
Population of 3.5 million voters

Open source and use of proprietary technology
Source code of the complete electronic voting solution ~~, hardware, design and procedures are~~is open for independent review and audit by independent third parties.

As the source is available for review, the software for vote verification can be developed by third parties like education institutions. ~~System has been audited by OAS, EU and the Carter Center.~~

Time schedule for implementation
The time-schedule for implementation was described as 4-5 months if the Belgium solution is chosen and adapted to Danish needs.
-It will probably take a year to build up the software system from scratch. It would implicate more supporting time to the municipalities at the first election.

Formateret: Skrifttype: 10 pkt

Formateret: Skriftfarve: Automatisk

SJ20130213103014938

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:30:14
Dokumentnr.: 8198
Titel: KMDs kommentarer til Summary meeting with Smartmatic and KMD (03.09.2012) [DOK1028178](1)
Dokumenttype: I
Dokumentdato: 24-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 24-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:
Afsender KMD Valg , Lautrupparken 40-42

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Hernø.Leif LFH <LFH@kmd.dk>
Sendt: 24. september 2012 12:55
Til: Nicoline Nyholm Miller
Cc: Helmer.Mette MEH; Østergaard.Steen SOT; Nørgaard.Claus Vedel XCN
Emne: VS: Summary meeting with Smartmatic and KMD (03.09.2012) [DOK1028178](1)

Prioritet: Høj

Kære Nicoline
Hermed referat af mødet retur med Smartmatics og vore korrekturer.

Venlig hilsen

Leif Hernø, Domænechef

KMD Lovbaserede software-løsninger

Lautrupparken 42, DK-2750 Ballerup
E-mail lfh@kmd.dk Web www.kmd.dk
Direkte +4544606617 Mobil +4525291791

Fra: Nicoline Nyholm Miller [mailto:nnm@oim.dk]
Sendt: 20. september 2012 15:14
Til: Helmer.Mette MEH
Emne: Summary meeting with Smartmatic and KMD (03.09.2012) [DOK1028178](1)

Kære Mette
Vedhæftet følger vores referat af mødet med Smartmatic og KMD til teknisk dialog den 3/9 2012. Jeg beklager, at det ikke har været muligt at fremsende tidligere. Vi regner med at offentliggøre rapporten om den tekniske dialog på mandag og vil derfor gerne have jeres evt. bemærkninger til referatet så hurtigt som muligt. Der bliver dog ikke tale om at inkludere nogen særlige specifikationer på de enkelte løsninger eller angivne priser i rapporten, som bliver mere en opsummering af de oplysninger, vi har fået fra alle leverandører, herunder et generelt omkostningsoverslag, og det vil derfor ikke være muligt at koble oplysningerne til enkelte leverandører. Referaterne er mere til intern brug i den videre proces.

Bedste hilsener
Nicoline

Valgkonsulent, Kommunaljura
Nicoline Nyholm Miller

økonomi og indenrigsministeriet

Slotsholmsgade 10-12
1216 København K
Telefon 72 28 25 22
Fax 72 28 24 01
valg.im.dk

SJ20130213103300902

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:33:00
Dokumentnr.: 8181
Titel: Summary Report on technical dialogue
Dokumenttype: U
Dokumentdato:
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 24-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:

Oplysninger:

Datoer:

Erindringer:

økonomi og indenrigsministeriet

Unit
KOMJUR

Case officer
DEPNNM

Case no.
2012-00363

Doc. no.
4765

Date
24 September 2012

Technical dialogue on system for e-voting in Denmark – Summary report

Contents

Executive summary

Following a written request of 27 January 2012 from the mayors of 12 municipalities in Denmark and Local Government Denmark (KL) for permission to conduct binding trials with e-voting at statutory elections, the Danish government decided on 6 March 2012 to introduce a Bill to the Danish parliament that will allow the municipalities to conduct e-voting pilots, where the result of the poll is binding.

The reason for this is that the Danish election legislation will have to be amended in order for the municipalities to be able to conduct binding e-voting pilots, as the law currently implies that voting for statutory elections is done by using a paper ballot and some sort of writing utensil. The Minister for Economic Affairs and the Interior will introduce a Bill to the Danish parliament in January 2013.

As part of the preparation of the legislative and subsequent tender processes, the Ministry of Economic Affairs and the Interior wished to explore the possibilities that the market has to offer at this point in time, and to get an overview of the economic implications of introducing e-voting in Denmark. The Ministry has therefore conducted a technical dialogue with 7 economic operators in the period of 21 August – 3 September 2012. The dialogue was carried out in accordance with the rules of the EU Procurement Directive and the lines indicated by information notice no. 2012/S 122-201846 of 28 June 2012.

The 7 economic operators were selected out of a total number of 11 applications on the basis of their documented experience with development, implementation and operation of electronic voting and counting systems for elections to popularly elected organs. The economic operators were informed that a future e-voting system in Denmark will be used only for non-remote electronic voting in a controlled environment at polling stations on election day and/or for advanced voting on the premises of the municipalities; not for voting over the internet or by other remote voting channels.

The technical dialogue has brought to the Ministry the recognition that there are many economic operators working seriously with e-voting that bring to the customer a wide experience in the field and which have been designing and providing e-voting and e-counting solutions for a number of years. The economic operators invited to the technical dialogue have been involved in providing e-voting solutions for statutory elections in many different countries in the world as well as for numerous organisations.

In the opinion of the economic operators participating in the technical dialogue, the following main advantages can be derived from employing a digital voting and/or counting system:

A. Faster count and results + reduction of administrative resources for manual count
B. More accurate count and tally
C. Voter verifiability that the vote has been counted
D. Provides the disabled with the opportunity to vote without assistance
E. Eliminates involuntarily spoiled ballots while keeping the option to cast a blank vote
F. Additional 'back-up' storage of ballots

The Ministry recommends that the municipal councils which are considering to engage in e-voting pilots have a thorough discussion of these and other possible potential benefits of e-voting and/or e-counting, and ultimately decide which of these should be guiding for the municipalities' overall strategy for conducting e-voting and/or e-counting pilots.

In the opinion of the consulted economic operators, the greatest risks or disadvantages of introducing and employing e-voting and/or electronic counting is not so

much a question of technology flaws or security issues, but more of *perception* and *trust*.

For this reason, some economic operators recommend introducing e-voting by a step-by-step approach, starting out slowly and giving the voters sufficient time to familiarise themselves with the changes and get to trust the system by seeing it work in a satisfactory way in numerous elections.

All economic operators that the Ministry has consulted can provide customized solutions and employ a modular methodology. The economic operators operate in several different countries with a large variety of election systems, where the lesson learned and imparted to the Ministry during the technical dialogue is that no two election systems are the same, sometimes not even within the same country (e.g. USA).

There is no 'fool proof' ready-made solution that can just be picked off the shelf and employed successfully for e-voting in any given country, including Denmark. Hence, if Denmark proceeds with the plans to make its own experiences with e-voting, a number of **choices** will have to be made, *inter alia* whether we should opt for a solution that generates a ballot, or opt for an electronic optical ballot scanner solution with a counting and tallying functionality.

Other things to consider are for example the pros and cons of choosing a dedicated versus a commodity hardware solution, how the votes should be recorded, e.g. on the e-voting machine or by a scanning device connected to the ballot box, whether – if opting for a ballot generator of some kind – voters should be offered the opportunity to verify not only the human readable imprint of their vote, but also any electronic record (bar code or similar), the kind of accessibility functionalities the e-voting solution should offer for the disabled, whether it should be a requirement that the system is open source, and to what extent, and the intended use of the system: is it just for voting at polling stations on election day, or should it also be able to handle mobile advance voting in a controlled environment?

1. Introduction

This report contains a summary of the information received during the technical dialogue between the Ministry of Economic Affairs and the Interior with 7 economic operators on a system for electronic voting in Denmark, as well as a short description of the technology demonstrated by the economic operators. In addition, the report includes a tentative estimate of the probable economic implications of introducing e-voting in Denmark for statutory elections based on the data delivered by the economic operators in the technical dialogue.

Following a written request of 27 January 2012 from the mayors of 12 municipalities in Denmark and Local Government Denmark (KL)[1] to be allowed to conduct binding trials with e-voting at statutory elections, the Danish government decided on 6 March 2012 to introduce a Bill to the Danish parliament that will allow the municipalities to conduct e-voting pilots, where the result of the poll is binding.

The Minister for Economic Affairs and the Interior, who *inter alia* is responsible for all statutory elections in Denmark, stated the following in her press release of 13 April 2012 on the government's decision to allow pilots on electronic voting:

> "We have to modernise the public sector, which makes it natural to exploit the opportunities offered to us by new technology – also with regard to elections. The pilots will show whether e-voting offers any significant benefits, which can entail that we should consider digitalising the polling in the longer term.
>
> One of the benefits is that e-voting can eliminate the pile of spoiled ballots, where the election officials are in doubt about where the voter intended to cross the ballot. Another benefit is that e-voting will enable the visually impaired to vote without assistance. Also, e-voting can render the manual count unnecessary on the longer run, which can save the municipalities some resources.
>
> The challenge is whether it is possible to make e-voting secure enough and keep it within an over-all proper financial framework, which the pilots shall also contribute to clarify. I hope that the municipalities will draw some good experiences from the e-voting pilots so that the technology can be spread out to the whole country."
>
> *Margrethe Vestager*

Before the government and municipalities can move on to a procurement process, the Danish election legislation will as mentioned before have to be amended, as it currently implies that voting for statutory elections is done by using a paper ballot and some sort of writing utensil. The Minister for Economic Affairs and the Interior will consequently introduce a Bill to the Danish parliament, currently scheduled for January 2013.

Purpose of e-voting pilots from the municipalities' point of view

In their letter of 27 January 2012, the 12 municipalities stated that the overall purpose of carrying out one or more e-voting pilots would be to obtain experience with e-voting in a Danish context that could feed into the decision process re. a more general introduction of e-voting in Denmark. The municipalities therefore stressed the importance of a thorough evaluation following the first pilots. The evaluation should *inter alia* focus on technical security, possibility of independent auditing and public control and the voters' experiences related to the employment of an e-voting system with the aim of securing public acceptance of digitally supported elections.

The aim of the municipalities with regard to conducting the first binding e-voting pilots are in particular to establish whether e-voting can:

- improve the accessibility for voters with disabilities, in particular for the blind and visually impaired as well as dyslectics, and to enable more voters to vote independently,
- eliminate the involuntarily spoiled votes (i.e. not the blank votes, which should still be allowed),
- be carried out while retaining a high degree of public control and high system and operational reliability,
- make the recount redundant, or at least lead to a reduction of the administrative resources deployed for the count and recount,
- result in cost improvements for the municipalities on the longer run.

The starting point of the municipalities was thus to gain some experiences on the operation of a system for electronic ballot generating to be employed at the polling stations and/or for advance voting in a controlled environment, and that offers special accessibility functionalities for the disabled and can provide an electronic count and tally.

In order to increase the Ministry's and the municipalities' firsthand knowledge of different e-voting solutions to the challenges mentioned above it was decided to engage in a dialogue with key stakeholders at this early stage about the advantages and risks/disadvantages of e-voting and which requirements should be made to allow e-voting in a Danish context, and to get an overview of different e-voting solutions.

Process preceding the technical dialogue

As a first step, the Ministry organised a workshop[2] on 15 May 2012 in collaboration with the Demtech research project[3] at ITU (IT-University of Denmark) and the Danish Board of Technology with the participation of more than 40 representatives from the IT-community, the municipalities, IT- and social sciences researchers, election experts, interest organisations for *inter alia* the disabled, civil and human rights, the elderly, etc. The purpose of the workshop was to engage key stakeholders as early as possible in the process and gather their input on the desired requirements for a future e-voting system in Denmark, including the necessary procedures for the preparation, safeguarding and carrying out of electronic voting and -counting.

The Ministry works in close collaboration with the municipalities and participates in the steering committee set up by the 12 municipalities and KL to monitor the e-voting project. In consultation with the steering committee, the Ministry decided in the late spring of 2012 to conduct a technical dialogue with economic operators in the field of electronic voting to acquaint itself with the current technological solutions.

In return for the commitment of the Danish government to introduce a Bill that will permit those municipalities that wish to do so to employ electronic voting and counting at statutory elections, the Minister for Economic Affairs and the Interior has asked the municipal councils of the 12 municipalities that originally applied for permission to conduct e-voting pilots for a binding declaration by the 1st of October 2012 of their commitment to allocate the necessary economic and administrative resources required for conducting one or more e-voting pilots.

Shortly after 1 October 2012, the Ministry will decide whether to proceed with its efforts to create the necessary statutory authority to enable municipalities to employ e-voting at statutory elections. If a sufficient part of the 12 municipalities have committed

themselves, the Ministry will as previously mentioned prepare the necessary draft legislation during the autumn 2012 with the aim of introducing a Bill to the Folketing (the Danish parliament) in January 2013. Provided that the Bill is passed, the Ministry and the municipalities will work together to present an invitation to tender in the spring, summer or early autumn of 2013, depending on when the legislative process is concluded.

2. Purpose of the technical dialogue

As part of the preparation of the probable tender process for the supply of a system for non-remote electronic voting and counting (hence referred to as an 'e-voting system'), the Ministry of Economic Affairs and the Interior wished to explore the possibilities that the market has to offer at this point in time, *inter alia* to get an overview of the economic implications of introducing e-voting in Denmark.

The Ministry of Economic Affairs and the Interior has therefore conducted a technical dialogue with 7 economic operators with documented experience with development and implementation of electronic voting and counting systems for elections to popularly elected organs, i.e. elections for national or local parliaments or governments etc.

3. The official announcement

The dialogue was carried out in accordance with the rules of the EU Procurement Directive[4] and the lines indicated by the prior information notice no. 2012/S 122-201846 of 28 June 2012.

Invitation for participation requests to the technical dialogue was issued on 28 June 2012 in TED, the online version of the 'Supplement to the Official Journal of the European Union' dedicated to European public procurement, where the conditions for participation were also stated.[5] The deadline for request by economic operators to participate in the technical dialogue was set to 3 August 2012 at 12:00 noon CEST.

The rules on the right to enter into a technical dialogue with the market are found in point 8 of the recital in the EU directive on public procurement. The rules have been implemented into Danish law by Executive Order no. 712 of 15 June 2011[6] (in Danish) on the procedures for the award of public works contracts, public supply contracts and public service contracts.

4. Selection of participants and procedure for the technical dialogue

Selection criteria

Particularly out of regard for the resources allocated by the Ministry to carry out the preliminary study, the Ministry decided that a maximum of eight economic operators/partnerships would be invited to the technical dialogue. In the event that more than eight economic operators/partnerships requested to participate in the technical dialogue, the Ministry of Economic Affairs and the Interior would invite all economic operators/partnerships that have documented experience with development, delivery, implementation and operation of electronic voting systems for larger organisations/institutions, including in particular public institutions. If more than eight economic operators/partnerships could document such experience, the Ministry would select those economic operators/partnerships that have documented experience with the development and implementation of electronic voting and counting systems for elections to popularly elected organs, i.e. elections for national or local parliaments or governments etc. In the event that there henceforth were more than eight economic operators/partnerships qualified for selection according to the above mentioned criteria, lots would be drawn amongst these.

Economic operators selected

The Ministry received 11 requests for participation, of which the following 7 economic operators/partnerships were invited to individual meetings on basis of the enclosed documentation of experience with e-voting at statutory elections:

- Indra
- Opt2vote
- Everyone Counts
- Assembly Voting (Aion & Siemens)
- Scytl & Zetes
- KMD & Smartmatic
- DRS Data Services & Dominion Voting

Procedure

For each invited economic operator or partnership the technical dialogue consisted of one bilateral meeting between the economic operator(s) in question and the Ministry of Economic Affairs and the Interior and its partners. The meetings each lasted approx. 3 hours, of which approx. 45 minutes were set aside for a demonstration of the e-voting system of the economic operator(s) in question.

The meetings took place during the period of 21 August – 3 September 2012. All applicants were informed that participation in the technical dialogue is neither a precondition for participation in the anticipated procurement, nor will it improve the chances of participating economic operators for eventual prequalification. The economic operators were informed that the Ministry as a public authority is subject to the Danish Public Records Act and thus can be obliged to give access to documents etc. to the extent following from its obligations under this Act, but that any request for confidentiality re. information imparted during the oral technical dialogues would be respected by the Ministry as far as possible.

5. Framework and meeting agenda

Framework

The economic operators were informed that a future e-voting system in Denmark will be used only for **non-remote electronic voting** in a controlled environment at polling stations on election day and/or for advanced voting on the premises of the municipalities; not for voting over the internet or by other remote voting channels. The system should thus be employable for the following phases: preparation of the equipment before the election, polling, counting and notification of the results as well as packing and storing.

The system should also be adaptable to the Danish context and election legislation and traditions, i.e. *inter alia* be designed to secure a high degree of recognisability for voters and a continued high trust in elections. The Danish turn-out is among the highest in the world for countries where voting is not mandatory (87.7 per cent at the last general election in September 2011; approx. 65 per cent at local elections). The system must therefore be designed in such a way that the high turn-out and trust in elections are maintained.

Digitalization of the polling implies that some of the control mechanisms meant to ensure public control with the elections will be replaced by digitalized procedures, which can only be checked by specialists with particular insight in it-systems etc. Public control mechanisms in a Danish context would e.g. be the demonstration and subsequent sealing of the empty ballot boxes in front of the voters in attendance before the elections commence at 9:00 a.m., and the voters' right to watch the manual count of the votes after the election is closed at 8:00 p.m. To ensure a continued high trust in elections – hitherto obtained and preserved *inter alia* via the aforementioned public control mechanisms – the Ministry was therefore also interested in obtaining information on

alternative control mechanisms, which provide the voter with a comparable high degree of trust that the polling has progressed correctly, i.e. without system failures or any manipulation with the elections. The system should also be trustworthy and robust and ensure that the election can continue even if the system malfunctions partly or completely during the polling.

The system should also guarantee the secrecy of the vote, which in the Danish context entails that the voter not only has the *right* to keep his/her vote secret, but is also under the *obligation* to do so, i.e. the voter is not free to show his/her vote to others. In addition, it must be impossible to connect a voter and the vote he/she has cast, including indirectly by e.g. logging or electronic detection of screen displays or the like by external devices etc.

The system should finally also be user-friendly and readily accessible to all voters, including voters with disabilities. The Ministry was therefore interested in a presentation of any measures that could render the polling more accessible to voters with disabilities, preferably allowing them to vote without assistance.

Agenda

Before each meeting, the Ministry of Economic Affairs and the Interior sent out an agenda to all participating economic operators reflecting the general framework, where it was stated that the Ministry wished to gain closer insight into *inter alia* the following issues:

1. Protection of the secrecy of the vote in general by the e-voting system.
2. Protection of the secrecy of the vote in particular by the use of dedicated hardware vis-à-vis the use of non-dedicated hardware, including processes for safe destruction of sensitive data.
3. The securing by the e-voting system that the polling has passed off without incident, including by the production of a physical manifestation of the vote (VVPAT or similar) that can both offer sufficient proof to the voter that the polling has passed off correctly and be included in a manual recount.
4. The safeguarding by the system of correct polling and registration of the vote and the possibility to control that the system has not failed or been manipulated along the way (security).
5. The possibility to secure accessibility to the system for the disabled.
6. The economic implications of introducing the e-voting system of the company/ies in question in Denmark, divided into the expenses for a) the purchase or leasing/accommodation of hardware, b) the purchase or leasing of soft ware, c) service and operation, back-up, training, maintenance etc.
7. Possibilities for further development of the system and possibilities to adjust the e-voting system for future needs and update it to exploit new technological possibilities (possibility for agile development and innovation).
8. Possibility of scaling of the system, including information on the possibility to separate the polling and counting functionalities, so that the system initially could be limited to ballot marking, but later can be connected to a digital counting device if desired.
9. Usability in general and for the disabled in particular
10. Advantages and gains of e-voting in general and in particular from employing the e-voting solution demonstrated

6. Demonstration of solutions

The Ministry was presented with 7 solutions for digital voting and/or counting. Based on the description given in the EU information notice of the preliminary considerations by the Ministry and municipalities as to the framework of the upcoming e-voting pilots, the economic operators presented **six different ballot generating systems** with the optional possibility of adding e-counting/scanning devices and **one ballot scanner**

solution. The economic operators offered a demonstration of some of their voting/counting equipment that the economic operators estimated would be relevant in a Danish context.

The e-voting and e-counting solutions demonstrated were for the most part only one of more options among many other different solutions and services that the economic operators could provide. Examples of other electronic voting schemes and services were briefly touched upon during the economic operators' presentations (e.g. internet voting remotely or via connected terminals at polling stations, central optical scanners, DRE's with or without paper trail, election management solutions, etc.), but will not be further discussed or described in this report.

A. Ballot generator solutions

All ballot generator solutions demonstrated are more or less structured in the same way:

After being matched against the electoral register at the polling station, the voter is handed a token which can either be a smartcard with a chip similar to a credit card or a cardboard card with an integrated RFID-chip. The token can either be handed to the voter, or the voter can choose any random token from e.g. a tray to enhance the voter's trust that his/her privacy is protected and that the token does not contain any personal information on the particular voter.

The token can be initialized before the election (which will take time) or for reasons of time constraint and transparency be initialized at the polling station by the election official in front of the voter or ultimately by the voter him/herself. The token can be stored with particular information identifying e.g. the voting district that the voter belongs to (which is relevant if the voter is e.g. voting in advance and needs a different ballot than the one that corresponds to the particular municipality where the advance voting is taking place) or whether the voter is disabled and special features need to be activated in the ballot generator, e.g. the screen should be turned off etc.

The voter inserts the token into the ballot generator placed in the polling booth. The token initializes the machine and activates the ballot interface. All solutions demonstrated employ a touch screen, where the voter makes his/her choices by touching the different options on the screen. Most solutions offer a multiple layer solution, in which the voter first is presented with a frame enlisting the different parties and the option to cast a blank vote. If the voter wishes to cast a preferential (personal) vote for a particular candidate, the voter has to choose the party that the candidate belongs to in order to be presented with a new frame showing the different candidates that are standing for the party in question. The interfaces shown varied a great deal in design and usability, but all economic operators assured that the interface could be customized to fit the customer's wishes.

The voter then has to confirm his/her choice and a ballot is printed by the machine. Systems employing smartcards will print a separate ballot on paper (different qualities and thicknesses were demonstrated, but can almost always be customized), where the vote is printed in both a human readable format (fonts etc. can be customized) and a 2D bar code that enables electronic counting and tallying. The bar codes displayed on the ballot papers are encrypted and cannot be read with mobile phone QR-scanners or similar. Systems employing a card board card with RFID will print the vote in a human readable format on the same card used to initialize the ballot generator and store the encrypted electronic readable reproduction of the vote in the RFID (other solutions are also being considered).

All solutions that include storage of the vote on a 2D bar code offer some kind of verifiability functionality, so the voter can choose to scan the bar code and verify that it corresponds to the human readable text imprinted on the ballot paper. The verifiability scanner can either be integrated in the ballot generator so the voter can immediately

check the bar code in the same voting booth after the ballot is printed, or be placed in a separate location, e.g. a secluded booth.

Solutions that employ a smartcard entail that the smartcard has to be deposited by the voter after the voting is completed; different solutions for this were demonstrated.

The voter then proceeds to the ballot box and scans the ballot him/herself and deposits it in the ballot box. Some solutions entail that the voter has to scan the ballot and then insert it manually in the ballot box, while others offer transactional operation, meaning that the ballot is placed manually in a slit or similar in the ballot box and then trapped and deposited mechanically into the ballot box. According to the economic operators, either solution will require a trade-off between the benefits the different choices offer and some of the disadvantages they result in in return.

When the polling is closed at 8:00 p.m, the votes can either be counted manually and/or electronically, where after the system procedures a report of the electronic count and tally. The electronic counting solutions can produce reports on both the number of party cotes and personal votes etc. The results can be transmitted to the central tabulation computer either by a secure wireless internet system, modem or 3G or by a USB-stick protected by passwords and encryption, etc. and then collected and inserted into the central computer and tallied there.

Common to all solutions demonstrated is that the ballot is not stored in the ballot generator, but only on the printed ballot, until it is introduced in the ballot box, where it can be scanned and stored electronically or simply inserted for manual count without any electronic recording of the ballot. Other options briefly discussed besides printing of individual ballots include real-to-real and cut-&-drop paper recording of the vote.

B. Optical ballot scanning and e-counting solutions

One vendor demonstrated an alternative approach, in that this vendor unlike the other six does not supply a ballot generator, but an optical scanner that can scan paper ballots marked by hand by the voter.

After being checked in the electoral register, the voter is handed a paper ballot similar to the one currently used. The design of the ballot can be customized according to the customer's wishes. The voter marks the ballot with a pen, ticking off or filling in a box or circle beside the party or candidate of his/her choice.

The voter then proceeds to the ballot box, which is mounted with a scanning device, a tabulator and a screen. The voter inserts the ballot in the scanner, which will read the ballot and show the result on a screen so the voter can verify his/her selections. The machine can via the screen alert the voter if he/she has invalidated the vote by filling it out incorrectly or not filling it out at all (a blank vote). The voter can then decide whether to cast the vote or retract it if it has been filled out incorrectly and the voter wants to exchange the ballot. The ballot is transitioned mechanically into the ballot box. The solution includes measures for protection the secrecy of the vote (e.g. a card board folder).

7. Questions discussed

Apart from the demonstrations of their e-voting and e-counting solutions, the economic operators provided answers to the Ministry's questions related to the different topics listed on the agenda, cf. section 5 above. Among these were:

7.1. Protection of privacy and the secrecy of the vote

All economic operators have been required to identify the greatest risks to privacy and the secrecy of the vote and to demonstrate how their solution mitigates the risks identified, as well as to share their experience on what technical and procedural safeguards it would be recommendable to implement.

Most solutions do not entail any connection between the identity of the voter and the ballot, as they are based on the hand out of a randomly chosen token to the voter for initialisation of the ballot generator and do not store the vote on the ballot generator, or are based on the hand out of a paper ballot like today. Some of the systems have originally been developed for the internet and do require an initial storage of both the authentication data and the vote, but these systems nevertheless have technical solutions in place to protect privacy and the secrecy of the vote (separation of databases for authentication and storage of votes and 'double envelope'[7] systems).

All economic operators have considered the secrecy of the vote in the handling of the ballot.

The electronically generated ballots can be folded to hide the human readable depiction of the vote and only expose the 2D bar code, which is not readable by the human eye. In addition, the bar codes are encrypted so that the bar code cannot be read by a scanner in a mobile phone or other device except for the system scanners containing the algorithm to decrypt the bar code, and no two bar codes are alike irrespective of the choice they represent. The economic operators are also all aware that the ballot should be the same length regardless of the choice it contains to retain the secrecy of the vote.

Most economic operators prefer smartcards to RFID-cards stating security reasons, claiming that cards with RFID-chips could be read or jammed from a distance by hardware that is relatively cheap and easy to buy from the internet. Additionally, smartcards can be reused many times; it is also not necessary to procure a smartcard for every voter, as they can be reinitialized after being used by a voter.

Economic operators favouring RFID have countered that the use of RFID allows the token to be used both to initiate the machine and to store the vote, thus reducing the complexity of the voting procedure for the voters. Additionally, the RFID-chip can according to the economic operators be protected against eavesdropping or jamming by putting the right procedural safeguards in place. Finally, the economic operators offering a RFID-solution contested that RFID-cards are more expensive to procure than smartcards, although it was not disputed that an RFID-solution will entail the need to buy one card for every voter and that they *ipso facto* cannot be reused.

Most solutions shuffle the votes before decryption to ensure that they are recorded in a random and different order than they were cast, so no one can restore a connection between the voter and the votes on the basis of electronic or manual time-logging or similar.
Regarding optical ballot scan systems that scan a regular hand-filled ballot, the ballot has to be inserted into the scanner in its full length, i.e. it cannot be folded to protect the secrecy of the vote. However, as mentioned in the description of the system above, a card board folder can be provided to hide the text of the ballot, which can also be inserted with the text down or in a secluded environment.

7.2. Dedicated versus non-dedicated hardware

Most economic operators employ dedicated hardware in their solution, although in combination with commodity hardware for e.g. optical scanners, touch screens etc. The hardware encased in the ballot generator machines is mostly industrial standard components. The dedicated ballot generator machines have an average life span of 15-20 years according to the economic operators . The main argument of these eco-

nomic operators for employing dedicated hardware is *security*, claiming that dedicated hardware offers better security against visual and electronic eavesdropping, and better logical protection. Also simplified installation, deployment and maintenance are cited by the economic operators as some of the important benefits of dedicated hardware as opposed to a solution based solely on standard off-the-shelf components.

