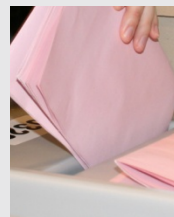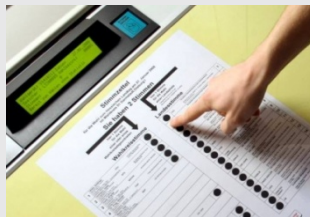Bundesministerium
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E-vote in elections to the German Bundestag

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I. Voting machines in Germany 1961 - 2009

- **Allowed in 1956; first use in 1961**
- **1961-1999 mechanical counting machines, since 1999 electronic machines**
- **Never attracted much attention and only a tiny number was used**
  - **In the Bundestag election 1978: 246 machines**
  - **In 2005: 1850 (but 90 000 polling stations)**
  - **2 Mio voters out of 60 Mio used voting machines**
- **Why?**
  - **Too expensive to buy, store, transport and maintain!**
  - **Not flexible for different ballot papers (only up to 10 candidates in one constituency)**
  - **Time gains not as great as expected**

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II. THE CONSTITUTIONAL COURT CASE OF 2009

- After Bundestag election 2005, a voter challenged generally the use of <u>electronic</u> voting machines

- In 2009 Constitutional Court declared the federal ordinance on voting machines invalid and the use of the electronic voting machines in the 2005 elections unconstitutional

II. THE CONSTITUTIONAL COURT CASE OF 2009
Reasons for the ruling

- <u>Compliance</u> with the constitutional election principles (i.e. free, secret, equal etc) AND <u>confidence in compliance</u> with them, constitute preconditions for a viable democracy.

- The public must be able to monitor the elections, i.e. that elections comply with the constitution, so that manipulation can be ruled out or corrected and unjustified suspicion can be refuted.

- The only way to create sustainable trust in the correct formation of parliament and government is that elections are implemented before the eyes of the public.

- In a republic, elections are a matter for the entire people and a joint concern of all citizens. Consequently, the monitoring of the election procedure must also be a matter for and a task of the citizen.

- <u>Each citizen</u> must be able to comprehend and verify the central steps in the elections reliably and <u>without any special prior technical knowledge</u>.

II. THE CONSTITUTIONAL COURT CASE OF 2009
… and with regard to voting machines:

- **Problem with voting machines:**
  - **Errors and manipulation are difficult to recognize.**
  - **Possible impact of manipulation / error very high**
  - **Vote casting and tabulation is based on a calculation act which cannot be examined without special computer knowledge.**
- **Voting machines can only be used if every voter without a more detailed knowledge of computers is able to verify whether his vote is correctly recorded and included in the tabulation of the election result, and how the total votes cast are assigned and counted**
- **It is not sufficient if the voter must rely on the functionality of the system without the possibility of personal inspection. Equal verifiability must also apply to the election bodies and to interested citizens.**

II. THE CONSTITUTIONAL COURT CASE OF 2009
Consequences

- Conceptually, the use of voting machines (or even i-vote) is still possible …

- … provided the system complies with the Court's requirements!

- HOWEVER….

- No currently available voting technology is able to comply with the Court's requirements.

- No voting machines have been used in Germany since 2009

- => conceptual, legal and practical risk too high

III. CHALLENGES OF FURTHER E-VOTE USE
1. Voter-Verification

- **Court:** "The voter himself or herself must be able to verify – also without a more detailed knowledge of computers – whether his vote is recorded truthfully as a basis for counting or – if the votes are initially counted with technical support – at least as a basis for a subsequent re-count."

- **A voting machine with a second, independent verification system should allow the voter to do this**

- **But voter can only verify his own vote until it is stored in the machine, not the tabulation**

  - **Always manual count required?**

    - **Voting machines useless!**

  - **Control samples only?**

    - **But "every voter must be able to verify…"**

  - **Random control samples + individual demand?**

    - **Manual counting if just one voter asks for it**

   - **=> heavy burden in an unforeseeable number of cases**

2. E-Vote with PAT - Dealing with discrepancies

- **What hat is the basis of the result?**
    - **If it's the paper you always need to do a manual count**
        - **=> no point to have voting machines**
    - **If it's the electronic record, what do you do if in a recount / control sample you find a difference between recording and paper ballot**
        - **=> Paper should prevail, as this is the voter-verified trail**
- **How to deal with obstruction?**
    - **Voters who (for whatever reason) do not put the paper printout in the box. Can they invalidate an election because no-one can verify the result anymore?**
    - **How to prevent voters from putting in manipulated paper printouts?**

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3. Security arms race

- **Agreed: no voting channel is absolutely safe from malfunction or manipulation …**
    - **… but errors and manipulation are difficult to recognize ...**
    - **… and possible impact of manipulation / error very high.**
- **=> security concerns more important with voting technology**

security investment

"incentive" to challenge
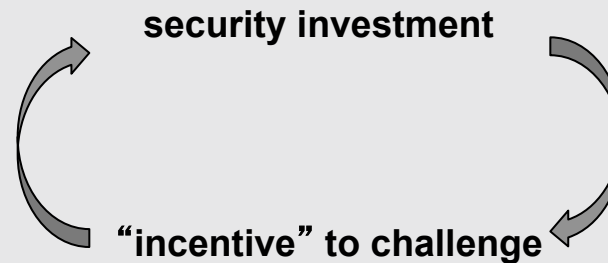
- **=> costly arms race!**
- **=> negative side effect: public may lose trust in traditional voting channels**

4. Secrecy of the vote

- **Court:** Only when it is possible to monitor whether the elections comply with the constitution is it possible to ensure that [the democratic] transfer of public power [from the people to government] does not suffer from a shortcoming.

- **Constitution does require elections to be secret.**

- **Must every voter be able to convince himself that the entire technical process does not allow any breaches of the secrecy of his vote?**

  - **VV-PAT / digital pen => no connection between slip-number and individual voter?**

  - **Radiation?**

  - **Internet-vote: no spying on vote casting?**

- **Impossible to verify for persons "without a more detailed knowledge of computers"**

- **High legal risk!**

IV. PUBLIC ATTITUDES TOWARDS E- / I-VOTE

- **No significant political campaign to (re-)introduce e-vote / i-vote in German elections**

- **Would there be a general willingness to use i-vote if it would be introduced?**

1. BITKOM-survey "Trust and security in the internet"

- **75% of private internet users said they feel "threatened" in their internet use**

- **What do they fear / feel threatened by?**
  - **62%: my computer could be infected with a virus / malware**
  - **45%: my private data / communication could be spied upon**

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2. DIVSI-survey "Political attitudes of German citizens"

- "Could you imagine to vote via internet?"
    - 50% "absolutely yes" and "probably yes"
    - 46% "absolutely not" and "probably not"
- What were reasons to say no?
    - 57% - I have doubts in the security of such a system
    - 44% - I do not trust an i-vote system
    - 38% - I doubt that my vote is secret
    - 37% - I fear that my vote could be manipulated
- => in particular, the age group 18-24 expressed a significant mistrust in the security of an i-vote system

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Thank you very much for your attention!

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