A couple of the solutions demonstrated to the Ministry were based solely on commodity 'off-the-shelf' hardware; one of the economic operators providing such solutions argued that the trend in their opinion is moving away from procurement of expensive dedicated hardware with what it entails of warehousing, maintenance, and obsolescence issues to software and services. Economic operators that base their solutions on commodity hardware offer to install their software in a wide variety of hardware components, and claim that it is possible to reduce costs further by leasing the hardware, arguing that the commodity hardware can be securely wiped after elections and reused for other purposes.

The economic operators have summed up the advantages and disadvantages of dedicated hardware versus non-dedicated hardware as follows during the dialogue:

	Dedicated hardware	**Commodity hardware**
Easier to restrict access to parts and internal hardware	✓	
Easier installation and technical assistance	✓	
Easier to use for voter and election officials	✓	
No need for software portability (software only needs to be developed and tested for one type of hardware)	✓	
Replacement of components	✓	✓
Ensure privacy	✓	✓
Less costly		✓
Possibility to reuse HW for other purposes		✓
HW independence		✓

7.3. Voter-verifiable paper audit trail (VVPAT)[8]

All solutions presented by the economic operators at the technical dialogue provide some sort of paper trail in accordance with the framework set out in the information note. Most solutions were presented as "ballot generators", as it was the understanding of most economic operators that the Danish authorities preferred a solution that generated an actual paper ballot that would not be counted in the ballot generator, but should be inserted in a ballot box with the option of optical scanning for rapid recording of the vote (by adding a 2D bar code or OCR imprint of the vote). The optical ballot scanning solution presented by one of the economic operators also involves a paper ballot, as it relies on a traditional hand filled ballot.

7.4. Security and safeguarding

The question of ensuring security against malfunction and internal as well as external attacks was one of the primary focus points of the discussions during the technical

dialogue. All economic operators have a great range of different technological and procedural safeguards in place to mitigate these risks.

Among the safeguards mentioned were the following, which do not necessarily apply to all solutions, but are useful to keep in mind when considering the requirements for a future Danish e-voting solution:

- Strong **layer-upon-layer cryptography** applied to ballots, software, etc.
- Production of **zero tallies** before the polling commences to prove that the ballot box is empty – the zero tally can be designed in such a way that it will automatically erase anything in the memory component if something should accidentally or deliberately be stored there,
- Possibility to employ **time locks** to ensure that the system can only be activated at a fixed time, e.g. during the poll,
- System **integrity, availability and authenticity tests**,
- **Ballots are not stored electronically on the ballot generators**,
- Ballots are **decrypted by a quorum** after the polls are closed, and the decryption keys are created only by the quorum after the election,
- Systems (e.g. holograms etc.) **prevent ballots from being copied, submitted, and/or counted multiple times,**
- Security against **electromagnetic eavesdropping,**
- **Tampering and malfunction alarms,** which either go off with a loud sound in the voting booth or are communicated more discreetly to the polling supervisor via a headset,
- **Entrances in ballot generators are secured** with physical keys and strips/seals,
- **Mathematical proofs** of decryption and counting are run after the elections to make sure that the ballots have not been tampered with and that the system has functioned correctly,
- **Hardware is standalone** during polling hours,
- **Ballots are shuffled** before they are decrypted to protect privacy and secrecy of the vote,
- Storage of **images of every ballot,**
- **Cameras** survey data centres,
- **Restriction of access** to core services differentiated according to user identity or user role & requirement of **user authentication,**
- **Splitting of security keys and passwords** between two or more trusted polling supervisors or members of the election committee, so no official can start or close the system and/or procedure the results alone.

Despite all these and more security provisions, some of the economic operators contended that a significant number of threats can and should rather be mitigated by ensuring that the right protocols and procedures are in place. Security should be looked at as involving a combination of people, process and product that all have to work together.

Audit and certification

Most economic operators presented a wide range of certificates and credentials achieved from their work with election systems for other customers around the globe.[9] Many of the systems provided by the economic operators that participated in the technical dialogue have been audited by 'the big four' auditing economic operators (PwC, Ernst & Young, Deloitte and KPMG) as well as by academics employed by the customers etc. The economic operators are thus accustomed to having to comply with different standards and undergo different certification and audit procedures and prepared to do so also in a Danish context.

Open source

Assessment that an e-voting system functions correctly and that security is maintained is very essential to validate the results of an election and retain the publics' trust in the electoral process.[10] This assessment can be done by the independent evaluation or as mentioned above certification of the system as a whole or of its components, which requires disclosure of the critical system elements. The assessment can be carried out through, for example, disclosure of the system design, inspection of detailed documentation, source code disclosure, inspection of component evaluation and certification reports, in-depth penetration testing, etc. The actual level of disclosure of the system elements needed to achieve appropriate assurance depends on the specific features of the system, its components and the services provided. In this context, one of the questions that need to be addressed is whether the system provided should be "open source".[11]

All economic operators declared themselves ready to hand over the system software for independent review, while retaining property of the solution. Many of the solutions use Linux based operating systems. Some economic operators sell the software to the customer to do with it as the customer seems fit, including having other economic operators or in-house capacities develop the software, others provide the software on a license basis.

7.5. Accessibility for the disabled

All solutions demonstrated to the Ministry during the technical dialogue have different accessibility features that allow one or more specific groups of disabled voters to vote without forfeiting the anonymity of their vote, i.e. by enabling them to vote without assistance by a third party, e.g. a family member or election official. The solutions have all been developed and tested in cooperation with different local associations for the disabled and live up to different national and international standards.

All solutions include a feature for blind and visually impaired that incorporates some kind of audio 'read aloud' functionality. The Ministry discussed with the economic operators ways to ensure that a blind or visually impaired voter would know which way to fold the ballot to fold it correctly, so the human readable text is not shown to anyone else before or during the insertion of the ballot into the ballot urn.

Other functionalities presented allow for the use of sip-and-puff devices, joy sticks, buttons, pedals, head-and-mouth pointers, enlarged fonts on screens, and key boards. The solutions that employ smartcards to initiate the ballot generator machine all have the possibility to have information added to the smartcard indicating that the voter is blind/visually impaired or otherwise disabled, thus instructing the ballot generator to either turn off the screen or allow the use of a special feature.

All economic operators of ballot generators emphasized that the different disability functionalities as default are added to *all* ballot generator machines, so voters needing these functionalities can choose any voting booth containing the machine instead of being assigned to a particular voting booth, with the exception of the optical scanner solution.

A common fact for all systems for the disabled to take into account according to the economic operators is that voting for the disabled using any of the described functionalities will invariably take longer compared to a non-disabled voter.

7.6. Economic implications

Preconditions
As previously mentioned, the economic operators have demonstrated several technical solutions essentially spanning from optical scanning and e-counting of hand-filled paper ballots to ballot generating systems with optional e-counting functionalities. The different systems demonstrated during the technical dialogue are built up from different technical solutions of varying complexity and with different choices of components (dedicated/non-dedicated hardware etc.), which is reflected in the tentative pricing quoted by the economic operators.

The tentative level of expenditure stated below has been calculated on the basis of an isolated e-voting pilot and therefore also encompasses non-recurrent expenses for procurement of ballot generators and/or e-counting equipment etc. The equipment can be reused as a starting point if the evaluation of the pilot is positive and permission is given for more pilots or e-voting is permitted on a more general basis. The hardware has an estimated life span of at least 7-9 elections. Furthermore, the Ministry estimates that expenses for training, project management and voter information (see the listing of expenses below) will be relatively high for the first pilots and then gradually decrease.

The calculations have been made on the basis of a turn-out of 88 %, which is rather high and corresponds to the turn-out at parliamentary elections. If the calculation is based on a lower turn-out, e.g. corresponding to the usual turn-out at local or European Parliament elections, the number of hardware units required for e-voting and/or e-counting will probably be somewhat lower.

An average of the prices indicated by the economic operators for comparable equipment has been employed for the calculation of the following *tentative, overall cost estimates*. It has furthermore been presupposed re. the prices for ballot generating systems that all voters in attendance at the polling station will cast an electronic vote and that "intelligent" ballot boxes are employed for the recording, counting, and tallying of the electronically generated ballots.

The price estimates below are as previously mentioned based on information imparted by the economic operators during the technical dialogue and are meant to give an indication of a *possible* price range. However, it is not possible at this given time to say how the market will react in a real competition situation when the Ministry initiates a tender process to enable limited pilots, including whether a lower pricing could be expected.

Price estimates
The total price estimates below include expenses for:

- Hardware (depending on whether the chosen solution includes optical ballot scanners or ballot generators, digital ballot boxes with e-counting functionality, tokens and other hardware),
- Software

- Technical support before and on election day
- Training of election officials
- Project management and implementation
- Voter information
- Independent control of equipment and audit
- Evaluation

Expenses for technical support, training, project management and implementation, voter information, control and audit, and evaluation are estimated.

A. Polling station with 2,500 voters

The total expenses including the elements listed above will, depending on the chosen solution and the technological setup etc., roughly estimated amount to **250,000 – 450,000 DKK** for an e-voting pilot on a polling station with 2,500 voters.

B. Polling station with 5,000 voters

The total expenses including the elements listed above will, depending on the chosen solution and the technological setup etc., roughly estimated amount to **350,000 – 750,000 DKK** for an e-voting pilot on a polling station with 5,000 voters.

C. Polling station with 10,000 voters

The total expenses including the elements listed above will, depending on the chosen solution and the technological setup etc., roughly estimated amount to **550,000 – 1.1 mill. DKK** for an e-voting pilot on a polling station with 10,000 voters.

Potential reductions in expenditure
The number of election officials needed at the polling station is estimated to be unchanged on election day and during the counting and recounting during the first e-voting pilot.

In the event that a number of elections is subsequently carried out employing optical ballot scanners or ballot generators combined with an e-counting functionality, the electronic counting and tallying might in time partly or completely replace the manual count of the ballots at polling stations and eventually also the recount, resulting in reductions of administrative expenditure.

7.7. Innovation, agile methodology and possibilities for further development (transferability)

All economic operators stated that their systems are continuously being updated and developed and that they employ an agile methodology, including new technological possibilities as they arise. New versions always leverage market improvements, and there is independent evolution of each component. Some of the economic operators shared some future plans for development of their systems.

Training and services

All economic operators offer training and services as part of their solution. Training can be designed to meet the customer's need. Many economic operators provide e-learning tools as a supplement to on-site training. Most economic operators employ a train-the-trainer methodology, as it *inter alia* is viewed as most cost-effective. Some international economic operators usually choose to work with a local partner to provide support and other services. All manuals can as a rule be provided in the customer's local language (i.e. in Danish), and calling centres will be staffed with native speakers.

7.8. Scalability and separation of functionalities

All economic operators informed the Ministry that their solutions could easily be scaled and cited a number of past experiences where it had been necessary to upscale the solution rapidly. The solutions are all built according to a modular approach, which means as previously mentioned that the solutions can be customised in a number of ways to meet the demands of the customer.

The ballot generator-solutions can be progressively introduced, so that initially the machine only marks the ballot, and the e-counting functionality is added at a later stage when voters have grown comfortable with e-voting. However, one economic operator argued that the ballot counting functionality is the least costly when it comes to an ballot generator-solution and concurrently one of the most beneficial. The economic operator therefore recommended that the Ministry and municipalities opt for the full end2end solution from the beginning. The voter verification station could also be added at a later stage, but one economic operator argued that this functionality is important to implement in the beginning, where voters most likely will be more sceptical and eager to verify the bar code on their ballot to make sure that the machine has worked as intended.

Implementation

Most economic operators stated a lead time of between 6-18 months from contract signing to election day. This period will however depend on the scale of the procurement; if the solution is being procured only for a limited pilot of 10-30 polling stations, the implementation time of the system will naturally be shorter than if the solution is being procured for the whole country. Stages to be considered when drawing up the project plan include blue print stage (for definition of inter alia the requirements), voter engagement and information campaign (should be initiated as soon as possible and in good time before the election), adaptation of solution to Danish legislation and standards and approving of design, independent review/certification of HW, SW, and procedures, manufacture of machines, tests and mock election(s), sealing, training of election staff and finally roll-out of solution, delivery tests etc. However, all economic operators that the Ministry has met with have vast experience in adapting and customising their solutions to meet the specific needs of the customer, and can also offer some flexibility re. implementation.

8. Advantages and risks/disadvantages of electronic voting and counting

Advantages

In the opinion of the economic operators participating in the technical dialogue, the following main advantages can be derived from employing a digital voting and/or counting system:

A. More accurate tallying

Electronic counting can offer more accurate tallying and as good as eliminate human errors in the counting process.

Some of the economic operators recommended that when manual counts are to be conducted for audit purposes after the electronic tallying (either as a complete recount or random checks), a proper procedure should be implemented to minimize human error. E.g. counts should be undertaken by independent auditors or officials that have not been participating in the election all day, where the risk of them not being capable of conducting a recount under optimal conditions is significantly enhanced compared to if you bring in a "fresh" team. Also, the recount should be undertaken in teams of 2 or 3, where all individuals must agree on the result before it is compared with the electronic tally.

B. Voter verifiability

All the demonstrated electronic counting systems offer the voter the possibility to scan his/her ballot before inserting it in the ballot box either manually or by transitional operation. Hence, the voter is enabled to verify him/herself that the vote is actually counted, which is not possible in the traditional paper based and manually counted elections.

C. Provides the disabled with the opportunity to vote without assistance

All the systems demonstrated during the technical dialogue include features that are designed to enable voters with disabilities to cast their vote without assistance. The range of disabilities covered by the different solutions and their usability vary, but all do to some extent make it possible for some groups of disabled voters to cast their vote unsupervised (cf. section 7.5. below).

D. Eliminates involuntarily spoiled ballots while keeping the option to cast a blank vote

All the demonstrated solutions can prevent the casting of involuntarily spoiled votes, while still retaining the option to cast a blank vote, as the voter only has the option to mark the ballot electronically with one choice (either a vote for a particular candidate, a particular party or a blank vote.[12]

E. Additional 'back-up' storage of ballots

According to the economic operators, the e-voting solutions contain an extra security provided by the electronic storage of the ballots and results in parallel with the physical storage of the paper ballots. This offers redundancy, as the result of the poll can be reproduced if for some reason the paper ballots should be damaged, destroyed or lost, thus avoiding a second ballot as the ultimate consequence if a significant number of ballots cannot be produced for the count or recount for one of the reasons previously mentioned.

F. Faster count and results & reduction of administrative resources for manual count

E-counting *ipso facto* enables a much faster tally and result. The economic operators informed the Ministry that a faster and more accurate count and tally also offers significant advantages from the administrative point of view of the municipalities, in that it can lead to a reduction of resources allocated to the manual count and particularly to the recount (which could on the long run become redundant). However, this advantage would only manifest itself over time, and should be weighed against the increased economic implications of procuring and maintaining e-voting equipment and the additional staff that will be required to set up, run and pack the equipment after the election.

On basis of the information received by the economic operators on the different potential benefits of e-voting, the Ministry finds that the municipal councils which are considering to engage in e-voting pilots should have a thorough discussion of the enlisted and other possible potential benefits of e-voting and e-counting, and ultimately decide which of these should be guiding for the municipalities' overall strategy for conducting e-voting and/or e-counting pilots.

Risks and disadvantages

The greatest risks or disadvantages of introducing and employing e-voting and/or (to a lesser extent) electronic counting is in the opinion of the consulted economic operators not so much a question of technology flaws or security issues, but more of *perception* and *trust*.

For this reason, some economic operators recommend introducing e-voting by a step-by-step approach, starting out slowly and giving the voters sufficient time to familiarise themselves with the changes and get to trust the system by seeing it work in a satisfactory way in numerous elections. Some economic operators also pointed out that in their experience voters are generally receptive and positive towards the introduction of

technology in the election realm, while scepticism is often mainly expressed by candidates and political parties. Therefore, it is important to conduct independent audits after the elections that can prove beyond any reasonable doubt that the election has not been tampered with and that the results have been correctly counted and tallied.

Notwithstanding, the economic operators also pointed out that the issues of *security against malfunction and manipulation* of an e-voting system as well as the matter of preserving the voter's privacy and the secrecy of the ballot are equally very important issues to consider and protect when drawing up the requirement specifications for a future e-voting/e-counting solution and during the procurement process.

9. Conclusion: Choices have to be made

Most economic operators can provide customized solutions and employ a modular methodology. The economic operators all operate in several different countries with a large variety of election systems, where the lesson learned and imparted to the Ministry during the technical dialogue is that no two election systems are the same, sometimes not even within the same country (e.g. USA).

Therefore, if Denmark proceeds with the plans to make its own experiences with e-voting, a number of **choices** will have to be made, *inter alia*:

- What are the main benefits that the municipalities expect to obtain from an e-voting system, and which kind of solution does best fit these needs taking into account the economical aspects?
- Should e-voting in Denmark be introduced in the form of a ballot generator that marks a ballot paper electronically, or should we opt for an optical ballot scanning and counting device that scans and counts hand-filled ballots?
- If the first option of an electronic voting machine that marks the vote electronically is chosen, should the votes then be recorded on the e-voting machine, or should they only be recorded when a paper ballot or similar is introduced into a scanning device?
- Should the solution be based on dedicated hardware or commodity hardware?
- Should the voters be offered the opportunity to verify not only the human readable imprint of the vote, but also any electronic record (bar code or similar)?
- What kind of accessibility functionalities should be offered to disabled voters?
- Should there be a requirement that the system has to be open source? And to which extent?
- Is the system primarily being considered for voting on election day at the polling stations, or should it also be able to handle advance voting, and if so should it only be used at fixed locations (town halls etc.) or also in mobile environments (e.g. for advance voting at hospitals, the voter's own home, homes for the elderly etc.)?

[1] KL is the interest group and member authority of Danish municipalities.
[2] http://evalg.teknoprojekt.dk/
[3] http://www.demtech.dk/#
[4] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:134:0114:0240:EN:PDF
[5] http://ted.europa.eu/udl?uri=TED:NOTICE:201846-2012:TEXT:EN:HTML
[6] https://www.retsinformation.dk/Forms/R0710.aspx?id=137281
[7] The electronic 'double envelope' systems are similar to the system employed for advance voting today, where the advance ballot until election day is stored in an envelope that is sealed and placed in a new envelope with a covering letter containing inter alia the name and address of the voter. The covering letter and sealed envelope containing the

advance vote are separated the day before election day, when the polling supervisors examine the advance votes and decide whether all formalities have been met and the vote qualifies for consideration.

[8] A voter-verified paper audit trail (VVPAT) or verified paper record (VPR) is a method of providing feedback to voters using an electronic voting system, as it allows voters the possibility to verify that their votes are cast as intended and can serve as an additional barrier to changing or destroying votes. A paper VVPAT is by definition readable by the human eye, and offers the voters the opportunity to directly interpret their vote. The VVPAT may be added a bar code or other electronic readable feature for rapid electronic recording of the votes by scanners etc., and will make it more difficult for voting machines to corrupt records without human intervention.

[9] According to the Council of Europe's Recommendations on legal, operational and technical standards for e-voting (2004) (standards 111-112), an e-voting system should be subjected to a certification process introduced by the public authority responsible for procuring or defining the necessary requirements of an e-voting system. The certification process should allow for any ICT (Information and Communication Technology) component in the chosen e-voting solution to be tested and certified as being in conformity with the technical requirements set up by the same authorities. In addition, end-to-end auditing including recording, providing monitoring facilities and providing verification facilities should also be undertaken (standards no. 100-110). See Recommendation Rec(20045)11 of the Council of Europe on legal, operation and technical standards for e-voting. Available at:
http://www.coe.int/t/dgap/democracy/activities/GGIS/E-voting/Key_Documents/Rec(2004)11_Eng_Evoting_and_Expl_Memo_en.pdf

[10] According to the Council of Europe's "Legal, operation and technical standards for e-voting", standard no. 24, the components of an e-voting system should always be disclosed, at least to the competent electoral authorities, for verification and certification purposes.

[11] Open source is a philosophy, or pragmatic methodology in production and development that promotes free redistribution and access to an end product's design and implementation details, typically employed for software solutions. There is an international discussion whether such a critical system that touches upon the core of democracy should be validated according to the methodology of open source, the argument for this being that open source entails greater transparency, perceived as the hallmark of democratic elections.

[12] In the experience of the Ministry, the large majority of the spoiled votes have not been purposefully spoiled by the voters; the majority of the voters having cast a spoiled vote other than a blank vote are thus under the wrong impression that their vote has been correctly cast and counted and forms part of the overall result.

SJ20130213103259388

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:32:59
Dokumentnr.: 8180
Titel: Endelig rapport fra teknisk dialog om e-valg til kommunerne
Dokumenttype: U
Dokumentdato: 24-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 24-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:

Modtager	Bornholms Regionskommune , Ullasvej 23
Modtager	Frederiksberg Kommune , Smallegade 1
Modtager	Gentofte Kommune , Bernstorffsvej 161
Modtager	Glostrup Kommune , Rådhusparken 2
Modtager	Kolding Kommune , Akseltorv 1
Modtager	Odense Kommune , Flakhaven 2
Modtager	Odder Kommune , Rådhusgade 3
Modtager	Vejen Kommune , Rådhuspassagen 3
Modtager	Aabenraa Kommune , Skelbækvej 2
Modtager	Aalborg Kommune , Boulevarden 13
Modtager	Aarhus Kommune , Rådhuspladsen 2
Modtager	KL , Weidekampsgade 10
Modtager	Brøndby Kommune , Park Allé 160
Modtager	Faaborg-Midtfyn Kommune , Tinghøj Allé 2
Modtager	Vesthimmerlands Kommune , Himmerlandsgade 27
Modtager	Københavns Kommune , Rådhuset

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Nicoline Nyholm Miller
Sendt: 24. september 2012 15:16
Til: 'post@brk.dk'; 'raadhuset@frederiksberg.dk'; 'gentofte@gentofte.dk'; 'glostrup.kommune@glostrup.dk'; 'kommunen@kolding.dk'; 'odense@odense.dk'; 'odder.kommune@odder.dk'; 'post@vejenkom.dk'; 'post@aabenraa.dk'; 'aalborg@aalborg.dk'; 'post@aarhus.dk'; 'kl@kl.dk'; 'kbs_sekretariat@okf.kk.dk'
Cc: 'Jacob Poulsby Andersen (JAS@kl.dk)'; 'Mette Marie Sundbøll'; 'jel@aarhus.dk'; 'Lene Hartig Danielsen (lha@aarhus.dk)'; 'Anette Lund Hansen (BJ7H@okf.kk.dk)'; 'JOBN@Odense.dk'; Janus Sandsgaard; 'jbp@aabenraa.dk'; 'birgitte.harpelund@glostrup.dk'; 'pernille.andersen@glostrup.dk'; 'hellek.mortensen@glostrup.dk'; 'lene.jahger@glostrup.dk'; 'jorgen.larsen@odder.dk'; 'hjpn@gentofte.dk'; 'susk@kolding.dk'; 'rlai@kolding.dk'; 'jeron@faaborgmidtfyn.dk'; 'mhoug@faaborgmidtfyn.dk'; 'bth@frederiksberg.dk'; 'anje02@frederiksberg.dk'; 'mhr@vejenkom.dk'; 'bhe@brondby.dk'; 'sni@vesthimmerland.dk'; 'lni@Gentofte.dk'; 'Lene.Vinberg@brk.dk'; 'John.Westh@brk.dk'; 'mpk@aalborg.dk'; 'lmha@odense.dk'; 'thomas.jakobsen@okf.kk.dk'
Emne: Endelig rapport fra teknisk dialog om e-valg

I forlængelse af ministeriets mail af 19. september 2012 vedrørende ministeriets tekniske dialog og tentativt overslag over de økonomiske udgifter forbundet med deltagelse i kommende forsøg med e-valg, vedhæftes her den endelige rapport om ministeriets tekniske dialog, som til forskel fra tidligere fremsendt udkast indeholder en engelsk oversættelse af det tidligere fremsendte prisoverslag. Rapporten vil blive lagt ud på ministeriets valgsubsite valg.im.dk senere i dag eller i løbet af i morgen.

Evt. spørgsmål til prisoverslag m.v. bedes rettet til undertegnede på valg@oim.dk.

Med venlig hilsen

Valgkonsulent, Kommunaljura
Nicoline Nyholm Miller

økonomi og indenrigsministeriet

Slotsholmsgade 10-12
1216 København K
Telefon 72 28 25 22
Fax 72 28 24 01
valg.im.dk

SJ20130213103312251

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:33:12
Dokumentnr.: 8177
Titel: Summary Report on technical dialogue
Dokumenttype: U
Dokumentdato: 24-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 24-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:
Modtager Siobhan Donaghy ,
Modtager 'cfrutos@indra.es' ,
Modtager SCoyle@opt2vote.com ,
Modtager Jacob Gyldenkærne (jacob@aion.dk) ,
Modtager Kilde, Jesper Lauge ,
Modtager Jose Gorchs ,
Modtager 'john.hancock@drs.co.uk' ,
Modtager Mike Summers, Everyone Counts
Leif Hernø (lfh@kmd.dk) ,
Kopimodt. Kammeradvokaten , Vester Farigmagsgade 23
Kopimodt. Kammeradvokaten , Vester Farigmagsgade 23
Modtager KMD Valg , Lautrupparken 40-42

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra:	Nicoline Nyholm Miller
Sendt:	24. september 2012 15:11
Til:	Helmer.Mette MEH (MEH@kmd.dk); Siobhan Donaghy <sdonaghy@opt2vote.com> (sdonaghy@opt2vote.com); cfrutos@indra.es; SCoyle@opt2vote.com; Mike Summers (mike.summers@everyonecounts.com); Jacob Gyldenkærne (jacob@aion.dk); jesper-lauge.kilde@siemens.com; Jose Gorchs (jose.gorchs@scytl.com); john.hancock@drs.co.uk
Cc:	Leif Hernø (lfh@kmd.dk)
Emne:	Summary Report on technical dialogue

Dear participant in the technical dialogue on a system for e-voting in Denmark,

Thank you again for taking the time and effort to participate in the technical dialogue, and for your kind assistance in providing additional information.

Please find enclosed the Ministry's summary report on the technical dialogue, which will be made publicly available on the Ministry's election subsite (http://valg.im.dk/English/E-voting.aspx) later today or tomorrow. I trust that you will distribute the report to the relevant people in your organization.

Best regards,

Chief Electoral Officer
Nicoline Nyholm Miller

økonomi og
indenrigsministeriet

Slotsholmsgade 10-12
1216 Copenhagen K
Tel. direct: +45 72 28 25 22
Fax: + 45 72 28 24 01
valg.im.dk

SJ20130213103313790

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:33:13
Dokumentnr.: 8178
Titel: Summary Report on technical dialogue
Dokumenttype: U
Dokumentdato:
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 24-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:

Oplysninger:

Datoer:

Erindringer:

økonomi og indenrigsministeriet

Unit
KOMJUR

Case officer
DEPNNM

Case no.
2012-00363

Doc. no.
4765

Date
24 September 2012

Technical dialogue on system for e-voting in Denmark – Summary report

Contents

Executive summary

Following a written request of 27 January 2012 from the mayors of 12 municipalities in Denmark and Local Government Denmark (KL) for permission to conduct binding trials with e-voting at statutory elections, the Danish government decided on 6 March 2012 to introduce a Bill to the Danish parliament that will allow the municipalities to conduct e-voting pilots, where the result of the poll is binding.

The reason for this is that the Danish election legislation will have to be amended in order for the municipalities to be able to conduct binding e-voting pilots, as the law currently implies that voting for statutory elections is done by using a paper ballot and some sort of writing utensil. The Minister for Economic Affairs and the Interior will introduce a Bill to the Danish parliament in January 2013.

As part of the preparation of the legislative and subsequent tender processes, the Ministry of Economic Affairs and the Interior wished to explore the possibilities that the market has to offer at this point in time, and to get an overview of the economic implications of introducing e-voting in Denmark. The Ministry has therefore conducted a technical dialogue with 7 economic operators in the period of 21 August – 3 September 2012. The dialogue was carried out in accordance with the rules of the EU Procurement Directive and the lines indicated by information notice no. 2012/S 122-201846 of 28 June 2012.

The 7 economic operators were selected out of a total number of 11 applications on the basis of their documented experience with development, implementation and operation of electronic voting and counting systems for elections to popularly elected organs. The economic operators were informed that a future e-voting system in Denmark will be used only for non-remote electronic voting in a controlled environment at polling stations on election day and/or for advanced voting on the premises of the municipalities; not for voting over the internet or by other remote voting channels.

The technical dialogue has brought to the Ministry the recognition that there are many economic operators working seriously with e-voting that bring to the customer a wide experience in the field and which have been designing and providing e-voting and e-counting solutions for a number of years. The economic operators invited to the technical dialogue have been involved in providing e-voting solutions for statutory elections in many different countries in the world as well as for numerous organisations.

In the opinion of the economic operators participating in the technical dialogue, the following main advantages can be derived from employing a digital voting and/or counting system:

A. Faster count and results + reduction of administrative resources for manual count
B. More accurate count and tally
C. Voter verifiability that the vote has been counted
D. Provides the disabled with the opportunity to vote without assistance
E. Eliminates involuntarily spoiled ballots while keeping the option to cast a blank vote
F. Additional 'back-up' storage of ballots

The Ministry recommends that the municipal councils which are considering to engage in e-voting pilots have a thorough discussion of these and other possible potential benefits of e-voting and/or e-counting, and ultimately decide which of these should be guiding for the municipalities' overall strategy for conducting e-voting and/or e-counting pilots.

In the opinion of the consulted economic operators, the greatest risks or disadvantages of introducing and employing e-voting and/or electronic counting is not so

much a question of technology flaws or security issues, but more of *perception* and *trust*.

For this reason, some economic operators recommend introducing e-voting by a step-by-step approach, starting out slowly and giving the voters sufficient time to familiarise themselves with the changes and get to trust the system by seeing it work in a satisfactory way in numerous elections.

All economic operators that the Ministry has consulted can provide customized solutions and employ a modular methodology. The economic operators operate in several different countries with a large variety of election systems, where the lesson learned and imparted to the Ministry during the technical dialogue is that no two election systems are the same, sometimes not even within the same country (e.g. USA).

There is no 'fool proof' ready-made solution that can just be picked off the shelf and employed successfully for e-voting in any given country, including Denmark. Hence, if Denmark proceeds with the plans to make its own experiences with e-voting, a number of **choices** will have to be made, *inter alia* whether we should opt for a solution that generates a ballot, or opt for an electronic optical ballot scanner solution with a counting and tallying functionality.

Other things to consider are for example the pros and cons of choosing a dedicated versus a commodity hardware solution, how the votes should be recorded, e.g. on the e-voting machine or by a scanning device connected to the ballot box, whether – if opting for a ballot generator of some kind – voters should be offered the opportunity to verify not only the human readable imprint of their vote, but also any electronic record (bar code or similar), the kind of accessibility functionalities the e-voting solution should offer for the disabled, whether it should be a requirement that the system is open source, and to what extent, and the intended use of the system: is it just for voting at polling stations on election day, or should it also be able to handle mobile advance voting in a controlled environment?

1. Introduction

This report contains a summary of the information received during the technical dialogue between the Ministry of Economic Affairs and the Interior with 7 economic operators on a system for electronic voting in Denmark, as well as a short description of the technology demonstrated by the economic operators. In addition, the report includes a tentative estimate of the probable economic implications of introducing e-voting in Denmark for statutory elections based on the data delivered by the economic operators in the technical dialogue.

Following a written request of 27 January 2012 from the mayors of 12 municipalities in Denmark and Local Government Denmark (KL)[1] to be allowed to conduct binding trials with e-voting at statutory elections, the Danish government decided on 6 March 2012 to introduce a Bill to the Danish parliament that will allow the municipalities to conduct e-voting pilots, where the result of the poll is binding.

The Minister for Economic Affairs and the Interior, who *inter alia* is responsible for all statutory elections in Denmark, stated the following in her press release of 13 April 2012 on the government's decision to allow pilots on electronic voting:

> "We have to modernise the public sector, which makes it natural to exploit the opportunities offered to us by new technology – also with regard to elections. The pilots will show whether e-voting offers any significant benefits, which can entail that we should consider digitalising the polling in the longer term.
>
> One of the benefits is that e-voting can eliminate the pile of spoiled ballots, where the election officials are in doubt about where the voter intended to cross the ballot. Another benefit is that e-voting will enable the visually impaired to vote without assistance. Also, e-voting can render the manual count unnecessary on the longer run, which can save the municipalities some resources.
>
> The challenge is whether it is possible to make e-voting secure enough and keep it within an over-all proper financial framework, which the pilots shall also contribute to clarify. I hope that the municipalities will draw some good experiences from the e-voting pilots so that the technology can be spread out to the whole country."
>
> *Margrethe Vestager*

Before the government and municipalities can move on to a procurement process, the Danish election legislation will as mentioned before have to be amended, as it currently implies that voting for statutory elections is done by using a paper ballot and some sort of writing utensil. The Minister for Economic Affairs and the Interior will consequently introduce a Bill to the Danish parliament, currently scheduled for January 2013.

Purpose of e-voting pilots from the municipalities' point of view

In their letter of 27 January 2012, the 12 municipalities stated that the overall purpose of carrying out one or more e-voting pilots would be to obtain experience with e-voting in a Danish context that could feed into the decision process re. a more general introduction of e-voting in Denmark. The municipalities therefore stressed the importance of a thorough evaluation following the first pilots. The evaluation should *inter alia* focus on technical security, possibility of independent auditing and public control and the voters' experiences related to the employment of an e-voting system with the aim of securing public acceptance of digitally supported elections.

The aim of the municipalities with regard to conducting the first binding e-voting pilots are in particular to establish whether e-voting can:

- improve the accessibility for voters with disabilities, in particular for the blind and visually impaired as well as dyslectics, and to enable more voters to vote independently,
- eliminate the involuntarily spoiled votes (i.e. not the blank votes, which should still be allowed),
- be carried out while retaining a high degree of public control and high system and operational reliability,
- make the recount redundant, or at least lead to a reduction of the administrative resources deployed for the count and recount,
- result in cost improvements for the municipalities on the longer run.

The starting point of the municipalities was thus to gain some experiences on the operation of a system for electronic ballot generating to be employed at the polling stations and/or for advance voting in a controlled environment, and that offers special accessibility functionalities for the disabled and can provide an electronic count and tally.

In order to increase the Ministry's and the municipalities' firsthand knowledge of different e-voting solutions to the challenges mentioned above it was decided to engage in a dialogue with key stakeholders at this early stage about the advantages and risks/disadvantages of e-voting and which requirements should be made to allow e-voting in a Danish context, and to get an overview of different e-voting solutions.

Process preceding the technical dialogue

As a first step, the Ministry organised a workshop[2] on 15 May 2012 in collaboration with the Demtech research project[3] at ITU (IT-University of Denmark) and the Danish Board of Technology with the participation of more than 40 representatives from the IT-community, the municipalities, IT- and social sciences researchers, election experts, interest organisations for *inter alia* the disabled, civil and human rights, the elderly, etc. The purpose of the workshop was to engage key stakeholders as early as possible in the process and gather their input on the desired requirements for a future e-voting system in Denmark, including the necessary procedures for the preparation, safeguarding and carrying out of electronic voting and -counting.

The Ministry works in close collaboration with the municipalities and participates in the steering committee set up by the 12 municipalities and KL to monitor the e-voting project. In consultation with the steering committee, the Ministry decided in the late spring of 2012 to conduct a technical dialogue with economic operators in the field of electronic voting to acquaint itself with the current technological solutions.

In return for the commitment of the Danish government to introduce a Bill that will permit those municipalities that wish to do so to employ electronic voting and counting at statutory elections, the Minister for Economic Affairs and the Interior has asked the municipal councils of the 12 municipalities that originally applied for permission to conduct e-voting pilots for a binding declaration by the 1st of October 2012 of their commitment to allocate the necessary economic and administrative resources required for conducting one or more e-voting pilots.

Shortly after 1 October 2012, the Ministry will decide whether to proceed with its efforts to create the necessary statutory authority to enable municipalities to employ e-voting at statutory elections. If a sufficient part of the 12 municipalities have committed

themselves, the Ministry will as previously mentioned prepare the necessary draft legislation during the autumn 2012 with the aim of introducing a Bill to the Folketing (the Danish parliament) in January 2013. Provided that the Bill is passed, the Ministry and the municipalities will work together to present an invitation to tender in the spring, summer or early autumn of 2013, depending on when the legislative process is concluded.

2. Purpose of the technical dialogue

As part of the preparation of the probable tender process for the supply of a system for non-remote electronic voting and counting (hence referred to as an 'e-voting system'), the Ministry of Economic Affairs and the Interior wished to explore the possibilities that the market has to offer at this point in time, *inter alia* to get an overview of the economic implications of introducing e-voting in Denmark.

The Ministry of Economic Affairs and the Interior has therefore conducted a technical dialogue with 7 economic operators with documented experience with development and implementation of electronic voting and counting systems for elections to popularly elected organs, i.e. elections for national or local parliaments or governments etc.

3. The official announcement

The dialogue was carried out in accordance with the rules of the EU Procurement Directive[4] and the lines indicated by the prior information notice no. 2012/S 122-201846 of 28 June 2012.

Invitation for participation requests to the technical dialogue was issued on 28 June 2012 in TED, the online version of the 'Supplement to the Official Journal of the European Union' dedicated to European public procurement, where the conditions for participation were also stated.[5] The deadline for request by economic operators to participate in the technical dialogue was set to 3 August 2012 at 12:00 noon CEST.

The rules on the right to enter into a technical dialogue with the market are found in point 8 of the recital in the EU directive on public procurement. The rules have been implemented into Danish law by Executive Order no. 712 of 15 June 2011[6] (in Danish) on the procedures for the award of public works contracts, public supply contracts and public service contracts.

4. Selection of participants and procedure for the technical dialogue

Selection criteria

Particularly out of regard for the resources allocated by the Ministry to carry out the preliminary study, the Ministry decided that a maximum of eight economic operators/partnerships would be invited to the technical dialogue. In the event that more than eight economic operators/partnerships requested to participate in the technical dialogue, the Ministry of Economic Affairs and the Interior would invite all economic operators/partnerships that have documented experience with development, delivery, implementation and operation of electronic voting systems for larger organisations/institutions, including in particular public institutions. If more than eight economic operators/partnerships could document such experience, the Ministry would select those economic operators/partnerships that have documented experience with the development and implementation of electronic voting and counting systems for elections to popularly elected organs, i.e. elections for national or local parliaments or governments etc. In the event that there henceforth were more than eight economic operators/partnerships qualified for selection according to the above mentioned criteria, lots would be drawn amongst these.

Economic operators selected

The Ministry received 11 requests for participation, of which the following 7 economic operators/partnerships were invited to individual meetings on basis of the enclosed documentation of experience with e-voting at statutory elections:

- Indra
- Opt2vote
- Everyone Counts
- Assembly Voting (Aion & Siemens)
- Scytl & Zetes
- KMD & Smartmatic
- DRS Data Services & Dominion Voting

Procedure

For each invited economic operator or partnership the technical dialogue consisted of one bilateral meeting between the economic operator(s) in question and the Ministry of Economic Affairs and the Interior and its partners. The meetings each lasted approx. 3 hours, of which approx. 45 minutes were set aside for a demonstration of the e-voting system of the economic operator(s) in question.

The meetings took place during the period of 21 August – 3 September 2012. All applicants were informed that participation in the technical dialogue is neither a precondition for participation in the anticipated procurement, nor will it improve the chances of participating economic operators for eventual prequalification. The economic operators were informed that the Ministry as a public authority is subject to the Danish Public Records Act and thus can be obliged to give access to documents etc. to the extent following from its obligations under this Act, but that any request for confidentiality re. information imparted during the oral technical dialogues would be respected by the Ministry as far as possible.

5. Framework and meeting agenda

Framework

The economic operators were informed that a future e-voting system in Denmark will be used only for **non-remote electronic voting** in a controlled environment at polling stations on election day and/or for advanced voting on the premises of the municipalities; not for voting over the internet or by other remote voting channels. The system should thus be employable for the following phases: preparation of the equipment before the election, polling, counting and notification of the results as well as packing and storing.

The system should also be adaptable to the Danish context and election legislation and traditions, i.e. *inter alia* be designed to secure a high degree of recognisability for voters and a continued high trust in elections. The Danish turn-out is among the highest in the world for countries where voting is not mandatory (87.7 per cent at the last general election in September 2011; approx. 65 per cent at local elections). The system must therefore be designed in such a way that the high turn-out and trust in elections are maintained.

Digitalization of the polling implies that some of the control mechanisms meant to ensure public control with the elections will be replaced by digitalized procedures, which can only be checked by specialists with particular insight in it-systems etc. Public control mechanisms in a Danish context would e.g. be the demonstration and subsequent sealing of the empty ballot boxes in front of the voters in attendance before the elections commence at 9:00 a.m., and the voters' right to watch the manual count of the votes after the election is closed at 8:00 p.m. To ensure a continued high trust in elections – hitherto obtained and preserved *inter alia* via the aforementioned public control mechanisms – the Ministry was therefore also interested in obtaining information on

alternative control mechanisms, which provide the voter with a comparable high degree of trust that the polling has progressed correctly, i.e. without system failures or any manipulation with the elections. The system should also be trustworthy and robust and ensure that the election can continue even if the system malfunctions partly or completely during the polling.

The system should also guarantee the secrecy of the vote, which in the Danish context entails that the voter not only has the *right* to keep his/her vote secret, but is also under the *obligation* to do so, i.e. the voter is not free to show his/her vote to others. In addition, it must be impossible to connect a voter and the vote he/she has cast, including indirectly by e.g. logging or electronic detection of screen displays or the like by external devices etc.

The system should finally also be user-friendly and readily accessible to all voters, including voters with disabilities. The Ministry was therefore interested in a presentation of any measures that could render the polling more accessible to voters with disabilities, preferably allowing them to vote without assistance.

Agenda

Before each meeting, the Ministry of Economic Affairs and the Interior sent out an agenda to all participating economic operators reflecting the general framework, where it was stated that the Ministry wished to gain closer insight into *inter alia* the following issues:

1. Protection of the secrecy of the vote in general by the e-voting system.
2. Protection of the secrecy of the vote in particular by the use of dedicated hardware vis-à-vis the use of non-dedicated hardware, including processes for safe destruction of sensitive data.
3. The securing by the e-voting system that the polling has passed off without incident, including by the production of a physical manifestation of the vote (VVPAT or similar) that can both offer sufficient proof to the voter that the polling has passed off correctly and be included in a manual recount.
4. The safeguarding by the system of correct polling and registration of the vote and the possibility to control that the system has not failed or been manipulated along the way (security).
5. The possibility to secure accessibility to the system for the disabled.
6. The economic implications of introducing the e-voting system of the company/ies in question in Denmark, divided into the expenses for a) the purchase or leasing/accommodation of hardware, b) the purchase or leasing of soft ware, c) service and operation, back-up, training, maintenance etc.
7. Possibilities for further development of the system and possibilities to adjust the e-voting system for future needs and update it to exploit new technological possibilities (possibility for agile development and innovation).
8. Possibility of scaling of the system, including information on the possibility to separate the polling and counting functionalities, so that the system initially could be limited to ballot marking, but later can be connected to a digital counting device if desired.
9. Usability in general and for the disabled in particular
10. Advantages and gains of e-voting in general and in particular from employing the e-voting solution demonstrated

6. Demonstration of solutions

The Ministry was presented with 7 solutions for digital voting and/or counting. Based on the description given in the EU information notice of the preliminary considerations by the Ministry and municipalities as to the framework of the upcoming e-voting pilots, the economic operators presented **six different ballot generating systems** with the optional possibility of adding e-counting/scanning devices and **one ballot scanner**

solution. The economic operators offered a demonstration of some of their voting/counting equipment that the economic operators estimated would be relevant in a Danish context.

The e-voting and e-counting solutions demonstrated were for the most part only one of more options among many other different solutions and services that the economic operators could provide. Examples of other electronic voting schemes and services were briefly touched upon during the economic operators' presentations (e.g. internet voting remotely or via connected terminals at polling stations, central optical scanners, DRE's with or without paper trail, election management solutions, etc.), but will not be further discussed or described in this report.

A. Ballot generator solutions

All ballot generator solutions demonstrated are more or less structured in the same way:

After being matched against the electoral register at the polling station, the voter is handed a token which can either be a smartcard with a chip similar to a credit card or a cardboard card with an integrated RFID-chip. The token can either be handed to the voter, or the voter can choose any random token from e.g. a tray to enhance the voter's trust that his/her privacy is protected and that the token does not contain any personal information on the particular voter.

The token can be initialized before the election (which will take time) or for reasons of time constraint and transparency be initialized at the polling station by the election official in front of the voter or ultimately by the voter him/herself. The token can be stored with particular information identifying e.g. the voting district that the voter belongs to (which is relevant if the voter is e.g. voting in advance and needs a different ballot than the one that corresponds to the particular municipality where the advance voting is taking place) or whether the voter is disabled and special features need to be activated in the ballot generator, e.g. the screen should be turned off etc.

The voter inserts the token into the ballot generator placed in the polling booth. The token initializes the machine and activates the ballot interface. All solutions demonstrated employ a touch screen, where the voter makes his/her choices by touching the different options on the screen. Most solutions offer a multiple layer solution, in which the voter first is presented with a frame enlisting the different parties and the option to cast a blank vote. If the voter wishes to cast a preferential (personal) vote for a particular candidate, the voter has to choose the party that the candidate belongs to in order to be presented with a new frame showing the different candidates that are standing for the party in question. The interfaces shown varied a great deal in design and usability, but all economic operators assured that the interface could be customized to fit the customer's wishes.

The voter then has to confirm his/her choice and a ballot is printed by the machine. Systems employing smartcards will print a separate ballot on paper (different qualities and thicknesses were demonstrated, but can almost always be customized), where the vote is printed in both a human readable format (fonts etc. can be customized) and a 2D bar code that enables electronic counting and tallying. The bar codes displayed on the ballot papers are encrypted and cannot be read with mobile phone QR-scanners or similar. Systems employing a card board card with RFID will print the vote in a human readable format on the same card used to initialize the ballot generator and store the encrypted electronic readable reproduction of the vote in the RFID (other solutions are also being considered).

All solutions that include storage of the vote on a 2D bar code offer some kind of verifiability functionality, so the voter can choose to scan the bar code and verify that it corresponds to the human readable text imprinted on the ballot paper. The verifiability scanner can either be integrated in the ballot generator so the voter can immediately

check the bar code in the same voting booth after the ballot is printed, or be placed in a separate location, e.g. a secluded booth.

Solutions that employ a smartcard entail that the smartcard has to be deposited by the voter after the voting is completed; different solutions for this were demonstrated.

The voter then proceeds to the ballot box and scans the ballot him/herself and deposits it in the ballot box. Some solutions entail that the voter has to scan the ballot and then insert it manually in the ballot box, while others offer transactional operation, meaning that the ballot is placed manually in a slit or similar in the ballot box and then trapped and deposited mechanically into the ballot box. According to the economic operators, either solution will require a trade-off between the benefits the different choices offer and some of the disadvantages they result in in return.

When the polling is closed at 8:00 p.m, the votes can either be counted manually and/or electronically, where after the system procedures a report of the electronic count and tally. The electronic counting solutions can produce reports on both the number of party cotes and personal votes etc. The results can be transmitted to the central tabulation computer either by a secure wireless internet system, modem or 3G or by a USB-stick protected by passwords and encryption, etc. and then collected and inserted into the central computer and tallied there.

Common to all solutions demonstrated is that the ballot is not stored in the ballot generator, but only on the printed ballot, until it is introduced in the ballot box, where it can be scanned and stored electronically or simply inserted for manual count without any electronic recording of the ballot. Other options briefly discussed besides printing of individual ballots include real-to-real and cut-&-drop paper recording of the vote.

B. Optical ballot scanning and e-counting solutions

One vendor demonstrated an alternative approach, in that this vendor unlike the other six does not supply a ballot generator, but an optical scanner that can scan paper ballots marked by hand by the voter.

After being checked in the electoral register, the voter is handed a paper ballot similar to the one currently used. The design of the ballot can be customized according to the customer's wishes. The voter marks the ballot with a pen, ticking off or filling in a box or circle beside the party or candidate of his/her choice.

The voter then proceeds to the ballot box, which is mounted with a scanning device, a tabulator and a screen. The voter inserts the ballot in the scanner, which will read the ballot and show the result on a screen so the voter can verify his/her selections. The machine can via the screen alert the voter if he/she has invalidated the vote by filling it out incorrectly or not filling it out at all (a blank vote). The voter can then decide whether to cast the vote or retract it if it has been filled out incorrectly and the voter wants to exchange the ballot. The ballot is transitioned mechanically into the ballot box. The solution includes measures for protection the secrecy of the vote (e.g. a card board folder).

7. Questions discussed

Apart from the demonstrations of their e-voting and e-counting solutions, the economic operators provided answers to the Ministry's questions related to the different topics listed on the agenda, cf. section 5 above. Among these were:

7.1. Protection of privacy and the secrecy of the vote

All economic operators have been required to identify the greatest risks to privacy and the secrecy of the vote and to demonstrate how their solution mitigates the risks identified, as well as to share their experience on what technical and procedural safeguards it would be recommendable to implement.

Most solutions do not entail any connection between the identity of the voter and the ballot, as they are based on the hand out of a randomly chosen token to the voter for initialisation of the ballot generator and do not store the vote on the ballot generator, or are based on the hand out of a paper ballot like today. Some of the systems have originally been developed for the internet and do require an initial storage of both the authentication data and the vote, but these systems nevertheless have technical solutions in place to protect privacy and the secrecy of the vote (separation of databases for authentication and storage of votes and 'double envelope'[7] systems).

All economic operators have considered the secrecy of the vote in the handling of the ballot.

The electronically generated ballots can be folded to hide the human readable depiction of the vote and only expose the 2D bar code, which is not readable by the human eye. In addition, the bar codes are encrypted so that the bar code cannot be read by a scanner in a mobile phone or other device except for the system scanners containing the algorithm to decrypt the bar code, and no two bar codes are alike irrespective of the choice they represent. The economic operators are also all aware that the ballot should be the same length regardless of the choice it contains to retain the secrecy of the vote.

Most economic operators prefer smartcards to RFID-cards stating security reasons, claiming that cards with RFID-chips could be read or jammed from a distance by hardware that is relatively cheap and easy to buy from the internet. Additionally, smartcards can be reused many times; it is also not necessary to procure a smartcard for every voter, as they can be reinitialized after being used by a voter.

Economic operators favouring RFID have countered that the use of RFID allows the token to be used both to initiate the machine and to store the vote, thus reducing the complexity of the voting procedure for the voters. Additionally, the RFID-chip can according to the economic operators be protected against eavesdropping or jamming by putting the right procedural safeguards in place. Finally, the economic operators offering a RFID-solution contested that RFID-cards are more expensive to procure than smartcards, although it was not disputed that an RFID-solution will entail the need to buy one card for every voter and that they *ipso facto* cannot be reused.

Most solutions shuffle the votes before decryption to ensure that they are recorded in a random and different order than they were cast, so no one can restore a connection between the voter and the votes on the basis of electronic or manual time-logging or similar.
Regarding optical ballot scan systems that scan a regular hand-filled ballot, the ballot has to be inserted into the scanner in its full length, i.e. it cannot be folded to protect the secrecy of the vote. However, as mentioned in the description of the system above, a card board folder can be provided to hide the text of the ballot, which can also be inserted with the text down or in a secluded environment.

7.2. Dedicated versus non-dedicated hardware

Most economic operators employ dedicated hardware in their solution, although in combination with commodity hardware for e.g. optical scanners, touch screens etc. The hardware encased in the ballot generator machines is mostly industrial standard components. The dedicated ballot generator machines have an average life span of 15-20 years according to the economic operators . The main argument of these eco-

nomic operators for employing dedicated hardware is *security*, claiming that dedicated hardware offers better security against visual and electronic eavesdropping, and better logical protection. Also simplified installation, deployment and maintenance are cited by the economic operators as some of the important benefits of dedicated hardware as opposed to a solution based solely on standard off-the-shelf components.

A couple of the solutions demonstrated to the Ministry were based solely on commodity 'off-the-shelf' hardware; one of the economic operators providing such solutions argued that the trend in their opinion is moving away from procurement of expensive dedicated hardware with what it entails of warehousing, maintenance, and obsolescence issues to software and services. Economic operators that base their solutions on commodity hardware offer to install their software in a wide variety of hardware components, and claim that it is possible to reduce costs further by leasing the hardware, arguing that the commodity hardware can be securely wiped after elections and reused for other purposes.

The economic operators have summed up the advantages and disadvantages of dedicated hardware versus non-dedicated hardware as follows during the dialogue:

	Dedicated hardware	**Commodity hardware**
Easier to restrict access to parts and internal hardware	✓	
Easier installation and technical assistance	✓	
Easier to use for voter and election officials	✓	
No need for software portability (software only needs to be developed and tested for one type of hardware)	✓	
Replacement of components	✓	✓
Ensure privacy	✓	✓
Less costly		✓
Possibility to reuse HW for other purposes		✓
HW independence		✓

7.3. Voter-verifiable paper audit trail (VVPAT)[8]

All solutions presented by the economic operators at the technical dialogue provide some sort of paper trail in accordance with the framework set out in the information note. Most solutions were presented as "ballot generators", as it was the understanding of most economic operators that the Danish authorities preferred a solution that generated an actual paper ballot that would not be counted in the ballot generator, but should be inserted in a ballot box with the option of optical scanning for rapid recording of the vote (by adding a 2D bar code or OCR imprint of the vote). The optical ballot scanning solution presented by one of the economic operators also involves a paper ballot, as it relies on a traditional hand filled ballot.

7.4. Security and safeguarding

The question of ensuring security against malfunction and internal as well as external attacks was one of the primary focus points of the discussions during the technical

dialogue. All economic operators have a great range of different technological and procedural safeguards in place to mitigate these risks.

Among the safeguards mentioned were the following, which do not necessarily apply to all solutions, but are useful to keep in mind when considering the requirements for a future Danish e-voting solution:

- Strong **layer-upon-layer cryptography** applied to ballots, software, etc.
- Production of **zero tallies** before the polling commences to prove that the ballot box is empty – the zero tally can be designed in such a way that it will automatically erase anything in the memory component if something should accidentally or deliberately be stored there,
- Possibility to employ **time locks** to ensure that the system can only be activated at a fixed time, e.g. during the poll,
- System **integrity, availability and authenticity tests**,
- **Ballots are not stored electronically on the ballot generators**,
- Ballots are **decrypted by a quorum** after the polls are closed, and the decryption keys are created only by the quorum after the election,
- Systems (e.g. holograms etc.) **prevent ballots from being copied, submitted, and/or counted multiple times,**
- Security against **electromagnetic eavesdropping,**
- **Tampering and malfunction alarms,** which either go off with a loud sound in the voting booth or are communicated more discreetly to the polling supervisor via a headset,
- **Entrances in ballot generators are secured** with physical keys and strips/seals,
- **Mathematical proofs** of decryption and counting are run after the elections to make sure that the ballots have not been tampered with and that the system has functioned correctly,
- **Hardware is standalone** during polling hours,
- **Ballots are shuffled** before they are decrypted to protect privacy and secrecy of the vote,
- Storage of **images of every ballot,**
- **Cameras** survey data centres,
- **Restriction of access** to core services differentiated according to user identity or user role & requirement of **user authentication,**
- **Splitting of security keys and passwords** between two or more trusted polling supervisors or members of the election committee, so no official can start or close the system and/or procedure the results alone.

Despite all these and more security provisions, some of the economic operators contended that a significant number of threats can and should rather be mitigated by ensuring that the right protocols and procedures are in place. Security should be looked at as involving a combination of people, process and product that all have to work together.

Audit and certification

Most economic operators presented a wide range of certificates and credentials achieved from their work with election systems for other customers around the globe.[9] Many of the systems provided by the economic operators that participated in the technical dialogue have been audited by 'the big four' auditing economic operators (PwC, Ernst & Young, Deloitte and KPMG) as well as by academics employed by the customers etc. The economic operators are thus accustomed to having to comply with different standards and undergo different certification and audit procedures and prepared to do so also in a Danish context.

Open source

Assessment that an e-voting system functions correctly and that security is maintained is very essential to validate the results of an election and retain the publics' trust in the electoral process.[10] This assessment can be done by the independent evaluation or as mentioned above certification of the system as a whole or of its components, which requires disclosure of the critical system elements. The assessment can be carried out through, for example, disclosure of the system design, inspection of detailed documentation, source code disclosure, inspection of component evaluation and certification reports, in-depth penetration testing, etc. The actual level of disclosure of the system elements needed to achieve appropriate assurance depends on the specific features of the system, its components and the services provided. In this context, one of the questions that need to be addressed is whether the system provided should be "open source".[11]

All economic operators declared themselves ready to hand over the system software for independent review, while retaining property of the solution. Many of the solutions use Linux based operating systems. Some economic operators sell the software to the customer to do with it as the customer seems fit, including having other economic operators or in-house capacities develop the software, others provide the software on a license basis.

7.5. Accessibility for the disabled

All solutions demonstrated to the Ministry during the technical dialogue have different accessibility features that allow one or more specific groups of disabled voters to vote without forfeiting the anonymity of their vote, i.e. by enabling them to vote without assistance by a third party, e.g. a family member or election official. The solutions have all been developed and tested in cooperation with different local associations for the disabled and live up to different national and international standards.

All solutions include a feature for blind and visually impaired that incorporates some kind of audio 'read aloud' functionality. The Ministry discussed with the economic operators ways to ensure that a blind or visually impaired voter would know which way to fold the ballot to fold it correctly, so the human readable text is not shown to anyone else before or during the insertion of the ballot into the ballot urn.

Other functionalities presented allow for the use of sip-and-puff devices, joy sticks, buttons, pedals, head-and-mouth pointers, enlarged fonts on screens, and key boards. The solutions that employ smartcards to initiate the ballot generator machine all have the possibility to have information added to the smartcard indicating that the voter is blind/visually impaired or otherwise disabled, thus instructing the ballot generator to either turn off the screen or allow the use of a special feature.

All economic operators of ballot generators emphasized that the different disability functionalities as default are added to *all* ballot generator machines, so voters needing these functionalities can choose any voting booth containing the machine instead of being assigned to a particular voting booth, with the exception of the optical scanner solution.

A common fact for all systems for the disabled to take into account according to the economic operators is that voting for the disabled using any of the described functionalities will invariably take longer compared to a non-disabled voter.

7.6. Economic implications

Preconditions
As previously mentioned, the economic operators have demonstrated several technical solutions essentially spanning from optical scanning and e-counting of hand-filled paper ballots to ballot generating systems with optional e-counting functionalities. The different systems demonstrated during the technical dialogue are built up from different technical solutions of varying complexity and with different choices of components (dedicated/non-dedicated hardware etc.), which is reflected in the tentative pricing quoted by the economic operators.

The tentative level of expenditure stated below has been calculated on the basis of an isolated e-voting pilot and therefore also encompasses non-recurrent expenses for procurement of ballot generators and/or e-counting equipment etc. The equipment can be reused as a starting point if the evaluation of the pilot is positive and permission is given for more pilots or e-voting is permitted on a more general basis. The hardware has an estimated life span of at least 7-9 elections. Furthermore, the Ministry estimates that expenses for training, project management and voter information (see the listing of expenses below) will be relatively high for the first pilots and then gradually decrease.

The calculations have been made on the basis of a turn-out of 88 %, which is rather high and corresponds to the turn-out at parliamentary elections. If the calculation is based on a lower turn-out, e.g. corresponding to the usual turn-out at local or European Parliament elections, the number of hardware units required for e-voting and/or e-counting will probably be somewhat lower.

An average of the prices indicated by the economic operators for comparable equipment has been employed for the calculation of the following *tentative, overall cost estimates*. It has furthermore been presupposed re. the prices for ballot generating systems that all voters in attendance at the polling station will cast an electronic vote and that "intelligent" ballot boxes are employed for the recording, counting, and tallying of the electronically generated ballots.

The price estimates below are as previously mentioned based on information imparted by the economic operators during the technical dialogue and are meant to give an indication of a *possible* price range. However, it is not possible at this given time to say how the market will react in a real competition situation when the Ministry initiates a tender process to enable limited pilots, including whether a lower pricing could be expected.

Price estimates
The total price estimates below include expenses for:

- Hardware (depending on whether the chosen solution includes optical ballot scanners or ballot generators, digital ballot boxes with e-counting functionality, tokens and other hardware),
- Software

- Technical support before and on election day
- Training of election officials
- Project management and implementation
- Voter information
- Independent control of equipment and audit
- Evaluation

Expenses for technical support, training, project management and implementation, voter information, control and audit, and evaluation are estimated.

A. Polling station with 2,500 voters

The total expenses including the elements listed above will, depending on the chosen solution and the technological setup etc., roughly estimated amount to **250,000 – 450,000 DKK** for an e-voting pilot on a polling station with 2,500 voters.

B. Polling station with 5,000 voters

The total expenses including the elements listed above will, depending on the chosen solution and the technological setup etc., roughly estimated amount to **350,000 – 750,000 DKK** for an e-voting pilot on a polling station with 5,000 voters.

C. Polling station with 10,000 voters

The total expenses including the elements listed above will, depending on the chosen solution and the technological setup etc., roughly estimated amount to **550,000 – 1.1 mill. DKK** for an e-voting pilot on a polling station with 10,000 voters.

Potential reductions in expenditure
The number of election officials needed at the polling station is estimated to be un-changed on election day and during the counting and recounting during the first e-voting pilot.

In the event that a number of elections is subsequently carried out employing optical ballot scanners or ballot generators combined with an e-counting functionality, the electronic counting and tallying might in time partly or completely replace the manual count of the ballots at polling stations and eventually also the recount, resulting in reductions of administrative expenditure.

7.7. Innovation, agile methodology and possibilities for further development (transferability)

All economic operators stated that their systems are continuously being updated and developed and that they employ an agile methodology, including new technological possibilities as they arise. New versions always leverage market improvements, and there is independent evolution of each component. Some of the economic operators shared some future plans for development of their systems.

Training and services

All economic operators offer training and services as part of their solution. Training can be designed to meet the customer's need. Many economic operators provide e-learning tools as a supplement to on-site training. Most economic operators employ a train-the-trainer methodology, as it *inter alia* is viewed as most cost-effective. Some international economic operators usually choose to work with a local partner to provide support and other services. All manuals can as a rule be provided in the customer's local language (i.e. in Danish), and calling centres will be staffed with native speakers.

7.8. Scalability and separation of functionalities

All economic operators informed the Ministry that their solutions could easily be scaled and cited a number of past experiences where it had been necessary to upscale the solution rapidly. The solutions are all built according to a modular approach, which means as previously mentioned that the solutions can be customised in a number of ways to meet the demands of the customer.

The ballot generator-solutions can be progressively introduced, so that initially the machine only marks the ballot, and the e-counting functionality is added at a later stage when voters have grown comfortable with e-voting. However, one economic operator argued that the ballot counting functionality is the least costly when it comes to an ballot generator-solution and concurrently one of the most beneficial. The economic operator therefore recommended that the Ministry and municipalities opt for the full end2end solution from the beginning. The voter verification station could also be added at a later stage, but one economic operator argued that this functionality is important to implement in the beginning, where voters most likely will be more sceptical and eager to verify the bar code on their ballot to make sure that the machine has worked as intended.

Implementation

Most economic operators stated a lead time of between 6-18 months from contract signing to election day. This period will however depend on the scale of the procurement; if the solution is being procured only for a limited pilot of 10-30 polling stations, the implementation time of the system will naturally be shorter than if the solution is being procured for the whole country. Stages to be considered when drawing up the project plan include blue print stage (for definition of inter alia the requirements), voter engagement and information campaign (should be initiated as soon as possible and in good time before the election), adaptation of solution to Danish legislation and standards and approving of design, independent review/certification of HW, SW, and procedures, manufacture of machines, tests and mock election(s), sealing, training of election staff and finally roll-out of solution, delivery tests etc. However, all economic operators that the Ministry has met with have vast experience in adapting and customising their solutions to meet the specific needs of the customer, and can also offer some flexibility re. implementation.

8. Advantages and risks/disadvantages of electronic voting and counting

Advantages

In the opinion of the economic operators participating in the technical dialogue, the following main advantages can be derived from employing a digital voting and/or counting system:

A. More accurate tallying

Electronic counting can offer more accurate tallying and as good as eliminate human errors in the counting process.

Some of the economic operators recommended that when manual counts are to be conducted for audit purposes after the electronic tallying (either as a complete recount or random checks), a proper procedure should be implemented to minimize human error. E.g. counts should be undertaken by independent auditors or officials that have not been participating in the election all day, where the risk of them not being capable of conducting a recount under optimal conditions is significantly enhanced compared to if you bring in a "fresh" team. Also, the recount should be undertaken in teams of 2 or 3, where all individuals must agree on the result before it is compared with the electronic tally.

B. Voter verifiability

All the demonstrated electronic counting systems offer the voter the possibility to scan his/her ballot before inserting it in the ballot box either manually or by transitional operation. Hence, the voter is enabled to verify him/herself that the vote is actually counted, which is not possible in the traditional paper based and manually counted elections.

C. Provides the disabled with the opportunity to vote without assistance

All the systems demonstrated during the technical dialogue include features that are designed to enable voters with disabilities to cast their vote without assistance. The range of disabilities covered by the different solutions and their usability vary, but all do to some extent make it possible for some groups of disabled voters to cast their vote unsupervised (cf. section 7.5. below).

D. Eliminates involuntarily spoiled ballots while keeping the option to cast a blank vote

All the demonstrated solutions can prevent the casting of involuntarily spoiled votes, while still retaining the option to cast a blank vote, as the voter only has the option to mark the ballot electronically with one choice (either a vote for a particular candidate, a particular party or a blank vote.[12]

E. Additional 'back-up' storage of ballots

According to the economic operators, the e-voting solutions contain an extra security provided by the electronic storage of the ballots and results in parallel with the physical storage of the paper ballots. This offers redundancy, as the result of the poll can be reproduced if for some reason the paper ballots should be damaged, destroyed or lost, thus avoiding a second ballot as the ultimate consequence if a significant number of ballots cannot be produced for the count or recount for one of the reasons previously mentioned.

F. Faster count and results & reduction of administrative resources for manual count

E-counting *ipso facto* enables a much faster tally and result. The economic operators informed the Ministry that a faster and more accurate count and tally also offers significant advantages from the administrative point of view of the municipalities, in that it can lead to a reduction of resources allocated to the manual count and particularly to the recount (which could on the long run become redundant). However, this advantage would only manifest itself over time, and should be weighed against the increased economic implications of procuring and maintaining e-voting equipment and the additional staff that will be required to set up, run and pack the equipment after the election.

On basis of the information received by the economic operators on the different potential benefits of e-voting, the Ministry finds that the municipal councils which are considering to engage in e-voting pilots should have a thorough discussion of the enlisted and other possible potential benefits of e-voting and e-counting, and ultimately decide which of these should be guiding for the municipalities' overall strategy for conducting e-voting and/or e-counting pilots.

Risks and disadvantages

The greatest risks or disadvantages of introducing and employing e-voting and/or (to a lesser extent) electronic counting is in the opinion of the consulted economic operators not so much a question of technology flaws or security issues, but more of *perception* and *trust*.

For this reason, some economic operators recommend introducing e-voting by a step-by-step approach, starting out slowly and giving the voters sufficient time to familiarise themselves with the changes and get to trust the system by seeing it work in a satisfactory way in numerous elections. Some economic operators also pointed out that in their experience voters are generally receptive and positive towards the introduction of

technology in the election realm, while scepticism is often mainly expressed by candidates and political parties. Therefore, it is important to conduct independent audits after the elections that can prove beyond any reasonable doubt that the election has not been tampered with and that the results have been correctly counted and tallied.

Notwithstanding, the economic operators also pointed out that the issues of *security against malfunction and manipulation* of an e-voting system as well as the matter of preserving the voter's privacy and the secrecy of the ballot are equally very important issues to consider and protect when drawing up the requirement specifications for a future e-voting/e-counting solution and during the procurement process.

9. Conclusion: Choices have to be made

Most economic operators can provide customized solutions and employ a modular methodology. The economic operators all operate in several different countries with a large variety of election systems, where the lesson learned and imparted to the Ministry during the technical dialogue is that no two election systems are the same, sometimes not even within the same country (e.g. USA).

Therefore, if Denmark proceeds with the plans to make its own experiences with e-voting, a number of **choices** will have to be made, *inter alia*:

- What are the main benefits that the municipalities expect to obtain from an e-voting system, and which kind of solution does best fit these needs taking into account the economical aspects?
- Should e-voting in Denmark be introduced in the form of a ballot generator that marks a ballot paper electronically, or should we opt for an optical ballot scanning and counting device that scans and counts hand-filled ballots?
- If the first option of an electronic voting machine that marks the vote electronically is chosen, should the votes then be recorded on the e-voting machine, or should they only be recorded when a paper ballot or similar is introduced into a scanning device?
- Should the solution be based on dedicated hardware or commodity hardware?
- Should the voters be offered the opportunity to verify not only the human readable imprint of the vote, but also any electronic record (bar code or similar)?
- What kind of accessibility functionalities should be offered to disabled voters?
- Should there be a requirement that the system has to be open source? And to which extent?
- Is the system primarily being considered for voting on election day at the polling stations, or should it also be able to handle advance voting, and if so should it only be used at fixed locations (town halls etc.) or also in mobile environments (e.g. for advance voting at hospitals, the voter's own home, homes for the elderly etc.)?

[1] KL is the interest group and member authority of Danish municipalities.
[2] http://evalg.teknoprojekt.dk/
[3] http://www.demtech.dk/#
[4] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:134:0114:0240:EN:PDF
[5] http://ted.europa.eu/udl?uri=TED:NOTICE:201846-2012:TEXT:EN:HTML
[6] https://www.retsinformation.dk/Forms/R0710.aspx?id=137281
[7] The electronic 'double envelope' systems are similar to the system employed for advance voting today, where the advance ballot until election day is stored in an envelope that is sealed and placed in a new envelope with a covering letter containing inter alia the name and address of the voter. The covering letter and sealed envelope containing the

advance vote are separated the day before election day, when the polling supervisors examine the advance votes and decide whether all formalities have been met and the vote qualifies for consideration.

[8] A voter-verified paper audit trail (VVPAT) or verified paper record (VPR) is a method of providing feedback to voters using an electronic voting system, as it allows voters the possibility to verify that their votes are cast as intended and can serve as an additional barrier to changing or destroying votes. A paper VVPAT is by definition readable by the human eye, and offers the voters the opportunity to directly interpret their vote. The VVPAT may be added a bar code or other electronic readable feature for rapid electronic recording of the votes by scanners etc., and will make it more difficult for voting machines to corrupt records without human intervention.

[9] According to the Council of Europe's Recommendations on legal, operational and technical standards for e-voting (2004) (standards 111-112), an e-voting system should be subjected to a certification process introduced by the public authority responsible for procuring or defining the necessary requirements of an e-voting system. The certification process should allow for any ICT (Information and Communication Technology) component in the chosen e-voting solution to be tested and certified as being in conformity with the technical requirements set up by the same authorities. In addition, end-to-end auditing including recording, providing monitoring facilities and providing verification facilities should also be undertaken (standards no. 100-110). See Recommendation Rec(20045)11 of the Council of Europe on legal, operation and technical standards for e-voting. Available at:
http://www.coe.int/t/dgap/democracy/activities/GGIS/E-voting/Key_Documents/Rec(2004)11_Eng_Evoting_and_Expl_Memo_en.pdf

[10] According to the Council of Europe's "Legal, operation and technical standards for e-voting", standard no. 24, the components of an e-voting system should always be disclosed, at least to the competent electoral authorities, for verification and certification purposes.

[11] Open source is a philosophy, or pragmatic methodology in production and development that promotes free redistribution and access to an end product's design and implementation details, typically employed for software solutions. There is an international discussion whether such a critical system that touches upon the core of democracy should be validated according to the methodology of open source, the argument for this being that open source entails greater transparency, perceived as the hallmark of democratic elections.

[12] In the experience of the Ministry, the large majority of the spoiled votes have not been purposefully spoiled by the voters; the majority of the voters having cast a spoiled vote other than a blank vote are thus under the wrong impression that their vote has been correctly cast and counted and forms part of the overall result.

SJ2013021310332561

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:33:24
Dokumentnr.: 7896
Titel: Godkendelse af referat møde teknisk dialog med AION og Siemens - 28.08-2012 [DOK1024162]
Dokumenttype: I
Dokumentdato: 21-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 21-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:
Afsender Jacob Gyldenkærne (jacob@aion.dk) ,

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Jacob Gyldenkærne <jacob@aion.dk>
Sendt: 21. september 2012 12:31
Til: Nicoline Nyholm Miller
Cc: jesper-lauge.kilde@siemens.com
Emne: Re: Referat møde teknisk dialog med AION og Siemens - 28.08-2012 [DOK1024162]

Kære Nicoline

Vi har kigget referatet igennem, og har ikke nogle indvendinger til det skrevne.

Vil dog gerne pointere, at vores arbejde med OCR-baseret version er en konsekvens af en generel forskningsbaseret kritik af systemer, der på terminal-niveau skal konfigureres fra valg til valg. Det handler om datasikkerhed, og om muligheden for at udøve af reel folkelig kontrol over valghandlingen ifm. med den tekniske konfigurering af stemmeterminaler på valgstedet.

Vi arbejder hårdt videre på sagen :)

Rigtig god weekend

--
Mange hilsner

Jacob Gyldenkærne
adm.dir., partner

Aion ApS - Assembly Voting
+45 2684 6644
jacob@aion.dk

Assembly Voting v. IT Universitetet
Rued Langgaardsvej 7, 5te
2300 København S

aion.dk
assemblyvoting.dk
demtech.dk
valgeterdit.net

Om Assembly Voting

Assembly Voting er baseret på ideen om at styrke den demokratiske deltagelse i samfunds- og foreningsliv, gennem sammentænkning af demokratiske processer og nye teknologiske muligheder for debat, brugerinddragelse og sikre valghandlinger. Vi var den første udbyder af elektroniske valg i Danmark, og er i dag markedets største leverandør med ansvaret for 300 lov- og vedtægtsbestemte valghandlinger med mere end 6.000.000 vælgere. Assembly Voting er partner i forskningsprojektet DemTech ved IT Universitetet i København, der er blandt verdens største satsninger på udvikling af sikker teknologi til elektroniske valghandlinger. Assembly Voting er et samarbejde mellem **Siemens A/S** og **Aion ApS**.

Den 20. sep. 2012 11.00 skrev Nicoline Nyholm Miller <nnm@oim.dk>:

Kære Jesper og Jacob

Jeg beklager, at det først nu har været muligt at udsende referat fra vores tekniske dialog – jeg vil bede jer om at øje det hurtigt igennem og sende mig jeres evt. bemærkninger i løbet af i morgen, da vi planlægger at udsende rapporten over den tekniske dialog på mandag – I får naturligvis også rapporten tilsendt direkte.

Bedste hilsener

Valgkonsulent, Kommunaljura

Nicoline Nyholm Miller

Slotsholmsgade 10-12

1216 København K

Telefon 72 28 25 22

Fax 72 28 24 01

valg.im.dk

SJ20130213103326520

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:33:26
Dokumentnr.: 7743
Titel: Indra godkender draft summary of technical dialogue
Dokumenttype: I
Dokumentdato: 21-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 21-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:
Afsender 'cfrutos@indra.es' ,

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Frutos López, Cristina <cfrutos@indra.es>
Sendt: 21. september 2012 09:02
Til: Nicoline Nyholm Miller
Emne: RE: Draft summary of technical dialogue with Indra on e-voting system for Denmark

Dear Nicoline,
Thank you for giving us the opportunity to review the minutes before they are issued.
I have gone through them and they are perfectly fine.
I'd just like to wish you good luck with the report.
Kind regards
Cristina Frutos

De: Nicoline Nyholm Miller [mailto:nnm@oim.dk]
Enviado el: viernes, 21 de septiembre de 2012 8:50
Para: Frutos López, Cristina
Asunto: Draft summary of technical dialogue with Indra on e-voting system for Denmark

Dear Cristina,

Please find enclosed for your perusal the draft minutes from the technical dialogue with Indra at the Ministry of Economic Affairs and the Interior on 21 August 2012. I apologize for not having been able to send you the minutes at an earlier stage.

We plan to finalize the report on the technical dialogue during the next few days with the view of making it public on Monday, so I would appreciate to have any comments or corrections you might have to the minutes at as soon as possible. Thank you in advance for your cooperation. Please rest assure that we will not be including any individualized details on technical solutions or economic information in the report – particularities included in the minutes are for internal use only.

Saludos,

Chief Electoral Officer
Nicoline Nyholm Miller

økonomi og
indenrigsministeriet

Slotsholmsgade 10-12
1216 Copenhagen K
Tel. direct: +45 72 28 25 22
Fax: + 45 72 28 24 01
valg.im.dk

Think of the environment before printing this mail.

SJ20130213103329390

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:33:29
Dokumentnr.: 7732
Titel: Referat møde teknisk dialog Indra [DOK1026789]
Dokumenttype: U
Dokumentdato:
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 21-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:

Oplysninger:

Datoer:

Erindringer:

økonomi og indenrigsministeriet

Enhed
Kommunaljura

Sagsbehandler
MP

Koordineret med

Sagsnr.
2012-00363

Doknr.
5077

Dato
20 September 2012

Summary of technical dialogue meeting with Indra on 21 August 2012

FOR INTERNAL USE ONLY

The purpose of the meeting was to give the Ministry an overview of existing technical solutions and the foreseeable economic implications of holding trials with electronic voting in Denmark, thus giving the Ministry a better ground for drawing up the requirements for a future e-voting system.

1. Presentation of Indra

Representing Indra were Ms. Cristina Frutos (Business Development Manager), Mr. Mario Madrazo (Project Manager), Mr. Enrique Macip (Head Hardware Engineer) and Mr. Fernando Dominguez Carril (Head Software Engineer).

Ms. Cristina Frutos gave a general introduction to Indra and their experience with electronic solutions for voting and counting. Indra is a multinational company dedicated to Information Technology. Indra operates in over 118 countries and has a department exclusively dedicated to electoral projects Indra's objective is to ensure reliability, quality, efficiency and transparency of the whole electoral process through constant technological innovation and electoral modernization. Indra has more than 30 years of experience in the implementation of projects in over 20 countries, among these Spain, Norway, Portugal, Italy, and USA.

Indra offers a modular electoral management solution that covers the whole electoral process from start to end (it is entirely up to the customers to decide which modules they wish to include in the solution) as well as electronic voting solutions. Indra is capable of delivering several different solutions including electronic counting of ballot papers (e-counting), internet voting, and a ballot generator solution.

Indra designs and develops each product specifically for the customer. They do not believe in offering general solutions to all customers, as the legislation, the electoral process, and the requirements to the solution are different in all countries.

Indra has managed all elections in Oslo, Norway since 2003. The services include project management, technical design, electronic count of ballot papers (eCounting), training programme, logistics, ballot papers and voter cards supply. In 2008 Indra managed the Mayoral and London Assembly elections. The service included project management, technical design, electronic count of ballot papers (eCounting), training programme, logistics, ballot papers and ballot boxes. This solution involved printing 12 million ballot papers, supply of 10,000 ballot boxes and 210 high performance

scanners and setting up 3 super count centres and 1 tallying centre in less than 24 hours.

2. Demonstration of the electronic voting and counting system

Indra demonstrated an electronic ballot generator solution; an electronic voting and counting system based on a touch screen unit that prints the encrypted ballot paper and a ballot box that reads the encrypted ballot paper.

The solution contains:

- a ballot generator/voting machine (vote selection and ballot printing machine with election system software, smartcard reader and encrypted barcode reader (optional))
- a ballot box with an encrypted barcode reader
- smartcard issuing device – Card Activator Terminal
- smartcards for voters and polling station staff
- Electronic voter's lists can be part of the solution
- Integration of traditional ballot paper results and machine generated results can be performed at the central server (optional)

It is a modular design with commercial off the shelf components (dedicated hardware).

The ballot generator/voting machine and ballot box are not connected/ linked in any way, and have no wireless communication. Applications run on the hard drive of both machines. Data to personalize machines per electoral district/polling station is contained on a removable memory device. Personalization of the machines is required to present voters with the appropriate ballots and to count the votes properly.

Each ballot generator is on Election Day initially unlocked by the Presiding Officer at the polling station by use of a smartcard (especially made for the Presiding Officer) and code. (The smartcard of the Presiding Officer can be divided into several smartcards).

Equally, each ballot box is unlocked by the Presiding Officer at the polling station by use of a smartcard and code. When unlocked, the ballot box is automatically reset for zero, even if by accident there were votes in the ballot box. The Presiding Officer prints a zero sum report assuring that there are no votes in the box.

In order to be able to vote, each voter has to unlock the voting machine with an encrypted smartcard, which the voter is handed by the appointed elector after he or she has been identified as a registered voter. The smartcard does not hold any information about the voter but is only a key to get access to the machine. Each smartcard is locked after use and has to be configured before reuse. The smartcards are reused through the Card Activator Terminal.

The ballot generator/voting machine is operated by touch screen. When unlocked, the screen will show a list containing the names of the political parties and independent candidates that run for the election and an option to cast a blank vote in the first level and the names of the candidates of each political party in the second level.

The voter casts the vote by marking his/her choice on the screen. It is on all levels possible to go back and start over again. When the voter has cast his/her vote he/she has to confirm the vote on the screen. The machine then prints a ballot paper containing both the name of the party/candidate or "blank vote" and an encrypted unique barcode, containing the vote. The encrypted ballot paper can be subsequently verified by the voter using a barcode reader incorporated in the machine. To ensure the secrecy of the vote, the ballot paper can be designed so the unique barcode is

printed on one half of the ballot, and the name of the party/candidate or "blank vote" is printed on the other half, so that the ballot can be folded by the voter (for protecting the secrecy of the vote) before it is introduced into the ballot box by the voter.

The vote is read (and counted) with an encrypted barcode reader as it drops into the ballot box. The digital vote is stored in the ballot box hard drive and external memory. The transmission of the result from the ballot box to a main data collection centre is done via 3G modem, but can also be done via USB, CD-rom etc.

3. Notes on different issues

Accessibility
With regard accessibility for the disabled, Indra's solution includes a solution for visually impaired voters. It consists of a set of headphones in which the names of first the parties, then the candidates are read aloud to the visually impaired voter. If the visually impaired wishes to vote for a party or a candidate that has been read aloud, he/she touches the left side of the screen, which means "yes". If he/she does not wish to vote for a party or a candidate that has been read aloud, he/she touches the right side of the screen, which means "no". Visually impaired voters are given a smartcard with the profile "visually impaired voter" so the ballot generator will know that the screen should load the special application for the visually impaired described above.

Advantages of e-voting
Indra indicated simplicity of the administration and accuracy of the counting of votes as the primary advantages of e-voting besides the speed of having the results and the omission of (most) spoiled votes.

Security
Biggest risks are not technical, but acceptance by general public and political parties. Public awareness, campaigns etc. is very important. Ballot box can be programmed to only accept right no. of votes to prevent ballot stuffing. Ballots can be counted in real time or only after poll closes. Strong cryptography is employed.

Audit and further development
Indra stated that anything can be implemented to the system, also by others. The source code is open to individual review and audit.

Training
Indra provides a training program for election staff and voters including meetings, e-learning platform, train the trainer, and public demos.

Costs and expenses
Indra's assumptions for financial estimates:

Registered voters: 4.4 mill., polling districts: 1,451, polling stations: 3,020, average no. of voters/polling station: 1,456

Machine	Units/polling station	Total (DKK)
Ballot generator	3	[redacted]
Electronic ballot box	1	

Estimated purchase price:

Machine	Number of units	Unit price (DKK)
Ballot generator	9.060	[redacted]
Electronic ballot box	3.020	

Software lease:

Software licence	[redacted]
Software upgrades	

Software ownership: [redacted]
Including optional services the estimated price [redacted]

The lease costs are difficult to estimate, but if a lease of equipment for the first election with an option to buy solution is chosen, the price [redacted]

Indra is ready to provide ballot generators and ballot boxes incl. software free of cost for first pilot, then the municipalities would only have to pay for services and training.

Open source and use of proprietary technology
Source code, hardware, design and procedures are open for independent review and audit by independent third parties. Can be licensed as open source if requested. System has been audited by KPMG, Deloitte, Ernst & Young and government agencies.

Time schedule for implementation
The time-schedule for implementation was described as 6-12 months from blue print stage to carrying out pilots, but optimal 18 months time, in order to have time to present the system to the voters through campaigns, demonstrations etc.

SJ20130213103327987

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:33:27
Dokumentnr.: 7731
Titel: Draft summary of technical dialogue with Indra on e-voting system for Denmark
Dokumenttype: U
Dokumentdato: 21-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 21-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:
Modtager 'cfrutos@indra.es' ,

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Nicoline Nyholm Miller
Sendt: 21. september 2012 08:50
Til: cfrutos@indra.es
Emne: Draft summary of technical dialogue with Indra on e-voting system for Denmark

Dear Cristina,

Please find enclosed for your perusal the draft minutes from the technical dialogue with Indra at the Ministry of Economic Affairs and the Interior on 21 August 2012. I apologize for not having been able to send you the minutes at an earlier stage.

We plan to finalize the report on the technical dialogue during the next few days with the view of making it public on Monday, so I would appreciate to have any comments or corrections you might have to the minutes at as soon as possible. Thank you in advance for your cooperation. Please rest assure that we will not be including any individualized details on technical solutions or economic information in the report – particularities included in the minutes are for internal use only.

Saludos,

Chief Electoral Officer
Nicoline Nyholm Miller

økonomi og
indenrigsministeriet

Slotsholmsgade 10-12
1216 Copenhagen K
Tel. direct: +45 72 28 25 22
Fax: + 45 72 28 24 01
valg.im.dk

SJ20130213103341123

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:33:41
Dokumentnr.: 7730
Titel: Summary - meeting with DRS and Dominion(03.09.2012) [DOK1027110]
Dokumenttype: U
Dokumentdato:
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 21-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:

Oplysninger:

Datoer:

Erindringer:

The Ministry of Economic Affairs and the Interior
Unit: Department of Municipal Law
Case officer: DEPLBO
Case no..: 2012-00363
Doc. no.: 5083
Date: 20 September 2012

Summary of technical dialogue with DRS (UK) and Dominion (Canada) on 3 September 2012

FOR INTERNAL USE ONLY

The purpose of the meeting was to give the Ministry an overview of existing technical solutions and the foreseeable economic implications of holding trials with electronic voting in Denmark, thus giving the Ministry a better ground for drawing up the requirements for a future e-voting system.

1. Presentation of DRS and Dominion

Representing DRS were Mr. Gary Butler (International Business Manager) and Mr. John Hancock (Product Manager). Mr. Gary Butler gave a general introduction to DRS and their experience with solutions for mass counting and electronic elections. DRS is based in the UK and specialises in electronic counting of votes and has been delivering elections services since 1991. DRS also offers a wide range of other election services e.g. software for voter registration and ballot printing. Among the latest experiences with e-counting are the London Mayoral & Assembly Elections in 2000, 2004 and 2012, where DRS managed the complex design and counting of 3 different paper ballots using 300 e-counting scanners producing a result after 9 hours. .

Representing Dominion were Mr. Allan Best, Mr. John Hollins and Ms. Marsha Boshnan. Dominion has been a provider of election technology since 2002 and is based in Canada. Dominion is one of the largest providers of election equipment in North America and supplies voting solutions for 1/3 of the US electorate. Dominion inter alia has experience from using the optical scan machine with the latest election in Mongolia (June 2012) where Dominion provided an e-counting solution where 80% of the ballots within 4 hours.

DRS is in partnership with Dominion with the purpose of enhancing the method of a centralised e-counting system with optical scanners.

2. Description of the electronic counting system

Mr. Hollins described the e-counting solution (ImageCast Precinct) as an optical scan system with tabulation technology for scanning and counting paper ballots.

The electronic counting system (ImageCast Preinct)

The proposed process for e-counting can be described as follows:

The voter is handed a paper ballot when turning in the polling card to the keeper of the electoral register at the polling station. The paper size of the ballot is flexible and can be marked with a barcode for security reasons so that the paper ballot can only be used once. No personal information to identify the voter is marked on the paper ballot.

The voter marks the paper ballot with pen or pencil in the voting booth by filling out the little oval frame next to the name of the candidate or party that the voter wishes to vote for. As a feature the ballot paper can be marked with a dialogue box on the top showing the voter how to mark the ballot and allowing the voter to mark a similar can make a cross e.g. before going to the voting booth, so that the voter knows how to mark the paper ballot. This feature could minimize the number of invalidated votes.

The e-counting machine is dedicated hardware with a scanner e.g. for scanning a image of the vote, a small screen where an image of the vote can be shown and software for counting the votes. The machine also has a printer e.g. to print the results.

To ensure the secrecy of the vote, the voter can place the ballot in a secrecy folder before proceeding to the e-counting machine. The vote places the paper ballot covered by the secrecy folder in the e-counting machine (process is similar to feeding a fax-machine). The machine can be fed with the paper ballot both ways and with the ballot paper turning upside down, so both sides of the paper ballot can be used for e.g. two different elections.

The e-counting machine captures a complete scanned image of the vote. The vote is shown on a small screen next to where the machine is fed. The voter can confirm the vote by pushing a "cast button" or have the vote returned by pushing the "return" bottom. If the machine is not able to read the vote (the mark) on the ballot paper, the voter will be warned on the screen and asked to confirm the vote or have the ballot returned for revision. . This feature can minimize the number of invalidated votes, as the voter is warned if the voter has over- or undervoted or otherwise spoiled the ballot.

The e-counting machine is placed on the ballot box, which means that the paper vote is swallowed by the ballot box. The e-counting machine has a capacity of 6-10 ballots pr. Minute, equalling approx. 1,000 voters per hour.

The e-counting machine can be powered by battery or power cable. The software for the machine can manage more than 2,000 different types of paper ballots with up to some 600 choices.

The ballot box registers/reads the vote and can be audited at any time. The e-counting machine is however sealed, so it can only be opened by the electoral officer (chairman of the polling officers) after the polling. Data (e.g. results) is stored on two memory cards secured in the e-counting machine. Data can be sent from the machine to a central place by using a modem or a USB-key. The results can also be printed. Votes can also be counted manually.

1. Notes on different issues

Accessibility

With regard accessibility for the disabled, DRS/Dominion's solutions are compliant with different standards and can incorporate different solutions to enhance accessibility for the disabled such as using a separate machine to mark the paper ballot. The voter can cast the vote using an audio enabled functionality with head phones and by using a keyboard, buttons or an additional touch-screen. Sip-and-puff devices can also be incorporated. The machine marks the paper ballots with a ran-

dom mark chosen from a range of different marks that imitate marks made by hand to protect the secrecy of the vote.

Security against malfunction and manipulation
Main risk of e-counting is the lack of voters trust and comfort in a new electronic system.

Advantages of e-voting
DRS/Dominion indicated accuracy (e-counting removes several of the weaknesses of manual count) and efficiency (speed of having the results, providing that the system is widely implemented).

Audit and certification
The audit and certification of the systems for electronic and counting are done in advance. The Dominion e-counting and elections solutions are EAC-certified (US-standard). The software developed by DRS and Dominion is protected by intellectual properties.

Scalability
The e-counting system is scalable and can be used for one or several elections or several in parallel. The e-counting machine can also be used for recounting. Devices are interchangeable, new units can be brought to replace faulty ones without affecting the election.

Further developments
The hardware is flexible and can be open to customized improvements e.g. a touch screen. The software is in continuous evolution (agile methodology), modular system, and inclusion of new technological possibilities as they jurisdiction provides.

Training
DRS/Dominion are experienced in providing information and education programs for voters and staff (train the trainer and e-learning facilities).

Costs and expenses
Will depend on several issues: the number of items purchased combined with the required functionalities of the hardware and software solutions. DRS/Dominion offers rent, leasing and selling the e-counting machines.

Dedicated hardware
The system is a mix between dedicated hardware and commodity hardware.

Open source and use of proprietary technology
The software is Linux-based.

Time schedule for implementation
The lead time for implementation from signing of contract to election day is approx. 9-12 months, depending on the number of machines that need to be made. A pilot-project could problably be done in 3 months using the existing system, 4-5 months if alterations need to be implemented.

SJ20130213103339729

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:33:39
Dokumentnr.: 7729
Titel: Summary - meeting with DRS and Dominion
Dokumenttype: U
Dokumentdato: 21-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 21-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:
Modtager Gary Butler ,
Modtager 'john.hancock@drs.co.uk' ,

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Nicoline Nyholm Miller
Sendt: 21. september 2012 08:37
Til: gary.butler@drs.co.uk; john.hancock@drs.co.uk
Emne: Summary - meeting with DRS and Dominion

Dear Gary and John,

Please find enclosed for your perusal the draft minutes from the technical dialogue with DRS/Dominion at the Ministry of Economic Affairs and the Interior on 3 September 2012. I apologize for not having been able to send you the minutes at an earlier stage.

We plan to finalize the report on the technical dialogue during the next few days with the view of making it public on Monday, so I would appreciate to have any comments or corrections you might have to the minutes at as soon as possible. Thank you in advance for your cooperation. Please rest assure that we will not be including any individualized details on technical solutions or economic information in the report – particularities included in the minutes are for internal use only.

Best regards,

Chief Electoral Officer
Nicoline Nyholm Miller

økonomi og
indenrigsministeriet

Slotsholmsgade 10-12
1216 Copenhagen K
Tel. direct: +45 72 28 25 22
Fax: + 45 72 28 24 01
valg.im.dk

SJ20130213103359166

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:33:59
Dokumentnr.: 7634
Titel: Summary meeting with Smartmatic and KMD (03.09.2012) [DOK1028178](1)
Dokumenttype: U
Dokumentdato:
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 20-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:

Oplysninger:

Datoer:

Erindringer:

økonomi og indenrigsministeriet

Enhed
Kommunaljura

Sagsbehandler
DEPMP

Sagsnr.
2012-00363

Doknr.
5082

Dato
4.9.2012

Summary of technical dialogue meeting with Smartmatic and KMD on 3 September 2012

FOR INTERNAL USE ONLY

The purpose of the meeting was to give the Ministry an overview of existing technical solutions and the foreseeable economic implications of holding trials with electronic voting in Denmark, thus giving the Ministry a better ground for drawing up the requirements for a future e-voting system.

1. Presentation of Smartmatic and KMD

Representing Smartmatic were Fernando Hernández, Raul Pereira, Frans Gunnick and Gilles Souche.

Representing KMD were Mette Helmer, Leif Hernø, Lars Nørgaard and Claus Nørgaard.

Mr. Leif Hernø gave a short introduction to KMD and their experience with electronic election solutions to the Danish municipalities. KMD has delivered election solutions to the Danish municipalities for 30 years and therefore has the knowledge and skills to translate legislation, complex working processes and good administrative practice into effective IT-solutions. Furthermore KMD has a very skilled service and support division.

Mr. Fernando Hernández from Smartmatic then gave an introduction to Smartmatic and their experience with electronic voting and counting solutions. Smartmatic is a privately owned multinational company that designs and deploys end-to-end, customized technology solutions concentrated around 3 key business divisions: Electronic and auditable voting systems, Identity management and Smart Cities. Smartmatic started with elections in 2004 and today employs 500 people. Smartmatic operates in Latin America, Europe, the United States and Asia.

Smartmatic and KMD offer a modular electoral management solution that covers the whole electoral process from start to end – the solution includes a new and revised KMD solution built on the existing solution from KMD containing the Digital Voters List, the registration of parties and candidates etc. (but it is up to the customer to decide which modules they wish to include in the solution) - as well as electronic voting solutions.

Since 2004 Smartmatic has successfully organized and performed multiple national presidential and parliamentary elections, regional and local elections and constitutional referenda in Venezuela using an electronic voting solution with a voter-

verified paper audit trail that has been assessed as the most advanced in the world by several observer missions (OAS, EU, Carter Center) for its audit possibilities, security features and reliability. Seventy-five million counted and tailed votes, hundreds of audits, more than 57.500 voting machines installed in more than 12.000 polling centers simultaneously and over 6000 operators and supervisors trained. All projects delivered on time.

2. Demonstration of the electronic voting and counting system

Smartmatic demonstrated an electronic ballot generator solution, i.e. an electronic voting and counting system based on a touch screen unit that prints an encrypted ballot paper and a ballot box connected to a computer that reads and tallies the encrypted ballot paper.

The solution contains:

- An activation machine "president machine" (non dedicated hardware)
- a ballot generator/voting machine (vote selection and ballot printing machine with smartcard reader.)
- a ballot verification machine (with encrypted barcode reader)
- a ballot box with an encrypted barcode reader
- A computer connected to the ballot box that counts and stores the votes smartcard activator
- smartcards for voters and polling station staff
- Electronic voter's lists

It is a modular design with commercial off the shelf components. The machines are not connected/ linked in any way, and have no wireless communication.

The election data is stored on the electoral mainframe, a new and revised KMD system. The data is then mapped into EML and exported into an election management system that can export the data to the new digital voting system.

The whole election is stored on USB devices (the candidates, software, codes etc. The USB devices and the logins and passwords are sent separately to the municipalities by mail, courier or safe https. The device is plugged into a "president machine" (one at each polling station). USB devices for the election machines at the polling station and smartcards (including a master-smartcard) are configured on the "president machine".

Each machine is on election day initially unlocked by the Presiding Officer at the polling station by use of the master smartcard and code. The voting machines perform a test-vote before use to ensure that everything is functional. Equally, each ballot box is unlocked by the Presiding Officer at the polling station by use of a smartcard and code. No data is stored on the voting machines.

In order to be able to vote, each voter has to unlock the voting machine with an encrypted smartcard, which the voter is handed by the appointed elector, when he or she has been identified as a registered voter on the digital voters list. The smartcard does not hold any information about the voter but is only a key to get access to the machine. Each smartcard is locked after use and has to be reconfigured before reuse.

The ballot generator is operated by touch screen. When unlocked, the screen will show a list containing the names of the political parties and independent candidates that run for election and an option to vote blank in the first level and the names of the candidates of each political party in the second level.

The voter then casts the vote by marking his/her choice on the screen. It is on all levels possible to go back and start over again. When the voter has cast his/her vote he/she has to confirm the vote on the screen. The machine then prints a ballot paper containing both the name of the party/candidate or "blank vote" and an encrypted unique barcode, containing the vote. The encrypted ballot paper can be subsequently verified by the voter using a separate ballot verification machine with encrypted barcode reader, placed at the polling station in a separate booth (instead of next to the voting machine) to ensure the voter that the voting machine does not just remember the last vote received and displays that vote (optional).

When the voter has cast his or her vote, the vote is read (and counted) with an encrypted barcode reader on top of the ballot box connected to a computer that stores the digital votes. When the encrypted barcode on the ballot paper is read and counted the computer informs the voter that the vote has been registered. The transmission of the result from the computer that has stored the votes (e-ballot box) to the computer that consolidates the result (the RTS-machine) is done via USB devices.

3. Notes on different issues

Accessibility
With regard accessibility for voters with disabilities, Smartmatic's solution includes a read aloud solution for blind and visually impaired voters. The visually impaired voter can control each step of the voting-procedure including the cast of the vote by using an "incorporated remote control" with specially designed buttons. The same solution can be used by voters with partial or major mobility restriction. Instead of using the "incorporated remote control" with special designed buttons, these users can navigate and cast their vote through "buddy buttons" (2 large buttons) or "Sip & Puff" devices.

Voters with disabilities are given a smartcard with a special profile so the ballot generator will know that the screen should load the special application for audio voting as described above. During the procedure, the screen will show the text: "audio voting".

Advantages of e-voting
KMD and Smartmatic stated that the main benefits of e-voting is reliability (no invalid votes, the voter counts his/her vote) and security. Furthermore it provides support for people with disabilities, which allows them to vote without any assistance.

Disadvantages and risks
Biggest risk is the voters' perception of the system. Information to the public is very important. Transparency of the process is crucial.

Security
- Software and hardware can be **audited** by a third trusted party.
- Secured **login + password** access for every module of the solution.
- Automated **reports for control** during election preparation (customization).
- System supports the **verification of parties and candidates** by creating previews of all ballots of the election.
- **Digital signature, encryption, redundancy and constant verification** of sensitive files.
- Control mechanisms to **feedback the user** about the correct operation of the system.
- Full **hardware diagnose** at warehouse before the election.
- Automated **hardware diagnose** when election starts.
- **Test vote** required to open the election.
- Voter identification and smartcard activation guarantees **one citizen one vote**.
- **System logs** for every event throughout the system.

- **Ballot paper printed** by voting machines last for more than one month.

Audit and further development
Smartmatic stated that the software is easy to update, also by others. The operating system is Linux based. Software and hardware can be audited by a third trusted party.

Training
Smartmatic and KMD offer education of election officers and education of municipal IT-workers in the deployment of election hardware

Costs and expenses
KMD and Smartmatic's financial estimates:

Election equipment indicative price*	[redacted]
Election Preparation system	
Voter card activation machine	
Voting machine with accesibility module	
Vote verification station	
Smart ballot box	
Tally system	

*Indicative prices based on Belgium hardware setting, excluding software, and services, for about 18,000 voting machines.

The price of an election (equipment + software + all services) for 15 year commitment and 8 elections is in the range [redacted] Additional costs for additional software development.

Additional premises:
180 voters per voting machine
5 voting machines per smart ballot box
Population of 3.5 million voters

Open source and use of proprietary technology
Source code, hardware, design and procedures are open for independent review and audit by independent third parties. System has been audited by OAS, EU and the Carter Center.

Time schedule for implementation
The time-schedule for implementation was described as 4-5 months if the Belgium solution is chosen and adapted to Danish needs. It will probably take a year to build up the software system from scratch. It would implicate more supporting time to the municipalities at the first election.

SJ20130213103357722

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:33:57
Dokumentnr.: 7633
Titel: Udkast til summary of meeting with Smartmatic and KMD - til godkendelse hos KMD
Dokumenttype: U
Dokumentdato: 20-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 20-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:
Modtager KMD Valg , Lautrupparken 40-42

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Nicoline Nyholm Miller
Sendt: 20. september 2012 15:14
Til: Helmer.Mette MEH (MEH@kmd.dk)
Emne: Summary meeting with Smartmatic and KMD (03.09.2012) [DOK1028178](1)

Kære Mette
Vedhæftet følger vores referat af mødet med Smartmatic og KMD til teknisk dialog den 3/9 2012. Jeg beklager, at det ikke har været muligt at fremsende tidligere. Vi regner med at offentliggøre rapporten om den tekniske dialog på mandag og vil derfor gerne have jeres evt. bemærkninger til referatet så hurtigt som muligt. Der bliver dog ikke tale om at inkludere nogen særlige specifikationer på de enkelte løsninger eller angivne priser i rapporten, som bliver mere en opsummering af de oplysninger, vi har fået fra alle leverandører, herunder et generelt omkostningsoverslag, og det vil derfor ikke være muligt at koble oplysningerne til enkelte leverandører. Referaterne er mere til intern brug i den videre proces.

Bedste hilsener
Nicoline

Valgkonsulent, Kommunaljura
Nicoline Nyholm Miller

økonomi og indenrigsministeriet

Slotsholmsgade 10-12
1216 København K
Telefon 72 28 25 22
Fax 72 28 24 01
valg.im.dk

SJ20130213103444772

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:34:44
Dokumentnr.: 7499
Titel: Referat møde teknisk dialog med AION og Siemens - 28.08-2012 [DOK1024162]
Dokumenttype: U
Dokumentdato:
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 20-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:

Oplysninger:

Datoer:

Erindringer:

Økonomi og Indenrigsministeriet
Enhed: Kommunaljura
Sagsbeh.: DEPLBO
Sags nr.: 1206500
Dok. Nr.: 1024162
Dato: 20. september 2012

Referat fra teknisk dialog møde med Assembly Voting (Danmark) den 28. august 2012

Den tekniske dialog havde til formål at give Økonomi- og Indenrigsministeriet et overblik over den elektroniske løsning, som Assembly Voting har udviklet til brug for elektroniske valg. Den tekniske dialog havde endvidere til formål at give ministeriet viden til brug for udarbejdelse af den fremtidige lovgivning for elektroniske valg.

1. Præsentation af Assembly Voting

Assembly Voting er et forretningssamarbejde mellem AION Aps (Danmark) og Siemens AS (Danmark), der blev påbegyndt i 2000.

Tilstede fra AION Aps var Jacob Gyldenkærne, Eugene Zainchkovcskyy, og Mikkel Svenstrup.

Tilstede fra Siemens A/S var Jesper Lauge Kilde og Torben Lauritsen. Jesper Lauge Kilde redegjorde kort for Siemens' erfaringer bl.a. med højrisiko software styresystemer inden for jernbaneindustrien.

Jacob Gyldenkærne præsenterede herefter Assembly Voting's forretningsområde, som er udvikling af teknisk sikre og brugervenlige deltagelses- og valgsystemer til brug for bl.a. fremmødevalg i foreninger og kommuner. Valgsystemerne bygger på dokumenteret forskning og teknologi.

Assembly Voting har bl.a. erfaringer fra det kommunale ungevalg, men også fra et ikke bindende forsøg ved folketingsvalget 2011. Assembly Voting's erfaringer og teknologier bygger på en skridt-for-skridt filosofi forstået således, at vælgeren gradvis introduceres til de enkelte elektroniske løsninger i forskellige tempi,f.eks. ved at starte med at afgive stemmen elektronisk og på et senere tidspunkt også lade stemme blive optalt elektronisk.

Assembly Voting har et samarbejde med Strålfors til udvikling af papstemmekort med indbygget RFID-chip og med Newbury, der leverer hardwaren. Assembly Voting er endvidere industriel samarbejdspartner i ITU's forskningsprojekt DemTech.

2. Præsentation af det elektroniske valgsystem

Assembly Voting har udviklet en elektronisk stemmeterminal til brug for fremmødevalg. Stemmeterminalen består bl.a. af en trykfølsom skærm og en indbygget printer. Løsningen er under fortsat udvikling i samarbejde med Demtech-projektet.

Den nuværende løsning indebærer, at vælgeren får udleveret et stemmekort af pap med en indbygget RFID-chip. Dette papirkort skal vælgeren indsætte i den elektroniske stemmeterminal for at få adgang til at stemme. Vælgeren afgiver sin

stemme ved tryk på skærmen. Vælgeren præsenteres for en liste af partier. Vælgeren skal vælge et parti for at se partiets kandidater. Det vil på sigt være muligt at lave et skærmbillede, der ligesom papirstemmesedlerne i dag viser alle partier og opstillede kandidater i ét skærmbillede, hvor man kan zoome ind på det enkelte partis kandidater ved at trykke på partiets felt.

Vælgeren skal bekræfte sin stemme på skærmen. Herefter lagres den afgivne stemme i stemmeterminalen og på RFID-chippen på stemmekortet. Endvidere printer stemmeterminalen den afgivne stemme på stemmekortet i menneskelig læsbart format og returnerer stemmekortet til vælgeren, der kan kontrollere stemmen. Vælgeren folder stemmekortet for at beskytte stemmehemmeligheden og placerer det i stemmekassen, som fanger kortet ved mekanisk fremførelse og aflæser RFID-chippen, hvorefter stemmekortet deponeres maskinelt i stemmekassen. Kortet kan herefter bruges til en manuel optælling, der kan sammenholdes med det registrerede resultat i den elektroniske stemmeterminal og i den elektroniske tællerenhed i stemmekassen.

Assembly Voting bevæger sig i øjeblikket væk fra lagring i stemmeterminalen og RFID-kortet og arbejder i stedet på en OCR-baseret løsning, der tager udgangspunkt i, at stemmekortet skal indeholde alle oplysninger om valget i RFID-chippen (dvs. de opstillede partier og kandidater i kredsen), og hvor den afgivne stemme udelukkende registreres på stemmekortet. Stemmen registreres på stemmekortet med OCR-tekst og kan tilmed få printet en stregkode, hvis kunden ønsker det.

Stemmen vil herefter kunne optælles manuelt, men også elektronisk ved brug af en RDS-scanner. Assembly Voting har endvidere netop fået prototypen på en maskine, der kan optælle og sortere stemmekortene for at lette den manuelle kontroloptælling.

Assembly Voting finder, at brugen af kun én token til både at initialisere stemmeterminalen og fungere som stemmekort som afløser for stemmesedlen gør løsningen enkel at betjene og tage højde for den folkelige kontrol. Endvidere kan kortet efter valget let makuleres. Der er dog nogle forhold omkring krypteringen af oplysningerne på kortet samt hvordan det sikres, at kortet ikke kan eftergøres (f.eks. ved at tilføre et hologram).

3. Bemærkninger om forskellige forhold ved valgsystemet

Brugervenlighed for handicappede
Assembly Voting er løbende i dialog med forskellige interesseorganisationer, herunder bl.a. De centrale handicap organisationer og Dask Blindesamfund. Assembly Votings terminaler kan alle anvendes til synshandicappede og andre handicappede, dvs. der forudsættes ikke opstillet en særskilt terminal til handicappede. Den synshandicappede vælger navigerer ved hjælp af oplæsning via høretelefoner og få og enkle knapper, der er intuitivt nemme at bruge (testet af brugerne). Papkortet perforeres, så en blind eller synshæmmet vælger ved, hvad vej det skal foldes.

Instruktion
Assembly Voting's mål er at have en løsning som en tilforordnet vil kunne instrueres i brugen af på ca. 30 min. Assembly Voting arbejder ud fra konceptet "train-the-trainer.

Revision og certificering
Assembly Voting vil udlevere kildekode til uafhængige ekspertrevision, men beholde rettighederne.

Økonomi
Stemmekortene af papir har en kostpris på [redacted] Stemmeterminalerne har en kostpris på [redacted], stemmekasserne med mulighed for optisk scanning/læsning på [redacted] Kostpris på sorteringsmodulet er ikke oplyst.

Open source og immaterielle rettigheder
Det er som udgangspunkt ikke knyttet leasing rettigheder til systemet og hardwaren, da systemet skal kunne være klart med kort varsel i relation til fristerne for afholdelse af folketingsvalg. Der er som udgangspunkt tale om salg af en løsning, hvor ejerskabet til softwaren tilhører Siemens.

Tidsplan for implementering
Konceptet bag det elektroniske system er klar. Assembly Voting forventer at have en OCR-baseret løsning klar i løbet af 2013 med henblik på et evt. testvalg i 2014.

SJ20130213103443354

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:34:43
Dokumentnr.: 7498
Titel: Udkast til referat møde teknisk dialog med AION og Siemens - 28.08-2012 [DOK1024162]
Dokumenttype: U
Dokumentdato: 20-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 20-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:
Modtager Jacob Gyldenkærne (jacob@aion.dk) ,
Modtager Kilde, Jesper Lauge ,

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Nicoline Nyholm Miller
Sendt: 20. september 2012 11:00
Til: Jacob Gyldenkærne (jacob@aion.dk); jesper-lauge.kilde@siemens.com
Emne: Referat møde teknisk dialog med AION og Siemens - 28.08-2012 [DOK1024162]

Kære Jesper og Jacob

Jeg beklager, at det først nu har været muligt at udsende referat fra vores tekniske dialog – jeg vil bede jer om at øje det hurtigt igennem og sende mig jeres evt. bemærkninger i løbet af i morgen, da vi planlægger at udsende rapporten over den tekniske dialog på mandag – I får naturligvis også rapporten tilsendt direkte.

Bedste hilsener

Valgkonsulent, Kommunaljura
Nicoline Nyholm Miller

økonomi og indenrigsministeriet

Slotsholmsgade 10-12
1216 København K
Telefon 72 28 25 22
Fax 72 28 24 01
valg.im.dk

SJ20130213103457500

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:34:57
Dokumentnr.: 7496
Titel: Summary - meeting with Scytl and Zetes (28.08.2012) [DOK1022453]
Dokumenttype: U
Dokumentdato:
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 20-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:

Oplysninger:

Datoer:

Erindringer:

The Ministry of Economic Affairs and the Interior
Unit: Department of Municipal Law
Case officer: DEPLBO
Case no..: 2012-00363
Doc. no.: 5080
Date: 20 September 2012

Summary of technical dialogue meeting with Scytl (Spain) and Zetes (Belgium) on 29 August 2012

FOR INTERNAL USE ONLY

The purpose of the meeting was to give the Ministry an overview of existing technical solutions and the foreseeable economic implications of holding trials with electronic voting in Denmark, thus giving the Ministry a better ground for drawing up the requirements for a future e-voting system.

1. Presentation of Scytl and Zetes

Representing Scytl were Mr. Andy Tye (General Manager for EMEA), Mr Gerard Cervello (Vice President of Operations), and Mr Jordi Puiggalli (Vice President of R&D). They gave a general introduction to the company and their experience with electronic software solutions for election modernization, election voting and election management. The software solution is developed with patented high cryptography with regard to voter privacy and ballot box integrity. Scytl is based in Spain and has worked with e-voting solutions since 1997. Scytl has received a high number of quality certificates and undergone audits procedures for electronic voting by certifications authorities and universities.

Representing Zetes were Mr Philippe Willems (Business Consultant) and Mr Geert Peeters (Business Consultant). Zetes is based in Belgium. Mr. Geert Peeters described Zetes' experience in smartcards and secure applications with regard to electronic identity cards in e.g. Belgium and Israel and credit cards.

2. Description of the electronic voting and counting system

Scytl/Zetes offer a wide range of e-voting solutions ranging from isolated e-voting terminals (DREs) with the option to add VVPAT to supervised internet voting systems and central-based optical scanners. Scytl/Zetes have put together a proposal for a Danish solution that contains some elements of various solutions to fit the Danish needs. The proposed solution combines e-voting and e-counting in a way that resembles the current Danish process of voting.

The electronic voting
The proposed process for e-voting can be described as follows:

The voter receives a token (smartcard) when turning in the polling card to the keeper of the electoral register at the polling station. The voter is asked to pick up the token (smartcard) from a bowl with several smartcards so that the token is randomly chosen by the voter. The token then has to be initialized with the signature (profile) of the polling station (constituency), e.g. the list of parties and the candidates. This can also be done in advance, but the idea is to reuse the tokens during the polling so that the municipalities will only have to purchase a smaller amount than the no. of voters expected, also, initialization in advance is quite a time consuming process. No personal information to identify the voter can be stored on the token, which is protected by a chip with cryptograms.

The voting takes places in the voting booth, where a dedicated voting terminal is placed. The voting terminal includes a touch-screen, card-reader and printer. The cover of the voting terminal protects the terminal from tampering attempts with electromagnetism devices. The voting terminal has one power cable and operates on a docking principle. The touch-screen can also be used in combination with the e-ballot boxes. The voter gets acess to the voting terminal by introducing the token (smart-card) in the front of the terminal (process is similar to placing a credit-card in an ATM). The token is then captivated by the voting terminal, which is ready for use. It is possible to reuse the token for other voters after re-initialization by the election officer. The voter casts the vote on the touch-screen by using fingertips or a pen attached to the top of the voting machine. The machine can also be navigated by a button system placed below the screen (primarily installed for voters with disabilities). It is also possible for voters with disabilities to have the "ballot" on the screen read aloud and make their choice using the described button functionality.

The first frame shows the list of parties and the option to cast a blank vote. When the voter selects a party, the list of candidates for that party is shown in a new frame. The voter can cast the vote for a party, a candidate, or cast a blank vote. The voter's choice is shown on the screen, which then asks the voter to confirm the vote before a paper ballot containing the vote printed in a human readable format and an encoded 2D barcode is printed. The barcode can be verified (optional) by the voter with a terminal with a standard bar code scanner placed in a separate booth at the polling station, but not by using the voter's own software e.g. on a mobile phone or similar, as the barcode is encrypted or security reasons.

The ballot is folded and placed by the voter with the barcode down-side in a motorized insert on the top of the ballot box. The ballot box swallows the ballot only after it has been successfully read. A screen is placed in top of the ballot box. The screen gives a confirmation when the vote is registered. The ballot box registers/reads the vote and can be audited at any time. The ballot box only stores encrypted data, which can not be decrypted during the elections.

With regard to the electronic counting, the result of the registered votes in the ballot box can only be decrypted (and read) by using a private key stored with the electoral officer (chairman of the polling officers). Data can be sent to a central place. Votes can also be counted manually. The ballots are shuffled before they are decrypted and counted so that no comparisons can be made between the electoral register and the order of the ballots.

3. Notes on different issues

Accessibility

With regard accessibility for the disabled, Scytl's and Zetes' solutions are compliant with different standards and can incorporate different solutions to enhance accessibility for the disabled such as touch screen, read aloud, hot keys, etc. The companies cooperate with disability interest groups in the development and testing of their e-voting solutions. With regard to the question of how a blind voter will know

which way to fold the ballot paper, this can be solved by adding some kind of relief or similar to the ballot paper.

Security against malfunction and manipulation
Main risk of e-voting is that someone tries to manipulate the results → security against internal and external attacks, protocols and procedures. Mathematical proofs of decryption and counting to ensure that ballots had not been tampered with, the method is open and well-known. All hardware is stand alone during polling hours. Universal verifiable shuffling process. Cryptographic proof for verifying encrypted vote contents, integrity and authenticity proofs of encrypted vote, integrity proofs of booting media. Also provide physical (seals, locks and alarms) and procedural (individual and universal verification) protection.

Benefits of e-voting
Scytl indicated accuracy (e-voting and -counting removes several of the weaknesses of manual count) and efficiency as the primary advantages of e-voting besides the speed of having the results (providing that the system is widely implemented).

Audit and certification
The audit and certification of the systems for electronic voting and counting are done in advance. The software developed by Scytl is patented and thus protected by intellectual properties. This allows a greater level of transparency.

Scalability
The system is implicitly scalable and can be combined with paper polling. Can also be used for one or several elections or several in parallel. Devices are interchangeable, new units can be brought to replace faulty ones without affecting the election.

E-counting can be done at the polling station or a higher level. Can be used just for polling/ballot marking, with no e-counting if desired. Separate high speed ballot scanning possible. Validation terminal is optional.

Training
Scytl is experienced in providing information and education programs for voters and staff (train the trainer and e-learning facilities). Scytl will provide service facilities in cooperation with a local partner (KMD).

Costs and expenses
Costs and expenses will depend on several issues. The purchase of the number of hardware and software combined with the required functionalities of the software solution. The cost of a token (smartcard) is [redacted] The ballot marking terminal costs [redacted] the ballot box more or less the same. The software licence costs [redacted] lculated on basis of a need for 5,500 terminals and 1,500 ballot boxes. Leasing is possible. Terminals have longevity of 15 years and should therefore also calculate with depreciation when looking at costs.

Dedicated hardware
System is a mix between dedicated hardware and commodity hardware. Pros of dedicated hardware: easier operation, higher reliability/durability, better protection

vs. visual and electronic eavesdropping, better logical protection, improved voter experience with specific interfaces, simplified installation, deployment and maintenance. Pros of non-dedicated hardware: lower costs, reusability, hardware-independence.

Open source and use of proprietary technology
Source code is protected by patents, but available for independent review by independent third parties for audits.

Time schedule for implementation
The time-schedule for implementation from signing of contract to election day is 6-8 months, depending on number and fabrication of the voting equipment.

Further developments
The hardware is flexible and can be open to customized improvements. The software is in continuous evolution (agile methodology), modular system, and inclusion of new technological possibilities as they arise. New versions leverage market improvements, independent evolution of each component, easy integration of new voting mechanisms

SJ20130213103455995

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:34:55
Dokumentnr.: 7495
Titel: Fremseldense af draft summary til Scytl
Dokumenttype: U
Dokumentdato: 20-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 20-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:
Modtager Jose Gorchs ,

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Nicoline Nyholm Miller
Sendt: 20. september 2012 11:32
Til: Jose Gorchs (jose.gorchs@scytl.com)
Emne: Summary of technical dialogue meeting on e-voting in Denmark with Scytl and Zetes

Prioritet: Høj

Dear Jose,

Please find enclosed for your perusal the draft minutes from the technical dialogue with Scytl/Zetes at the Ministry of Economic Affairs and the Interior on 29 August 2012. I apologize for not having been able to send you the minutes at an earlier stage.

We plan to finalize the report on the technical dialogue during the next few days with the view of making it public on Monday, so I would appreciate to have any comments or corrections you might have to the minutes at as soon as possible. Thank you in advance for your cooperation. Please rest assure that we will not be including any individualized details on technical solutions or economic information in the report – particularities included in the minutes are for internal use only.

Best regards,

Chief Electoral Officer
Nicoline Nyholm Miller

økonomi og
indenrigsministeriet

Slotsholmsgade 10-12
1216 Copenhagen K
Tel. direct: +45 72 28 25 22
Fax: + 45 72 28 24 01
valg.im.dk

SJ20130213103505670

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:35:05
Dokumentnr.: 7472
Titel: Svar på Scytls spørgsmål om offentlighed
Dokumenttype: U
Dokumentdato: 20-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 20-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:
Modtager Jose Gorchs ,

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Nicoline Nyholm Miller
Sendt: 20. september 2012 12:45
Til: 'Jose Gorchs'
Emne: SV: Regards and update request

Dear Jose,

I am glad to have the opportunity to clarify the issue of publication of the results of the technical dialogue: what we will be publishing on Monday (hopefully!) will be a summary report of the issues we have discussed with the vendors during the technical dialogue meetings and their responses to our different questions. Efforts have been made however, inter alia for competitive reasons, to only make general descriptions of the systems presented to us and your responses to our different questions, including on the economic implications, so it should not be possible to individualize the responses from any particular vendor. This approach has been chosen as we are not interested in disclosing any sensitive information, but at the same time we needed you to be quite open during the meetings and feel comfortable with answering our questions with candor. We will therefore not be making the presentations or any other written material provided by the vendors available to the public.

What we tried to communicate to the vendors during the technical dialogue was that we are, however, subject to the Public Access regulation in Denmark, so in the event that some individual should want to file a request for access to information regarding the technical dialogue, we *could* be required to make some of this information public, but in the event that this should happen, the vendors will be consulted first, and there are some exceptions in the legislation that make it possible to deny disclosure of information that could seriously damage the economic interests of companies etc. I hope this is a response to your question.

Best regards,
Nicoline

Fra: Jose Gorchs [mailto:jose.gorchs@scytl.com]
Sendt: 20. september 2012 12:11
Til: Nicoline Nyholm Miller
Cc: Andy Tye (Scytl); Gerard Cervelló
Emne: RE: Regards and update request

Hello again Nicoline,

I perfectly understand what you mean and believe me I know that feeling of being overloaded with work very well. No problem with that.

In regards with your meeting summary, we have checked internally and we have agreed that it is indeed a very fair summary of the presentation we did and it covers all the main points that we wanted to demonstrate and/or talk about. You did a great job with the notes and we have no further comments on that.

Finally, according to the ministry's initial instructions for the demo and if we understood well, all the information that the vendors provided during the technical conversations will be made public available, right? Will your report next week be the disclosed information that we will have access to or will we have access to all of the other vendors' presentations? In this last case, how will we be provided with that access?

I know you have a lot of work and I hate adding more stress with my questions, but if you have a moment for a short answer we will appreciate it.

Best Regards

Jose

From: Nicoline Nyholm Miller [mailto:nnm@oim.dk]
Sent: Thursday, September 20, 2012 11:40 AM
To: Jose Gorchs
Subject: SV: Regards and update request

Dear Jose,

For reasons of time constrains and a horrific workload (!), I have not managed to send out the minutes from the technical dialogues quickly after the meetings as I originally intended to – however, I feel it is only right to give the vendors the chance to respond to any misunderstandings etc. that we might have at this point and that are hopefully reflected in the minutes, before we go ahead and publish the report. This is why I am currently sending out the minutes to all vendors and asking for a quick response if you find anything in it that you disagree with or wish to nuance in any way. I will send you the report on Monday.

Kind regards,
Nicoline

Fra: Jose Gorchs [mailto:jose.gorchs@scytl.com]
Sendt: 20. september 2012 11:36
Til: Nicoline Nyholm Miller
Cc: Andy Tye (Scytl)
Emne: Regards and update request

Dear Nicoline,

I hope you're doing well and that you have received valuable information from all the vendors. As you anticipated in your last email that you would be sending a final report this week, we just wanted to let you know that we will be very interested to receive a copy of it when its available.

Best Regards.

--

Jose R. Gorchs Morillas

E/ jose.gorchs@scytl.com

Scytl
Plaça Gal·la Placídia 1-3
08006 Barcelona
Spain

P/ + 34 934 230 324
F/ + 34 933 230 324
http://www.scytl.com

Jose

SJ20130213103507136

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:35:06
Dokumentnr.: 7471
Titel: Scytl: Godkendelse af referat og spørgsmål om offentlighed
Dokumenttype: I
Dokumentdato: 20-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 20-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:
Afsender Jose Gorchs ,

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Jose Gorchs <jose.gorchs@scytl.com>
Sendt: 20. september 2012 12:11
Til: Nicoline Nyholm Miller
Cc: Andy Tye (Scytl); Gerard Cervelló
Emne: RE: Regards and update request

Hello again Nicoline,

I perfectly understand what you mean and believe me I know that feeling of being overloaded with work very well. No problem with that.

In regards with your meeting summary, we have checked internally and we have agreed that it is indeed a very fair summary of the presentation we did and it covers all the main points that we wanted to demonstrate and/or talk about. You did a great job with the notes and we have no further comments on that.

Finally, according to the ministry's initial instructions for the demo and if we understood well, all the information that the vendors provided during the technical conversations will be made public available, right? Will your report next week be the disclosed information that we will have access to or will we have access to all of the other vendors' presentations? In this last case, how will we be provided with that access?

I know you have a lot of work and I hate adding more stress with my questions, but if you have a moment for a short answer we will appreciate it.

Best Regards

Jose

From: Nicoline Nyholm Miller [mailto:nnm@oim.dk]
Sent: Thursday, September 20, 2012 11:40 AM
To: Jose Gorchs
Subject: SV: Regards and update request

Dear Jose,

For reasons of time constrains and a horrific workload (!), I have not managed to send out the minutes from the technical dialogues quickly after the meetings as I originally intended to – however, I feel it is only right to give the vendors the chance to respond to any misunderstandings etc. that we might have at this point and that are hopefully reflected in the minutes, before we go ahead and publish the report. This is why I am currently sending out the minutes to all vendors and asking for a quick response if you find anything in it that you disagree with or wish to nuance in any way. I will send you the report on Monday.

Kind regards,
Nicoline

Fra: Jose Gorchs [mailto:jose.gorchs@scytl.com]
Sendt: 20. september 2012 11:36
Til: Nicoline Nyholm Miller
Cc: Andy Tye (Scytl)
Emne: Regards and update request

Dear Nicoline,

I hope you're doing well and that you have received valuable information from all the vendors. As you anticipated in your last email that you would be sending a final report this week, we just wanted to let you know that we will be very interested to receive a copy of it when its available.

Best Regards.

--

Jose R. Gorchs Morillas

E/ jose.gorchs@scytl.com

Scytl

Plaça Gal·la Placídia 1-3
08006 Barcelona
Spain

P/ + 34 934 230 324
F/ + 34 933 230 324
http://www.scytl.com

Jose

SJ20130213103508516

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:35:08
Dokumentnr.: 7470
Titel: Svar på Scytls regards and update request
Dokumenttype: U
Dokumentdato: 20-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 20-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:
Modtager Jose Gorchs ,

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Nicoline Nyholm Miller
Sendt: 20. september 2012 11:40
Til: 'Jose Gorchs'
Emne: SV: Regards and update request

Dear Jose,

For reasons of time constrains and a horrific workload (!), I have not managed to send out the minutes from the technical dialogues quickly after the meetings as I originally intended to – however, I feel it is only right to give the vendors the chance to respond to any misunderstandings etc. that we might have at this point and that are hopefully reflected in the minutes, before we go ahead and publish the report. This is why I am currently sending out the minutes to all vendors and asking for a quick response if you find anything in it that you disagree with or wish to nuance in any way. I will send you the report on Monday.

Kind regards,
Nicoline

Fra: Jose Gorchs [mailto:jose.gorchs@scytl.com]
Sendt: 20. september 2012 11:36
Til: Nicoline Nyholm Miller
Cc: Andy Tye (Scytl)
Emne: Regards and update request

Dear Nicoline,

I hope you're doing well and that you have received valuable information from all the vendors. As you anticipated in your last email that you would be sending a final report this week, we just wanted to let you know that we will be very interested to receive a copy of it when its available.

Best Regards.

--

Jose R. Gorchs Morillas

E/ jose.gorchs@scytl.com

Scytl
Plaça Gal·la Placídia 1-3
08006 Barcelona
Spain
P/ + 34 934 230 324
F/ + 34 933 230 324
http://www.scytl.com

Jose

SJ20130213103509917

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:35:09
Dokumentnr.: 7467
Titel: Regards and update request from Scytl
Dokumenttype: I
Dokumentdato: 20-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 20-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:
Afsender Jose Gorchs ,

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Jose Gorchs <jose.gorchs@scytl.com>
Sendt: 20. september 2012 11:36
Til: Nicoline Nyholm Miller
Cc: Andy Tye (Scytl)
Emne: Regards and update request

Dear Nicoline,

I hope you're doing well and that you have received valuable information from all the vendors. As you anticipated in your last email that you would be sending a final report this week, we just wanted to let you know that we will be very interested to receive a copy of it when its available.

Best Regards.

--

Jose R. Gorchs Morillas

E/ jose.gorchs@scytl.com

Scytl
Plaça Gal·la Placídia 1-3
08006 Barcelona
Spain

P/ + 34 934 230 324
F/ + 34 933 230 324
http://www.scytl.com

Jose

SJ20130213103514154

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:35:14
Dokumentnr.: 7075
Titel: Prisoverslag for forsøg med e-valg
Dokumenttype: U
Dokumentdato:
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 20-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:

Oplysninger:

Datoer:

Erindringer:

økonomi og indenrigsministeriet

Enhed
VALG-ENH, Valgenheden

Sagsbehandler
DEPNNM

Koordineret med
Kultur og Borgerservice i Aarhus Kommune

Sagsnr.
2012-00363

Doknr.
6522

Dato
18-09-2012

Prisoverslag for forsøg med e-valg

Prisoverslagene er beregnet på baggrund af oplysninger indhentet i forbindelse med Økonomi- og Indenrigsministeriets tekniske dialog gennemført i perioden 21.8 – 3.9. 2012 med 7 leverandører af e-valgsløsninger

Der henvises til det tidligere udsendte udkast til engelsk rapport over teknisk dialog om system til afholdelse af e-valg i Danmark.[1] Nedenstående oplysninger vil indgå i den endelige version af rapporten, som offentliggøres på ministeriets hjemmeside og udsendes til kommuner, der har udtrykt interesse for at deltage i forsøg med e-valg samt de leverandører, der har medvirket i den tekniske dialog.

Forudsætninger

Som nævnt i rapporten om den tekniske dialog findes der flere tekniske løsninger, der spænder fra optiske scannere og digitale optællere af papirstemmesedler markeret i hånden til forskellige former for elektroniske stemmemaskiner med mulighed for elektronisk optælling i stemmekassen af en digitalt afmærket "stemmeseddel".

De forskellige systemer præsenteret under den tekniske dialog er opbygget omkring tekniske løsninger af varierende kompleksitet og med forskelligt valg af komponenter (dedikeret/ikke-dedikeret hardware m.v.), hvilket afspejler sig i den opgivne tentative prissætning fra leverandørernes side.

Udgifter er beregnet for et isoleret pilotforsøg og omfatter derfor også "førstegangsudgifter" til anskaffelse af stemme- og/eller optællingsudstyr m.v. Udstyret vil dog som udgangspunkt kunne genanvendes, hvis evalueringen af forsøget er positiv og der gives tilladelse til flere forsøg med e-valg, eller muligheden for e-valg gøres permanent. Hardwaren benyttet til stemmeafgivning og/eller stemmeoptælling har en anslået levetid på 7-9 valg/afstemninger. Endvidere er det ministeriets vurdering, at udgifter til f.eks. uddannelse, projektledelse og vælgerinformation (se opregning af udgiftsposter nedenfor) vil være forholdsvis høje ved de første forsøg for derefter gradvis at aftage.

Der er lagt en stemmeprocent på 88 % til grund for beregningerne, hvilket er højt sat og svarer til stemmeprocenten ved folketingsvalg. Lægges en lavere stemmeprocent til grund, vil der muligvis være behov for færre hardwareenheder til stemmeafgivning og/eller stemmeoptælling.

Til beregning af de følgende *tentative, overordnede prisoverslag* er anvendt et gennemsnit af priserne for sammenligneligt udstyr på baggrund af leverandørernes oplysninger. For de priser for løsninger for stemmemaskiner, der indgår i beregningerne af prisoverslagene, er det i alle tilfælde forudsat, at alle fremmødte vælgere på afstemningsstedet afgiver elektronisk stemme, samt at der benyttes "intelligente" stemmekasser, som optæller stemmerne elektronisk.

[1] Technical dialogue on a system for e-voting in Denmark - Summary report

Prisoverslagene er som nævnt bl.a. baseret på oplysninger fra leverandørerne, der skal give en indikation på et muligt prisniveau. Det er dog ikke til at sige på nuværende tidspunkt, hvordan markedet vil reagere i en egentlig konkurrencesituation, når ministeriet foretager et udbud til at muliggøre pilotforsøg, herunder om der vil kunne forventes en lavere prissætning til et begrænset pilotforsøg. Det er ministeriets vurdering, at leverandørerne formentlig vil kunne se en interesse i at prissætte pilotforsøget mere attraktivt end angivet i overslagene nedenfor for at komme ind på markedet og høste fordelen, hvis pilotforsøget måtte vise sig at være en succes og føre til større udbredelse af e-valg, på sigt på landsplan.

Prisoverslag

De samlede prisoverslag[2] omfatter udgifter til:

- hardware (alt afhængigt af løsningen indbefatter det optiske stemmeseddelscannere eller stemmemaskiner, digitale stemmekasser med optællerfunktion, tokens og øvrig hardware),
- software,
- teknisk support på valgdagen,
- uddannelse af valgmedarbejdere,
- projektledelse og implementering,
- vælgerinformation,
- uvildig kontrol af udstyr og revision,
- evaluering

Udgifter til teknisk support, uddannelse, projektledelse og implementering, vælgerinformation, kontrol og revision samt evaluering af forsøg er skønsmæssigt opgjort.

A. Afstemningssted med 2.500 vælgere

Den samlede udgift indbefattende de ovenfor nævnte elementer vil afhængigt af den valgte løsning, teknologisk set-up m.v. skønsmæssigt ligge mellem **kr. 250.000-450.000** for et pilotforsøg på et afstemningssted med 2.500 vælgere.

B. Afstemningssted med 5.000 vælgere

Den samlede udgift indbefattende de ovenfor nævnte elementer vil afhængigt af den valgte løsning, teknologisk set-up m.v. skønsmæssigt ligge mellem **kr. 350.000 – 750.000** for et pilotforsøg på et afstemningssted med 5.000 vælgere.

C. Afstemningssted med 10.000 vælgere

Den samlede udgift indbefattende de ovenfor nævnte elementer vil afhængigt af den valgte løsning, teknologisk set-up m.v. skønsmæssigt ligge mellem **kr. 550.000 – 1,1 mio.** for et pilotforsøg på et afstemningssted med 10.000 vælgere

Potentielle mindreudgifter

Behovet for valgmedarbejdere (valgstyrere, tilforordnede vælgere og kommunalt administrativt personale) på afstemningsstederne skønnes at være uændret i løbet af valgdagen og ved stemmeoptællingen under det første pilotforsøg med e-valg.

Gennemføres der efterfølgende et antal valg/afstemninger med anvendelse af optiske stemmeseddelscannere eller stemmemaskiner kombineret med digitale stemmeoptællere, vil den digitale optælling af stemmerne ad åre muligvis helt eller delvis[3] kunne erstatte den manuelle optælling af stemmerne på afstemningsstedet og evt. også fintællingen, og dermed resultere i administrative besparelser.

---

[2] Prisoverslagene er baseret på beregninger foretaget af Kultur og Borgerservice i Aarhus Kommune.
[3] F.eks. hvis der stilles krav om gennemførelse af manuel kontroloptælling på udvalgte afstemningssteder (stikprøvekontroller).

SJ20130213103526582

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:35:26
Dokumentnr.: 7073
Titel: Prisoverslag for forsøg med e-valg
Dokumenttype: U
Dokumentdato:
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 20-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:

Oplysninger:

Datoer:

Erindringer:

økonomi og indenrigsministeriet

Enhed
VALG-ENH, Valgenheden

Sagsbehandler
DEPNNM

Koordineret med
Kultur og Borgerservice i Aarhus Kommune

Sagsnr.
2012-00363

Doknr.
6522

Dato
19-09-2012

Prisoverslag for forsøg med e-valg

Prisoverslagene er beregnet på baggrund af oplysninger indhentet i forbindelse med Økonomi- og Indenrigsministeriets tekniske dialog gennemført i perioden 21.8 – 3.9. 2012 med 7 leverandører af e-valgsløsninger

Der henvises til det tidligere udsendte udkast til engelsk rapport over teknisk dialog om system til afholdelse af e-valg i Danmark.[1] Nedenstående oplysninger vil indgå i den endelige version af rapporten, som offentliggøres på ministeriets hjemmeside og udsendes til de kommuner, der har udtrykt interesse for at deltage i forsøg med e-valg samt de leverandører, der har medvirket i den tekniske dialog.

Forudsætninger

Som nævnt i rapporten om den tekniske dialog findes der flere tekniske løsninger, der spænder fra optiske scannere og digitale optællere af papirstemmesedler markeret i hånden til forskellige former for elektroniske stemmemaskiner med mulighed for elektronisk optælling i stemmekassen af en digitalt afmærket "stemmeseddel".

De forskellige systemer præsenteret under den tekniske dialog er opbygget omkring tekniske løsninger af varierende kompleksitet og med forskelligt valg af komponenter (dedikeret/ikke-dedikeret hardware m.v.), hvilket afspejler sig i den opgivne tentative prissætning fra leverandørernes side.

Udgifterne er beregnet for et isoleret pilotforsøg og omfatter derfor også "førstegangsudgifter" til anskaffelse af stemme- og/eller optællingsudstyr m.v. Udstyret vil dog som udgangspunkt kunne genanvendes, hvis evalueringen af forsøget er positiv og der gives tilladelse til flere forsøg med e-valg, eller muligheden for e-valg gøres permanent. Hardwaren benyttet til stemmeafgivning og/eller stemmeoptælling har en anslået levetid på mindst 7-9 valg/afstemninger. Endvidere er det ministeriets vurdering, at udgifter til f.eks. uddannelse, projektledelse og vælgerinformation (se opregning af udgiftsposter nedenfor) vil være forholdsvis høje ved de første forsøg for derefter gradvis at aftage.

Der er lagt en stemmeprocent på 88 % til grund for beregningerne, hvilket er højt sat og svarer til stemmeprocenten ved folketingsvalg. Lægges en lavere stemmeprocent til grund, vil der muligvis være behov for færre hardwareenheder til stemmeafgivning og/eller stemmeoptælling.

Til beregning af de følgende *tentative, overordnede prisoverslag* er anvendt et gennemsnit af priserne for sammenligneligt udstyr på baggrund af leverandørernes oplysninger. For de priser for løsninger for stemmemaskiner, der indgår i beregningerne af prisoverslagene, er det i alle tilfælde forudsat, at alle fremmødte vælgere på afstemningsstedet afgiver elektronisk stemme, samt at der benyttes "intelligente" stemmekasser, som optæller stemmerne elektronisk.

[1] Technical dialogue on a system for e-voting in Denmark - Summary report

Prisoverslagene er som nævnt bl.a. baseret på oplysninger fra leverandørerne, der skal give en indikation på et muligt prisniveau. Det er dog ikke til at sige på nuværende tidspunkt, hvordan markedet vil reagere i en egentlig konkurrencesituation, når ministeriet foretager et udbud til at muliggøre pilotforsøg, herunder om der vil kunne forventes en lavere prissætning til et begrænset pilotforsøg. Det er ministeriets vurdering, at leverandørerne formentlig vil kunne se en interesse i at prissætte pilotforsøget mere attraktivt end angivet i overslagene nedenfor for at komme ind på markedet og høste fordelen, hvis pilotforsøget måtte vise sig at være en succes og føre til større udbredelse af e-valg, på sigt på landsplan.

Prisoverslag

De samlede prisoverslag[2] omfatter udgifter til:

- hardware (alt afhængigt af løsningen indbefatter det optiske stemmeseddelscannere eller stemmemaskiner, digitale stemmekasser med optællerfunktion, tokens og øvrig hardware),
- software,
- teknisk support på valgdagen,
- uddannelse af valgmedarbejdere,
- projektledelse og implementering,
- vælgerinformation,
- uvildig kontrol af udstyr og revision,
- evaluering

Udgifter til teknisk support, uddannelse, projektledelse og implementering, vælgerinformation, kontrol og revision samt evaluering af forsøg er skønsmæssigt opgjort.

A. Afstemningssted med 2.500 vælgere

Den samlede udgift indbefattende de ovenfor nævnte elementer vil afhængigt af den valgte løsning, teknologisk set-up m.v. skønsmæssigt ligge mellem **kr. 250.000-450.000** for et pilotforsøg på et afstemningssted med 2.500 vælgere.

B. Afstemningssted med 5.000 vælgere

Den samlede udgift indbefattende de ovenfor nævnte elementer vil afhængigt af den valgte løsning, teknologisk set-up m.v. skønsmæssigt ligge mellem **kr. 350.000 – 750.000** for et pilotforsøg på et afstemningssted med 5.000 vælgere.

C. Afstemningssted med 10.000 vælgere

Den samlede udgift indbefattende de ovenfor nævnte elementer vil afhængigt af den valgte løsning, teknologisk set-up m.v. skønsmæssigt ligge mellem **kr. 550.000 – 1,1 mio.** for et pilotforsøg på et afstemningssted med 10.000 vælgere

Potentielle mindreudgifter

Behovet for valgmedarbejdere (valgstyrere, tilforordnede vælgere og kommunalt administrativt personale) på afstemningsstederne skønnes at være uændret i løbet af valgdagen og ved stemmeoptællingen under det første pilotforsøg med e-valg.

Gennemføres der efterfølgende et antal valg/afstemninger med anvendelse af optiske stemmeseddelscannere eller stemmemaskiner kombineret med digitale stemmeoptællere, vil den digitale optælling af stemmerne ad åre muligvis helt eller delvis[3] kunne erstatte den manuelle optælling af stemmerne på afstemningsstedet og evt. også fintællingen, og dermed resultere i administrative besparelser.

---

[2] Prisoverslagene er baseret på beregninger foretaget af Kultur og Borgerservice i Aarhus Kommune.
[3] F.eks. hvis der stilles krav om gennemførelse af manuel kontroloptælling på udvalgte afstemningssteder (stikprøvekontroller).

SJ2013021310352560

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:35:24
Dokumentnr.: 7072
Titel: Prisoverslag på forsøg med e-valg til kommunerne
Dokumenttype: U
Dokumentdato: 19-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 20-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:

Modtager Bornholms Regionskommune , Ullasvej 23
Modtager Frederiksberg Kommune , Smallegade 1
Modtager Gentofte Kommune , Bernstorffsvej 161
Modtager Glostrup Kommune , Rådhusparken 2
Modtager Kolding Kommune , Akseltorv 1
Modtager Odense Kommune , Flakhaven 2
Modtager Odder Kommune , Rådhusgade 3
Modtager Vejen Kommune , Rådhuspassagen 3
Modtager Aabenraa Kommune , Skelbækvej 2
Modtager Aalborg Kommune , Boulevarden 13
Modtager Aarhus Kommune , Rådhuspladsen 2
Modtager KL , Weidekampsgade 10
Modtager Bornholms Regionskommune , Ullasvej 23
Modtager Frederiksberg Kommune , Smallegade 1
Modtager Gentofte Kommune , Bernstorffsvej 161
Modtager Glostrup Kommune , Rådhusparken 2
Modtager Kolding Kommune , Akseltorv 1
Modtager Odder Kommune , Rådhusgade 3
Modtager Vejen Kommune , Rådhuspassagen 3
Modtager Aabenraa Kommune , Skelbækvej 2
Modtager Aalborg Kommune , Boulevarden 13
Modtager Aarhus Kommune , Rådhuspladsen 2

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra:	Nicoline Nyholm Miller
Sendt:	19. september 2012 13:22
Til:	'post@brk.dk'; 'raadhuset@frederiksberg.dk'; 'gentofte@gentofte.dk'; 'glostrup.kommune@glostrup.dk'; 'kommunen@kolding.dk'; 'odense@odense.dk'; 'odder.kommune@odder.dk'; 'post@vejenkom.dk'; 'post@aabenraa.dk'; 'aalborg@aalborg.dk'; 'post@aarhus.dk'; 'kl@kl.dk'; 'kbs_sekretariat@okf.kk.dk'
Cc:	Jacob Poulsby Andersen (JAS@kl.dk); Mette Marie Sundbøll; jel@aarhus.dk; Lene Hartig Danielsen (lha@aarhus.dk); Anette Lund Hansen (BJ7H@okf.kk.dk); 'JOBN@Odense.dk'; Janus Sandsgaard; 'jbp@aabenraa.dk'; 'birgitte.harpelund@glostrup.dk'; 'pernille.andersen@glostrup.dk'; 'hellek.mortensen@glostrup.dk'; 'lene.jahger@glostrup.dk'; 'jorgen.larsen@odder.dk'; 'hjpn@gentofte.dk'; 'susk@kolding.dk'; 'rlai@kolding.dk'; 'jeron@faaborgmidtfyn.dk'; 'mhoug@faaborgmidtfyn.dk'; 'bth@frederiksberg.dk'; 'anje02@frederiksberg.dk'; 'mhr@vejenkom.dk'; 'bhe@brondby.dk'; 'sni@vesthimmerland.dk'; 'lni@Gentofte.dk'; 'Lene.Vinberg@brk.dk'; 'John.Westh@brk.dk'; 'mpk@aalborg.dk'; Maj Skytte Petersen; 'lmha@odense.dk'; 'thomas.jakobsen@okf.kk.dk'; Louise Brandt Olsen; Christian Vigh; Hans B. Thomsen; Maj Skytte Petersen
Emne:	Prisoverslag på forsøg med e-valg

I forlængelse af tidligere brev af 13. september 2012 fra økonomi- og indenrigsminister Margrethe Vestager vedrørende e-valgsprojektet og ministeriets tekniske dialog om e-valg m.v. følger her et tentativt overslag over de økonomiske udgifter forbundet med deltagelse i kommende forsøg med e-valg. Prisoverslagene er bl.a. beregnet på basis af oplysninger modtaget under ministeriets tekniske dialog med 7 leverandører af e-valgssystemer. Det vedhæftede prisoverslag vil indgå i den endelige version af rapporten om den tekniske dialog, som fremsendes snarest muligt.

Evt. spørgsmål til prisoverslag m.v. bedes rettet til undertegnede på valg@oim.dk, idet jeg erindrer om, at fristen for bindende tilsagn til økonomi- og indenrigsministeren om deltagelse i kommende forsøg med e-valg skal være ministeriet i hænde senest den 1. oktober 2012 på ovenstående mailadresse.

Med venlig hilsen

Valgkonsulent, Kommunaljura
Nicoline Nyholm Miller

økonomi og indenrigsministeriet

Slotsholmsgade 10-12
1216 København K
Telefon 72 28 25 22
Fax 72 28 24 01
valg.im.dk

SJ20130213103537857

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:35:37
Dokumentnr.: 6522
Titel: Prisoverslag for forsøg med e-valg
Dokumenttype: N
Dokumentdato: 18-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 18-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:

Oplysninger:

Datoer:

Erindringer:

økonomi og indenrigsministeriet

Enhed
VALG-ENH, Valgenheden

Sagsbehandler
DEPNNM

Koordineret med
Kultur og Borgerservice i Aarhus Kommune

Sagsnr.
2012-00363

Doknr.
6522

Dato
18-09-2012

Prisoverslag for forsøg med e-valg

Prisoverslagene er beregnet på baggrund af oplysninger indhentet i forbindelse med Økonomi- og Indenrigsministeriets tekniske dialog gennemført i perioden 21.8 – 3.9. 2012 med 7 leverandører af e-valgsløsninger

Der henvises til det tidligere udsendte udkast til engelsk rapport over teknisk dialog om system til afholdelse af e-valg i Danmark.[1] Nedenstående oplysninger vil indgå i den endelige version af rapporten, som offentliggøres på ministeriets hjemmeside og udsendes til de kommuner, der har udtrykt interesse for at deltage i forsøg med e-valg samt de leverandører, der har medvirket i den tekniske dialog.

Forudsætninger

Som nævnt i rapporten om den tekniske dialog findes der flere tekniske løsninger, der spænder fra optiske scannere og digitale optællere af papirstemmesedler markeret i hånden til forskellige former for elektroniske stemmemaskiner med mulighed for elektronisk optælling i stemmekassen af en digitalt afmærket "stemmeseddel".

De forskellige systemer præsenteret under den tekniske dialog er opbygget omkring tekniske løsninger af varierende kompleksitet og med forskelligt valg af komponenter (dedikeret/ikke-dedikeret hardware m.v.), hvilket afspejler sig i den opgivne tentative prissætning fra leverandørernes side.

Udgifterne er beregnet for et isoleret pilotforsøg og omfatter derfor også "førstegangsudgifter" til anskaffelse af stemme- og/eller optællingsudstyr m.v. Udstyret vil dog som udgangspunkt kunne genanvendes, hvis evalueringen af forsøget er positiv og der gives tilladelse til flere forsøg med e-valg, eller muligheden for e-valg gøres permanent. Hardwaren benyttet til stemmeafgivning og/eller stemmeoptælling har en anslået levetid på mindst 7-9 valg/afstemninger. Endvidere er det ministeriets vurdering, at udgifter til f.eks. uddannelse, projektledelse og vælgerinformation (se opregning af udgiftsposter nedenfor) vil være forholdsvis høje ved de første forsøg for derefter gradvis at aftage.

Der er lagt en stemmeprocent på 88 % til grund for beregningerne, hvilket er højt sat og svarer til stemmeprocenten ved folketingsvalg. Lægges en lavere stemmeprocent til grund, vil der muligvis være behov for færre hardwareenheder til stemmeafgivning og/eller stemmeoptælling.

Til beregning af de følgende *tentative, overordnede prisoverslag* er anvendt et gennemsnit af priserne for sammenligneligt udstyr på baggrund af leverandørernes oplysninger. For de priser for løsninger for stemmemaskiner, der indgår i beregningerne af prisoverslagene, er det i alle tilfælde forudsat, at alle fremmødte vælgere på afstemningsstedet afgiver elektronisk stemme, samt at der benyttes "intelligente" stemmekasser, som optæller stemmerne elektronisk.

[1] Technical dialogue on a system for e-voting in Denmark - Summary report

Prisoverslagene er som nævnt bl.a. baseret på oplysninger fra leverandørerne, der skal give en indikation på et muligt prisniveau. Det er dog ikke til at sige på nuværende tidspunkt, hvordan markedet vil reagere i en egentlig konkurrencesituation, når ministeriet foretager et udbud til at muliggøre pilotforsøg, herunder om der vil kunne forventes en lavere prissætning til et begrænset pilotforsøg. Det er ministeriets vurdering, at leverandørerne formentlig vil kunne se en interesse i at prissætte pilotforsøget mere attraktivt end angivet i overslagene nedenfor for at komme ind på markedet og høste fordelen, hvis pilotforsøget måtte vise sig at være en succes og føre til større udbredelse af e-valg, på sigt på landsplan.

Prisoverslag

De samlede prisoverslag[2] omfatter udgifter til:

- hardware (alt afhængigt af løsningen indbefatter det optiske stemmeseddelscannere eller stemmemaskiner, digitale stemmekasser med optællerfunktion, tokens og øvrig hardware),
- software,
- teknisk support på valgdagen,
- uddannelse af valgmedarbejdere,
- projektledelse og implementering,
- vælgerinformation,
- uvildig kontrol af udstyr og revision,
- evaluering

Udgifter til teknisk support, uddannelse, projektledelse og implementering, vælgerinformation, kontrol og revision samt evaluering af forsøg er skønsmæssigt opgjort.

A. Afstemningssted med 2.500 vælgere

Den samlede udgift indbefattende de ovenfor nævnte elementer vil afhængigt af den valgte løsning, teknologisk set-up m.v. skønsmæssigt ligge mellem **kr. 250.000-450.000** for et pilotforsøg på et afstemningssted med 2.500 vælgere.

B. Afstemningssted med 5.000 vælgere

Den samlede udgift indbefattende de ovenfor nævnte elementer vil afhængigt af den valgte løsning, teknologisk set-up m.v. skønsmæssigt ligge mellem **kr. 350.000 – 750.000** for et pilotforsøg på et afstemningssted med 5.000 vælgere.

C. Afstemningssted med 10.000 vælgere

Den samlede udgift indbefattende de ovenfor nævnte elementer vil afhængigt af den valgte løsning, teknologisk set-up m.v. skønsmæssigt ligge mellem **kr. 550.000 – 1,1 mio.** for et pilotforsøg på et afstemningssted med 10.000 vælgere

Potentielle mindreudgifter

Behovet for valgmedarbejdere (valgstyrere, tilforordnede vælgere og kommunalt administrativt personale) på afstemningsstederne skønnes at være uændret i løbet af valgdagen og ved stemmeoptællingen under det første pilotforsøg med e-valg.

Gennemføres der efterfølgende et antal valg/afstemninger med anvendelse af optiske stemmeseddelscannere eller stemmemaskiner kombineret med digitale stemmeoptællere, vil den digitale optælling af stemmerne ad åre muligvis helt eller delvis[3] kunne erstatte den manuelle optælling af stemmerne på afstemningsstedet og evt. også fintællingen, og dermed resultere i administrative besparelser.

---

[2] Prisoverslagene er baseret på beregninger foretaget af Kultur og Borgerservice i Aarhus Kommune.
[3] F.eks. hvis der stilles krav om gennemførelse af manuel kontroloptælling på udvalgte afstemningssteder (stikprøvekontroller).

SJ20130213103546243

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:35:46
Dokumentnr.: 6250
Titel: Svar fra Aahus om de økonomiske beregninger
Dokumenttype: I
Dokumentdato: 18-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 18-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:
Afsender Aarhus Kommune , Rådhuspladsen 2

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Jesper Eltved <jel@aarhus.dk>
Sendt: 18. september 2012 09:19
Til: Nicoline Nyholm Miller
Emne: SV: E-valg - talmateriale fra leverandører

Kære Nicoline

Jeg havde overvejelser om at udregne et gennemsnit på baggrund af de nye oplysninger fra leverandørerne, også for på den måde at anonymisere oplysningerne, men kom frem til, at et gennemsnit ikke vil give mening, da det vil dække over meget store forskelle og forskellig forståelse af spørgsmålene. Der er dog en vis overensstemmelse mellem de priser KMD/Smartmatic og Scytl (leverandør d og e) oplyser, da de tilsyneladende har forstået spørgsmålene rigtigt, så her vil et gennemsnit nok give mening. Jeg vil foreslå, at vi udelader oplysninger om scanner/tæller-løsningen fra DRS, da priserne vil kunne sammenkædes med leverandøren, og DRS udtrykkeligt gør opmærksom på, at det vil være meget uheldigt. Hvis vi udsender de eksempler jeg tidligere har opstillet (side 1-4) bør vi nok også undgå at specificere udgifterne for en scanner/tæller-løsning, da man vil kunne se priserne for hardware/software. I stedet kunne vi bare nævne i alt-prisen.

Med venlig hilsen

Jesper Eltved
Specialkonsulent
Tlf.: +45 8940 5015 Mobil +45 2920 8329
E-mail: jel@aarhus.dk

Aarhus Kommune
Kultur og Borgerservice
Borgerservice
Rådhuset
DK-8100 Aarhus C

Fra: Nicoline Nyholm Miller [mailto:nnm@oim.dk]
Sendt: 18. september 2012 08:56
Til: Jesper Eltved
Emne: SV: E-valg - talmateriale fra leverandører

Kære Jesper
Jeg gik syg hjem i går og har derfor først set materialet her til morgen – det var da ærgerligt, at materialet fra leverandørerne ikke var bedre, men måske kan vi nøjes så med at sende dine første beregninger ud, da jeg mener det er problematisk at individualisere oplysningerne, som du har gjort i del II, uanset at de ikke nævnes ved navn – jeg har dog sendt materialet videre til Kammeradvokaten og bedt om deres kommentarer asap, så vi kan sende materialet ud i dag til kommunerne. Umiddelbart tænker jeg, at del I er mest brugbar for dem. Jeg tror vi måske bliver nødt til at slå nogle af udgifterne sammen (HW og SW), ikke så meget af hensyn til den store klump af leverandører, men af hensyn til DRS. Jeg vender tilbage, lige så snart jeg har hørt fra KA.

Mange hilsener
Nicoline

Fra: Jesper Eltved [mailto:jel@aarhus.dk]
Sendt: 17. september 2012 14:04
Til: Nicoline Nyholm Miller

Cc: Lene Hartig Danielsen
Emne: SV: E-valg - talmateriale fra leverandører

Kære Nicoline

Jeg har opsummeret de nye oplysninger fra leverandørerne i et nyt afsnit 3, side 5-8. Jeg vil nødig blande de nye oplysninger med de eksisterende beregninger, da jeg mener de oprindelige beregninger på side 1-4 er de mest retvisende for de samlede udgifter/besparelser kommunerne vil få.

Kvaliteten af tilbagemeldingerne fra leverandørerne er noget svingende. Indra har lagt en forudsætning ind om at hardware leases, Opt2Vote antager, at 80 % af vælgerne stemmer over nettet (?) og Everyone Count har tilsyneladende misforstået spørgsmålet og angiver priser for henholdsvis 20.000, 50.000 og 200.000 vælgere. Af materialet kan jeg se, at der er stor forskel på, hvor grundigt leverandørerne har arbejdet med at besvare spørgsmålene, og det kan være svært at se, om de har indregnet helt det samme og lagt de samme forudsætninger til grund.

Jeg mener det nuværende materiale er brugbart for kommunerne. Jeg kan tilslutte mig at sende tallene ud til kommunerne forholdsvis hurtigt, når du har haft lejlighed til at kommentere dem.

Med venlig hilsen

Jesper Eltved
Specialkonsulent
Tlf.: +45 8940 5015 Mobil +45 2920 8329
E-mail: jel@aarhus.dk

Aarhus Kommune
Kultur og Borgerservice
Borgerservice
Rådhuset
DK-8100 Aarhus C

Fra: Nicoline Nyholm Miller [mailto:nnm@oim.dk]
Sendt: 17. september 2012 13:04
Til: Jesper Eltved
Emne: E-valg - talmateriale fra leverandører

Kære Jesper
Har du haft lejlighed til at kigge på tallene fra leverandørerne, og er det noget, du kan bruge til beregninger à la dem, du foretog på baggrund af de gamle tal? Som nævnt i telefonen foreslår jeg, at vi ikke pensler de enkelte udgiftsposter for meget ud af konkurrencehensyn, men tager gerne en drøftelse af de enkelte punkter – tænkte, at vi kunne sigte efter at sende dem hurtigt ud til kommunerne på dansk, når jeg har haft lejlighed til at se og kommentere dem, og jeg derefter kan implementere tal og præmisser i rapporten på engelsk, som vi så kan sende ud 1-2 dage efter. Du må endelig ringe, hvis du har spørgsmål til proces m.v. Glæder mig til at, hvad du har fået ud af det ☺

Mange hilsener

Valgkonsulent, Kommunaljura
Nicoline Nyholm Miller

økonomi og
indenrigsministeriet

Slotsholmsgade 10-12
1216 København K
Telefon 72 28 25 22
Fax 72 28 24 01
valg.im.dk

SJ20130213103553809

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:35:53
Dokumentnr.: 6246
Titel: Annonce teknisk dialog - ENOTICES_ach-2012-088359-F01-EN [DOK972580]
Dokumenttype: I
Dokumentdato:
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 18-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:

Oplysninger:

Datoer:

Erindringer:

European Union
Publication of Supplement to the Official Journal of the European Union
2, rue Mercier, 2985 Luxembourg, Luxembourg Fax: +352 29 29 42 670
E-mail: ojs@publications.europa.eu Info & on-line forms: http://simap.europa.eu

Prior information notice
(Directive 2004/18/EC)

Section I: Contracting authority

I.1) Name, addresses and contact point(s):

Official name: Ministry of Economic Affairs and the Interior National ID: *(if known)*

Postal address: Slotsholmsgade 10-12

Town: Copenhagen K Postal code: 1216 Country: Denmark (DK)

Contact point(s): Telephone: +45 72282522

For the attention of: Chief Election Officer Nicoline Nyholm Miller

E-mail: valg@oim.dk Fax:

Internet address(es): *(if applicable)*

General address of the contracting authority/entity: *(URL)* http://www.oim.dk

Address of the buyer profile: *(URL)* http://valg.im.dk/English.aspx

Further information can be obtained from

◉ The above mentioned contact point(s)

○ Other (please complete Annex A.I)

I.2) Type of the contracting authority

◉ Ministry or any other national or federal authority, including their regional or local sub-divisions

○ National or federal agenoy/offioe

○ Regional or local authority

○ Regional or local agency/office

○ Body governed by public law

○ European institution/agency or international organisation

○ Other: (please specify)

I.3) Main activity

☒ General public services

☐ Defence

☐ Public order and safety

☐ Environment

☐ Economic and financial affairs

☐ Health

☐ Housing and community amenities

☐ Social protection

☐ Recreation, culture and religion

☐ Education

☐ Other: (please specify)

I.4) Contract award on behalf of other contracting authorities

The contracting authority is purchasing on behalf of other contracting authorities:

○ yes ◉ no

information on those contracting authorities can be provided in Annex A

Section II.A: Object of the contract - Works

II.1) Title attributed to the contract by the contracting authority:

II.2) Type of contract and location of works:

Main site or location of works:

NUTS code:

II.3) Information on framework agreement:

The notice involves the establishment of a framework agreement: O yes O no

II.4) Short description of nature and scope of works:

(if known, give figures only) Estimated cost excluding VAT: Currency:

or

Range: between : and: Currency:

Lots *(for information about lots, use Annex B as many times as there are lots)*

This contract is divided into lots: O yes O no

II.5) Common procurement vocabulary (CPV)

Main vocabulary:

II.6) Scheduled date for start of award procedures and duration of the contract

Scheduled date for start of award procedures: *(if known)* *(dd/mm/yyyy)*

Duration in months: *or* in days: (from the award of the contract)

or

(if known) Scheduled date for

start of works: *(dd/mm/yyyy)*

completion of works: *(dd/mm/yyyy)*

II.7) Information about Government Procurement Agreement (GPA)

The contract is covered by the Government Procurement Agreement (GPA): O yes O no

II.8) Additional information: *(if applicable)*

Section II.B: Object of the contract - Supplies or services

II.1) Title attributed to the contract by the contracting authority:

Supply of a non-remote electronic voting and counting system for application in statutory elections, i.e. parliamentary elections, elections of Danish members to the European Parliament, local and regional government elections and national referenda (technical dialogue with economic operators).

II.2) Type of contract and place of delivery or of performance: *(choose one category only – supplies or services – which corresponds most to the specific object of your contract or purchase(s))*

○ Supplies

◉ Services
Service category No: 7
(Please see Annex C1 for service categories)

Main place of performance or of delivery:

NUTS code: DK01

II.3) Information on framework agreement:

The notice involves the establishment of a framework agreement: ○ yes ○ no

II.4) Short description of nature and quantity or value of supplies or services:*(in each of the service categories)*

Prior to the tender procedure for the supply of a system for non-remote electronic voting and counting (hence referred to as an 'e-voting system'), the Ministry of Economic Affairs and the Interior wishes to hold a technical dialogue with economic operators as further specified below under point II.8), where the conditions for participation are also stated. The deadline for request by economic operators to participate in the technical dialogue is 3 August 2012 at 12:00 noon CEST.
It is presupposed that the e-voting system will be used only for non-remote electronic voting in a controlled environment at polling stations on election day and/or for advanced voting on the premises of the municipalities; not for voting over the internet or by other remote voting channels. The system shall thus be employable for the following phases: preparation before the election, polling, counting and notification of the results as well as packing and storing.
The system has to be adaptable to the Danish context and election traditions, i.e. inter alia be designed to secure a high degree of recognizability for voters and a continued high trust in elections. The Danish turn-out is among the highest in the world for countries where voting is not mandatory (87.7 per cent at the last general election in September 2011; approx. 65 per cent at local elections). The system must therefore be designed in such a way that the high turn-out and trust in elections are maintained.
Digitalization of the polling implies that some of the control mechanisms meant to ensure public control with the elections will be replaced by digitalized procedures, which can only be checked by specialists with particular insight in it-systems etc. Public control mechanisms in a Danish context would e.g. be the demonstration and subsequent sealing of the empty ballot boxes in front of the voters in attendance before the elections commence at 9:00 a.m., and the voters' right to watch the manual count of the votes after the election is closed at 8:00 p.m. To ensure a continued high trust in elections – hitherto obtained and preserved inter alia via the aforementioned public control mechanisms – the Ministry is interested in obtaining information on alternative control mechanisms. These should provide the voter with a comparable high degree of trust that the polling has progressed correctly, i.e. without system failures or any manipulation with the elections. The system shall also be trustworthy and robust and ensure that the election can continue even if the system malfunctions partly or completely during the polling.
The system must also guarantee the secrecy of the vote , which in the Danish context entails that the voter not only has the right to keep his/her vote secret, but is also under the obligation to do so, i.e. the voter is not free to show his/her vote to others. In addition, it must be impossible to connect a voter and the vote he/she has cast, including indirectly by e.g. logging or electronic detection of screen displays or the like by external devices etc. The system must also be user-friendly and readily accessible to all voters, including voters with disabilities.

(if known, give figures only) Estimated cost excluding VAT: Currency:

or

Range: between : and: Currency:

Lots *(for information about lots, use Annex B as many times as there are lots)*

This contract is divided into lots: O yes O no

II.5) Common procurement vocabulary (CPV)

	Main vocabulary	**Supplementary vocabulary** *(if applicable)*
Main object	72000000	

II.6) Scheduled date for start of award procedures *(if known)*

II.7) Information about Government Procurement Agreement (GPA)

The contract is covered by the Government Procurement Agreement (GPA): O yes O no

II.8) Additional information: *(if applicable)*

As part of the preparation of the tender process, the Ministry of Economic Affairs and the Interior wishes to explore the possibilities that the market has to offer at this point in time, and to get an overview of the economic implications of introducing e-voting in Denmark. As part of a preliminary study, the Ministry of Economic Affairs and the Interior therefore wishes to consult with economic operators before embarking on the planned tender process.
Economic operators interested in participating in the dialogue are invited to forward a request for participation to the e-mail address stated above under point I.1). A re-quest for participation in the technical dialogue must be received by the Ministry by 3 August 2012 at 12 noon CEST. The request must include information on which company/ies are requesting to participate.
The Ministry of Economic Affairs and the Interior is interested in consulting with economic operators that have documented experience with the development, implementation and operation of electronic voting systems for larger companies/institutions, including in particular public institutions. Preference will be given to economic operators that have experience with the development and implementation of electronic voting and counting systems for elections to popularly elected organs.
Particularly out of regard for the resources allocated by the Ministry to carry out the preliminary study, a maximum of eight companies/partnerships will be invited to the technical dialogue. In the event that more than eight companies/partnerships request to participate in the technical dialogue, the Ministry of Economic Affairs and the Interior will invite all companies/partnerships that have documented experience with development, delivery, implementation and operation of electronic voting systems for larger companies/institutions, including in particular public institutions. If more than eight companies/partnerships can document such experience, the Ministry will select those companies/partnerships that have documented experience with the development and implementation of electronic voting and counting systems for elections to popularly elected organs, i.e. elections for national or local parliaments or governments etc. In the event that there henceforth are more than eight companies/partnerships qualified for selection according to the above mentioned criteria, lots will be drawn amongst these.
Invitation to participate in the dialogue will therefore be sent out to companies/-partnerships from which the Ministry has received a request for participation by e-mail before the expiry of the deadline, and which have documented experience in delivering products or solutions that match the description above and at the present market such products og solutions.
For each invited company or partnership the technical dialogue will consist of one bilateral meeting between the company/ies in question and the Ministry of Economic Affairs and the Interior. The meeting will last approx. 3 hours, of which approx. 45 minutes will be set aside for a demonstration of the e-voting system of the company/ ies in question.
In addition, the Ministry of Economic Affairs and the Interior wishes to gain closer insight into inter alia the following issues:

1. Protection of the secrecy of the vote in general by the e-voting system.
2. Protection of the secrecy of the vote in particular by the use of dedicated hardware vis-à-vis the use of non-dedicated hardware, including processes for safe destruction of sensitive data.
3. The securing by the e-voting system that the polling has passed off without incident, including by the production of a physical manifestation of the vote (VVPAT or similar) that can both offer sufficient proof to the voter that the polling has passed off correctly and be included in a manual recount.
4. The safeguarding by the system of correct polling and registration of the vote and the possibility to control that the system has not failed or been manipu-lated along the way.
5. The possibility to secure accessibility to the system for the disabled.
6. The economic implications of introducing the e-voting system of the com-pany/ies in question in Denmark, divided into the expenses for a) the purchase or leasing/accommodation of hardware, b) the purchase or leasing of soft ware, c) service and operation etc.
7. Possibilities for further development of the system and possibilities to adjust the e-voting system for future needs and update it to exploit new technological possibilities (possibility for agile development).
8. Possibility of scaling of the system, including information on the possibility to separate the polling and counting functionalities, so that the system initially could be limited to ballot marking, but later can be connected to a digital counting device if desired.
The meetings will be held at the Ministry of Eoonomio Affairs and the Interior during the weeks 34 and 35 according to further arrangement with the individual company or partnership. The meetings will be carried out in Danish as a starting point, but can also be carried out in English.
The Ministry of Economic Affairs and the Interior reserves the right to use any infor-mation imparted by the companies in a request for participation or during the tech-nical dialogue for the subsequent tender, unless the companies have stated as a prior condition that information is imparted in confidentiality, constitutes a commercial secret or consists of exclusive rights. Please note that the Ministry of Economic Affairs and the Interior as a public authority is subject to the Public Records Act. Notwithstanding any confidentiality statements etc. made by participating companies, the Ministry can thus be obliged to give access to documents etc. to the extent following from its obligations under the Public Records Act. For good measure, please be informed that any expenses which companies might incur by participating in the technical dialogue will not be reimbursed by the Ministry.
The Ministry of Economic Affairs and the Interior will draw up a report upon completion of the technical dialogue regarding the future tender process for the purchase of an e-voting system, in which a sum-up of the process and any additional information that may arise will be included. The report will be made publicly available at: http://valg.im.dk.

---------- *(Use this section as many times as needed but do not mix supplies and services in part II.2)* ----------

Section III: Legal, economic, financial and technical information

III.1) Conditions relating to the contract:

III.1.1) Main financing conditions and payment arrangements and/or reference to the relevant provisions governing them: *(if known, provide information only in the case of works contracts)*

III.2) Conditions for participation:

III.2.1) Information about reserved contracts: *(if applicable)*

☐ The contract is restricted to sheltered workshops

☐ The execution of the contract is restricted to the framework of sheltered employment programmes

Section VI: Complementary information

VI.1) Information about European Union funds:

The contract is related to a project and/or programme financed by European Union funds ○ yes ◉ no

(if yes) Reference to project(s) and/or programme(s):

VI.2) Additional information: *(if applicable)*

Please see above under point I.1) re. relevant contact points and II.8) re. the organisation of a technical dialogue.

VI.3) Information on general regulatory framework: *(if applicable)*

Relevant governmental Internet sites where information can be obtained

Tax legislation: (URL) http://
Environmental protection legislation: (URL) http://
Employment protection and working conditions: (URL) http://

For additional details about relevant governmental services where information can be obtained on taxes, environmental protection, employment protection and working conditions, please fill Annex A.II-IV (if applicable)

VI.4) Date of dispatch of this notice:

26/06/2012 *(dd/mm/yyyy)* - ID:2012-088359

Annex A

Additional addresses and contact points

I) Addresses and contact points from which further information can be obtained:

Official name: National ID: *(if known)*

Postal address:

Town: Postal code: Country:

Contact point(s): Telephone:

For the attention of:

E-mail: Fax:

Internet address: *(URL)*

II) Address, contact points and internet site of the relevant government service from which information can be obtained about taxes:

Official name: National ID: *(if known)*

Postal address:

Town: Postal code: Country:

Contact point(s): Telephone:

For the attention of:

E-mail: Fax:

Internet address: *(URL)*

III) Address, contact points and internet site of the relevant government service from which information can be obtained about environmental protection:

Official name: National ID: *(if known)*

Postal address:

Town: Postal code: Country:

Contact point(s): Telephone:

For the attention of:

E-mail: Fax:

Internet address: *(URL)*

IV) Address, contact points and internet site of the relevant government service from which information can be obtained about employment protection and working conditions:

Official name: National ID: *(if known)*

Postal address:

Town: Postal code: Country:

Contact point(s): Telephone:

For the attention of:

E-mail: Fax:

Internet address: *(URL)*

V) Address of the other contracting authority on behalf of which the contracting authority is purchasing

Official name National ID (if known):

Postal address:

Town Postal code

Country

---------- (Use Annex A Section V as many times as needed) ----------

Annex B
Information about lots

Title attributed to the contract by the contracting authority

Lot No : **Lot title :**

1) Short description:

2) Common procurement vocabulary (CPV):

Main vocabulary:

3) Quantity or scope:

(if known, give figures only) Estimated cost excluding VAT: Currency:

or

Range: between : and: Currency:

4) Indication about different date for start of award procedures and/or duration of contract*(if applicable)*

Scheduled date for start of award procedures: *(if known)* *(dd/mm/yyyy)*

Duration in months: *or* in days: (from the award of the contract)

or

(if known) Scheduled date for

start of works: *(dd/mm/yyyy)*

completion of works: *(dd/mm/yyyy)*

5) Additional information about lots:

Annex C1 – General procurement

Service categories referred to in Section II: Object of the contract

Directive 2004/18/EC

Category No [1]	**Subject**
1	Maintenance and repair services
2	Land transport services [2], including armoured car services, and courier services, except transport of mail
3	Air transport services of passengers and freight, except transport of mail
4	Transport of mail by land [3] and by air
5	Telecommunications services
6	Financial services: a) Insurances services b)Banking and investment services [4]
7	Computer and related services
8	Research and development services [5]
9	Accounting, auditing and bookkeeping services
10	Market research and public opinion polling services
11	Management consulting services [6] and related services
12	Architectural services; engineering services and integrated engineering services; urban planning and landsoape engineering servioes; related soientifio and teohnioal consulting services; technical testing and analysis services
13	Advertising services
14	Building-cleaning services and property management services
15	Publishing and printing services on a fee or contract basis
16	Sewage and refuse disposal services; sanitation and similar services
Category No [7]	**Subject**
17	Hotel and restaurant services
18	Rail transport services
19	Water transport services
20	Supporting and auxiliary transport services
21	Legal services
22	Personnel placement and supply services [8]
23	Investigation and security services, except armoured car services
24	Education and vocational education services
25	Health and social services
26	Recreational, cultural and sporting services [9]
27	Other services

1 Service categories within the meaning of Article 20 and Annex IIA to Directive 2004/18/EC.
2 Except for rail transport services covered by category 18.
3 Except for rail transport services covered by category 18.
4 Except financial services in connection with the issue, sale, purchase or transfer of securities or other financial instruments, and central bank services. The following are also excluded: services involving the acquisition or rental, by whatever financial means, of land, existing buildings or other immovable property or concerning rights thereon. However, financial service contracts concluded at the same time as, before or after the contract of acquisition or rental, in whatever form, shall be subject to the Directive.

5 Except research and development services other than those where the benefits accrue exclusively to the contracting authority for its use in the conduct of its own affairs on condition that the service provided is wholly remunerated by the contracting authority.
6 Except arbitration and conciliation services.
7 Service categories within the meaning of Article 21 and Annex IIB of Directive 2004/18/EC.
8 Except employment contracts.
9 Except contracts for the acquisition, development, production or co-production of program material by broadcasters and contracts for broadcasting time.

SJ2013021310360579

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:36:04
Dokumentnr.: 6245
Titel: Brev fra økonomi- og indenrigsministeren om e-valg [DOK986259]
Dokumenttype: I
Dokumentdato:
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 18-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:

Oplysninger:

Datoer:

Erindringer:

økonomi og indenrigsministeriet

MINISTEREN
Slotsholmsgade 10-12
DK-1216 København K

T +45 7228 2400
F +45 7228 2401
M oim@oim.dk
W oim.dk

Dato: 6. juli 2012
Enhed: Kommunaljura
Sagsbeh.: DEPNNM
Sags nr.: 1201762
Dok nr.: 981057

Til borgmestrene i Bornholms, Frederiksberg, Gentofte, Glostrup, Kolding, Københavns, Odense, Odder, Vejen, Aabenraa, Aalborg, og Aarhus Kommuner samt formanden for KL

Kære borgmestre

Den 27. januar 2012 sendte I en anmodning til mig om tilladelse til at gennemføre de første danske forsøg med bindende digital stemmeafgivning på udvalgte afstemningssteder ved lovbestemte valg (dvs. folketingsvalg, kommunale og regionale valg, Europa-Parlamentsvalg og nationale folkeafstemninger).

En evt. digitalisering af valghandlingen falder umiddelbart fint i tråd med de øvrige digitale bestræbelser på at modernisere den offentlige sektor. Det synes i den forbindelse oplagt at udnytte de muligheder, som ny teknologi giver os – også i forbindelse med valg. Jeg mener derfor, forsøgene vil være en god måde at gøre os klogere på, om der er væsentlige fordele ved elektroniske valg, som gør, at vi skal overveje at digitalisere valghandlingen på længere sigt.

Derfor gav jeg ved brev af 12. april 2012 borgmestrene for de omtalte kommuner samt KL tilsagn om, at regeringen ville tage initiativ til at tilvejebringe den nødvendige lovhjemmel hertil med henblik på at give kommunerne adgang til at gennemføre forsøg med e-valg, så snart det er muligt. Hermed menes så snart det nødvendige lovgrundlag er tilvejebragt, de underliggende administrative forskrifter og kravspecifikationer er fastsat og udbudsprocessen er gennemført m.v.

I forbindelse med arbejdet med kravene til de kommende forsøg med digital stemmeafgivning afholdt ministeriet den 15. maj 2012 en heldagsworkshop. Til workshoppen var indbudt en række særligt indbudte nøgleinteressenter fra bl.a. it-samfundet, kommuner, it- og samfundsvidenskabelige forskere, interesseorganisationer, juridiske eksperter m.fl. Nærmere oplysning om de temaer, der blev drøftet på workshoppen samt deltagernes anbefalinger m.v. findes på evalg.tekno.dk.

Tilbagemeldingerne fra workshoppen viser, at der er tale om et kompliceret it-projekt med en række faldgruber, der skal håndteres for at sikre, at valghandlingen fortsat kan afvikles sikkert og korrekt, og at tilliden til valget bevares, selvom der sættes strøm til stemmeafgivningen og stemmeoptællingen.

Jeg mener på den baggrund, at ministeriet i højere grad bør engagere sig i den kommende udbudsproces, og i samarbejde med kommunerne gennemføre et udbud, der skal tilvejebringe en rammeaftale for et eller flere systemer til

digital stemmeafgivning, som stilles til rådighed for de kommuner, der ønsker at iværksætte forsøg hermed.

Det er planen, at de første forsøg i givet fald kan gennemføres til det førstkommende valg, hvor dette er tidsmæssigt muligt, dvs. hvor der har været den tilstrækkelige tid til at teste og implementere det eller de systemer, som er valgt efter et udbud. Under hensyn til, at den skal være den fornødne tid til den tekniske dialog, lovgivningsprocessen og den efterfølgende udbudsproces, er det efter min opfattelse næppe realistisk, at de første forsøg kan gennemføres allerede til kommunal- og regionalvalget 2013.

Ministeriet vil i samarbejde med nogle kommuner gennemføre en teknisk dialog efter sommerferien med relevante leverandører af e-valgssystemer. Den tekniske dialog skal bidrage til at få skabt et overblik over, hvilke løsninger der findes på markedet, samt tilvejebringe et bedre grundlag for udarbejdelsen af udbudsmaterialet (kravspecifikation m.v.) til en rammeaftale i samarbejde mellem ministeriet og relevante kommuner, herunder et overblik over de økonomiske omkostninger til indkøb og drift af et sådant system.

Som bilag til dette brev er vedhæftet kopi af annonceringen af den tekniske dialog.

Efter gennemførelsen af den tekniske dialog vil ministeriet vende tilbage med en opsummering af resultatet heraf. Så snart kommunalbestyrelsen på et møde på baggrund af bl.a. resultaterne af den tekniske dialog har haft lejlighed til at tage nærmere stilling til, om I ønsker at forpligte jer til at deltage i kommende forsøg med digital stemmeafgivning, herunder afsætte de nødvendige administrative og økonomiske ressourcer hertil, bedes I vende tilbage til ministeriet med en skriftlig bekræftelse herpå. Jeg skal bede om jeres tilbagemelding senest den 1. oktober 2012.

Jeres skriftlige bekræftelse bedes sendt til valg@oim.dk. Evt. spørgsmål til dette brev bedes rettet til valgkonsulent Nicoline Nyholm Miller på tlf.nr. 72 28 25 22 eller pr. mail til ovenstående mailadresse.

Med venlig hilsen

Margrethe Vestager

SJ20130213103552371

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:35:52
Dokumentnr.: 6244
Titel: Brev fra økonomi- og indenrigsministeren til kommunerne om teknisk dialog og frist for bindende tilsagn om deltagelse i e-valgspilotforsøg
Dokumenttype: I
Dokumentdato: 18-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 18-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:

Modtager	Københavns Kommune , Rådhuset
Modtager	Frederiksberg Kommune , Smallegade 1
Modtager	Odense Kommune , Flakhaven 2
Modtager	Aarhus Kommune , Rådhuspladsen 2
Modtager	Aabenraa Kommune , Skelbækvej 2
Modtager	Aalborg Kommune , Boulevarden 13
Modtager	Bornholms Regionskommune , Ullasvej 23
Modtager	Gentofte Kommune , Bernstorffsvej 161
Modtager	Glostrup Kommune , Rådhusparken 2
Modtager	Kolding Kommune , Akseltorv 1
Modtager	Odder Kommune , Rådhusgade 3
Modtager	Vejen Kommune , Rådhuspassagen 3
Modtager	KL , Weidekampsgade 10

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Maj Skytte Petersen
Sendt: 18. september 2012 09:11
Til: Nicoline Nyholm Miller
Emne: VS: Brev fra økonomi- og indenrigsministeren om e-valg

-----Oprindelig meddelelse-----
Fra: Maj Skytte Petersen
Sendt: 6. juli 2012 16:44
Til: post@brk.dk; raadhuset@frederiksberg.dk; gentofte@gentofte.dk; glostrup.kommune@glostrup.dk; kommunen@kolding.dk; borgerservice@kk.dk; odense@odense.dk; odder.kommune@odder.dk; post@vejenkom.dk; post@aabenraa.dk; aalborg@aalborg.dk; post@aarhus.dk; kl@kl.dk
Cc: Nicoline Nyholm Miller; kbs_sekretariat@okf.kk.dk
Emne: Brev fra økonomi- og indenrigsministeren om e-valg

Se venligst vedhæftede brev fra økonomi- og indenrigsministeren.

Med venlig hilsen

Fuldmægtig, Kommunaljura
Maj Skytte Petersen

Slotsholmsgade 10-12
1216 København K
Telefon 72 28 25 26
Fax 72 28 24 01
iwww.oim.dk

SJ20130213103616362

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:36:16
Dokumentnr.: 6174
Titel: Nye beregninger fra Aarhus Kommune
Dokumenttype: I
Dokumentdato: 17-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 18-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:
Afsender Aarhus Kommune , Rådhuspladsen 2

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Jesper Eltved <jel@aarhus.dk>
Sendt: 17. september 2012 14:04
Til: Nicoline Nyholm Miller
Cc: Lene Hartig Danielsen
Emne: SV: E-valg - talmateriale fra leverandører

Kære Nicoline

Jeg har opsummeret de nye oplysninger fra leverandørerne i et nyt afsnit 3, side 5-8. Jeg vil nødig blande de nye oplysninger med de eksisterende beregninger, da jeg mener de oprindelige beregninger på side 1-4 er de mest retvisende for de samlede udgifter/besparelser kommunerne vil få.

Kvaliteten af tilbagemeldingerne fra leverandørerne er noget svingende. Indra har lagt en forudsætning ind om at hardware leases, Opt2Vote antager, at 80 % af vælgerne stemmer over nettet (?) og Everyone Count har tilsyneladende misforstået spørgsmålet og angiver priser for henholdsvis 20.000, 50.000 og 200.000 vælgere. Af materialet kan jeg se, at der er stor forskel på, hvor grundigt leverandørerne har arbejdet med at besvare spørgsmålene, og det kan være svært at se, om de har indregnet helt det samme og lagt de samme forudsætninger til grund.

Jeg mener det nuværende materiale er brugbart for kommunerne. Jeg kan tilslutte mig at sende tallene ud til kommunerne forholdsvis hurtigt, når du har haft lejlighed til at kommentere dem.

Med venlig hilsen

Jesper Eltved
Specialkonsulent
Tlf.: +45 8940 5015 Mobil +45 2920 8329
E-mail: jel@aarhus.dk

Aarhus Kommune
Kultur og Borgerservice
Borgerservice
Rådhuset
DK-8100 Aarhus C

Fra: Nicoline Nyholm Miller [mailto:nnm@oim.dk]
Sendt: 17. september 2012 13:04
Til: Jesper Eltved
Emne: E-valg - talmateriale fra leverandører

Kære Jesper
Har du haft lejlighed til at kigge på tallene fra leverandørerne, og er det noget, du kan bruge til beregninger à la dem, du foretog på baggrund af de gamle tal? Som nævnt i telefonen foreslår jeg, at vi ikke pensler de enkelte udgiftsposter for meget ud af konkurrencehensyn, men tager gerne en drøftelse af de enkelte punkter – tænkte, at vi kunne sigte efter at sende dem hurtigt ud til kommunerne på dansk, når jeg har haft lejlighed til at se og kommentere dem, og jeg derefter kan implementere tal og præmisser i rapporten på engelsk, som vi så kan sende ud 1-2 dage efter. Du må endelig ringe, hvis du har spørgsmål til proces m.v. Glæder mig til at, hvad du har fået ud af det ☺

Mange hilsener

Valgkonsulent, Kommunaljura
Nicoline Nyholm Miller

økonomi og
indenrigsministeriet

Slotsholmsgade 10-12
1216 København K
Telefon 72 28 25 22
Fax 72 28 24 01
valg.im.dk

SJ2013021310362993

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:36:28
Dokumentnr.: 6069
Titel: Spørgsmål til Aarhus Kommune om bearbejdning af talmateriale fra leverandører
Dokumenttype: U
Dokumentdato: 17-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 17-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:
Modtager Aarhus Kommune , Rådhuspladsen 2

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Nicoline Nyholm Miller
Sendt: 17. september 2012 13:04
Til: jel@aarhus.dk
Emne: E-valg - talmateriale fra leverandører

Kære Jesper
Har du haft lejlighed til at kigge på tallene fra leverandørerne, og er det noget, du kan bruge til beregninger à la dem, du foretog på baggrund af de gamle tal? Som nævnt i telefonen foreslår jeg, at vi ikke pensler de enkelte udgiftsposter for meget ud af konkurrencehensyn, men tager gerne en drøftelse af de enkelte punkter – tænkte, at vi kunne sigte efter at sende dem hurtigt ud til kommunerne på dansk, når jeg har haft lejlighed til at se og kommentere dem, og jeg derefter kan implementere tal og præmisser i rapporten på engelsk, som vi så kan sende ud 1-2 dage efter. Du må endelig ringe, hvis du har spørgsmål til proces m.v. Glæder mig til at, hvad du har fået ud af det ☺

Mange hilsener

Valgkonsulent, Kommunaljura
Nicoline Nyholm Miller

økonomi og indenrigsministeriet

Slotsholmsgade 10-12
1216 København K
Telefon 72 28 25 22
Fax 72 28 24 01
valg.im.dk

SJ20130213103630558

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:36:30
Dokumentnr.: 6011
Titel: Svar til KMD - offentlighedsloven
Dokumenttype: U
Dokumentdato: 17-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 17-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:
Modtager KMD Valg , Lautrupparken 40-42

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Nicoline Nyholm Miller
Sendt: 17. september 2012 10:08
Til: 'Helmer.Mette MEH'
Emne: SV: Studiebesøg til belgisk e-valg i oktober

Kære Mette
Jeg har spurgt en kollega med forvaltningsretsekspertise om, i hvilket omfang man kan undtage forretningshemmeligheder m.v. fra en aktindsigtsanmodning, og har fået følgende svar:

"Jo, vi kan godt undtage forretningshemmeligheder eller oplysninger om "tekniske indretninger eller fremgangsmåder eller om drifts- eller forretningsforhold eller lignende, for så vidt det er af væsentlig økonomisk betydning for den person eller virksomhed, oplysningen angår, at begæringen ikke imødekommes", jf. ofl § 12, stk. 1, nr. 2.
Men det kræver en konkret vurdering, og jeg ville derfor være noget tilbageholdende med at give tilsagn om at undtage det på forhånd. Det skal afgøres, når der kommer en anmodning om aktindsigt, og der vil det selvfølgelig være oplagt at høre vedkommende firma, som må komme med en god forklaring om, hvori den økonomiske risiko består. Der skal efter praksis ganske meget til, for at vi kan undtage oplysningerne, og det er ikke nok, at firmaet kalder det forretningshemmeligheder, hvis ikke det også indholdsmæssigt er det."

Med dette forbehold, hvis Smartmatic er indstillet på, at vi kan komme i en situation, hvor vi er mødt til at videregive oplysningerne eller dele af dem, vil vi gerne takke ja til oplysningerne i det omfang Smartmatic måtte ønske at dele dem med os.

Bedste hilsener
Nicoline

Fra: Helmer.Mette MEH [mailto:MEH@kmd.dk]
Sendt: 17. september 2012 09:30
Til: Nicoline Nyholm Miller
Cc: Hernø.Leif LFH
Emne: VS: Studiebesøg til belgisk e-valg i oktober

Hej Nicoline,

Jvnf. nedenstående, så fik jo afklaret spørgsmålet om studiebesøg ved det Belgiske valg.

Men i forhold til spørgsmålet om ekstra materiale fra leverandørerne, hvordan stiller I jer til dette ?

Venlig hilsen

Mette Helmer, Områdedirektør

KMD Lovbaserede software-løsninger

Lautrupparken 42, DK-2750 Ballerup
E-mail meh@kmd.dk Web www.kmd.dk
Direkte +45 44604414

: Helmer.Mette MEH [mailto:MEH@kmd.dk]
Sendt: 12. september 2012 08:55
Til: Nicoline Nyholm Miller
Cc: Hernø.Leif LFH
Emne: VS: Studiebesøg til belgisk e-valg i oktober

Kære Nicoline,

Tak for sidst, det var en fornøjelse at møde dig og jer under høringen. Jeg skriver til dig da jeg substituerer for Leif Hernø, som er på kursus denne uge.

Jeg er meget interesseret i din tilbagemelding på nedenstående. De belgiske myndigheder har et "observatør-program" og vil meget gerne invitere jer – uafhængigt af både KMD og Smartmatic. Det er vi helt opmærksomme på skal holdes adskilt. Imidlertid har Smartmatic formidlet kontakten, og dermed spørger de også efter hvad jeres tilbagemelding er, så jeg håber at høre fra dig ?

Herudover ligger vi inde med information fra begge de underleverandører vi samarbejder mest med, som vi mener er at generel interesse for jer i udarbejdelsen af rapporten. Det er imidlertid leverandørspecifikt, så begge beder om at selve materialet ikke offentliggøres. Hvordan ser du på det – er I interesseret i at vi videresender sådan information ?

Venlig hilsen

Mette Helmer, Områdedirektør

KMD Lovbaserede software-løsninger

Lautrupparken 42, DK-2750 Ballerup
E-mail meh@kmd.dk Web www.kmd.dk
Direkte +45 44604414

KMD CHALLENGE we are triathlon! KMD 4:18:4

Fra: Hernø.Leif LFH
Sendt: 10. september 2012 08:50
Til: 'Nicoline Nyholm Miller'
Cc: Helmer.Mette MEH
Emne: Studiebesøg til belgisk e-valg i oktober

Kære Nicoline
I oktober i år afholdes valg i den flamsktalende del af Belgien, hvortil Smartmatic har leveret e-valgs-udstyr. Smartmatic har spurgt os, om der kunne være interesse i ministeriet og eventuelt også i kommunerne for besøge Belgien i dagene omkring valget for at se, hvordan en bredt implementeret e-valgs-løsning fungerer. Mulige emner kunne være besøg på et digitaliseret valgsted, på et centralt call-center, dialogmøde med de valgansvarlige myndigheder.
Smartmatic er meget bevidst om, at et besøg ikke må kollidere med den nuværende dialog-proces og give konkurrenceretslige fordele i forbindelse med et muligt kommende dansk udbud. Smartmatic foreslår derfor, at et besøg arrangeres som et myndighed-til-myndighed-besøg, hvor Smartmatic alene bidrager med navne på kontaktpersoner i den belgiske valgadministration - personer, som ministeriet vil kunne kontakte, hvis der er interesse for at gennemføre et studiebesøg. Smartmatic har fået accept fra de pågældende personer på, at der kan komme henvendelser.
Hvis ministeriet er interesseret, eller hvis du mener, at en eller flere af kommunerne er interesseret i et studiebesøg, ligger vi inde med flere informationer. Da jeg selv er på kursus i den kommende uge, vil jeg bede dig om at tage kontakt til Mette Helmer, der er Cc på denne mail.

Venlig hilsen

Leif Hernø, Domænechef

KMD Lovbaserede software-løsninger

Lautrupparken 42, DK-2750 Ballerup
E-mail lfh@kmd.dk Web www.kmd.dk

Direkte +4544606617 Mobil +4525291791

SJ20130213103631989

Dokumentresumé:

Bestilt af : DEPCLH den 13-02-2013 11:36:31
Dokumentnr.: 6010
Titel: KMD: tilbud om ekstra materiale fra Smartmatic
Dokumenttype: I
Dokumentdato: 17-09-2012
Kontor/enhed: VALG-ENH, Valgenheden
Sagsmedarb.: Nicoline Nyholm Miller, DEPNNM
Indblik:
Versionsnr.: 1
Reg.dato: 17-09-2012
Registreret af: DEPNNM - Nicoline Nyholm Miller

Emneord:

Tekst:

Modtagere:
Afsender KMD Valg , Lautrupparken 40-42

Oplysninger:

Datoer:

Erindringer:

Christina Løtzsch Hansen

Fra: Helmer.Mette MEH <MEH@kmd.dk>
Sendt: 17. september 2012 09:30
Til: Nicoline Nyholm Miller
Cc: Hernø.Leif LFH
Emne: VS: Studiebesøg til belgisk e-valg i oktober

Hej Nicoline,

Jvnf. nedenstående, så fik jo afklaret spørgsmålet om studiebesøg ved det Belgiske valg.

Men i forhold til spørgsmålet om ekstra materiale fra leverandørerne, hvordan stiller I jer til dette ?

Venlig hilsen

Mette Helmer, Områdedirektør

KMD Lovbaserede software-løsninger

Lautrupparken 42, DK-2750 Ballerup
E-mail meh@kmd.dk Web www.kmd.dk
Direkte +45 44604414

KMD CHALLENGE we are triathlon! KMD 4:18:4

: Helmer.Mette MEH [mailto:MEH@kmd.dk]
Sendt: 12. september 2012 08:55
Til: Nicoline Nyholm Miller
Cc: Hernø.Leif LFH
Emne: VS: Studiebesøg til belgisk e-valg i oktober

Kære Nicoline,

Tak for sidst, det var en fornøjelse at møde dig og jer under høringen. Jeg skriver til dig da jeg substituerer for Leif Hernø, som er på kursus denne uge.

Jeg er meget interesseret i din tilbagemelding på nedenstående. De belgiske myndigheder har et "observatør-program" og vil meget gerne invitere jer – uafhængigt af både KMD og Smartmatic. Det er vi helt opmærksomme på skal holdes adskilt. Imidlertid har Smartmatic formidlet kontakten, og dermed spørger de også efter hvad jeres tilbagemelding er, så jeg håber at høre fra dig ?

Herudover ligger vi inde med information fra begge de underleverandører vi samarbejder mest med, som vi mener er at generel interesse for jer i udarbejdelsen af rapporten. Det er imidlertid leverandørspecifikt, så begge beder om at selve materialet ikke offentliggøres. Hvordan ser du på det – er I interesseret i at vi videresender sådan information ?

Venlig hilsen

Mette Helmer, Områdedirektør

KMD Lovbaserede software-løsninger

Lautrupparken 42, DK-2750 Ballerup
E-mail meh@kmd.dk Web www.kmd.dk
Direkte +45 44604414

Fra: Hernø.Leif LFH
Sendt: 10. september 2012 08:50
Til: 'Nicoline Nyholm Miller'
Cc: Helmer.Mette MEH
Emne: Studiebesøg til belgisk e-valg i oktober

Kære Nicoline
I oktober i år afholdes valg i den flamsktalende del af Belgien, hvortil Smartmatic har leveret e-valgs-udstyr. Smartmatic har spurgt os, om der kunne være interesse i ministeriet og eventuelt også i kommunerne for besøge Belgien i dagene omkring valget for at se, hvordan en bredt implementeret e-valgs-løsning fungerer. Mulige emner kunne være besøg på et digitaliseret valgsted, på et centralt call-center, dialogmøde med de valgansvarlige myndigheder.
Smartmatic er meget bevidst om, at et besøg ikke må kollidere med den nuværende dialog-proces og give konkurrenceretslige fordele i forbindelse med et muligt kommende dansk udbud. Smartmatic foreslår derfor, at et besøg arrangeres som et myndighed-til-myndighed-besøg, hvor Smartmatic alene bidrager med navne på kontaktpersoner i den belgiske valgadministration - personer, som ministeriet vil kunne kontakte, hvis der er interesse for at gennemføre et studiebesøg. Smartmatic har fået accept fra de pågældende personer på, at der kan komme henvendelser.
Hvis ministeriet er interesseret, eller hvis du mener, at en eller flere af kommunerne er interesseret i et studiebesøg, ligger vi inde med flere informationer. Da jeg selv er på kursus i den kommende uge, vil jeg bede dig om at tage kontakt til Mette Helmer, der er Cc på denne mail.

Venlig hilsen

Leif Hernø, Domænechef

KMD Lovbaserede software-løsninger

Lautrupparken 42, DK-2750 Ballerup
E-mail lfh@kmd.dk Web www.kmd.dk
Direkte +4544606617 Mobil +4525291791