

# E-government and electronic voting

Our partners

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**AT THE OFFICE**

**24 HOURS A DAY**

**ON MY PC**

**Where I like**

**When I like**

**With my  
INTERNET browser**

**AT HOME**

**7 DAYS A WEEK**

**ON MY MAC**

**A one-stop  
contract**

**Individuals, firms**  
All users of Neuchâtel  
public services

**AUTHENTICATION**

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**Secure  
one-stop  
Portal**

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**A one-stop  
infrastructure**

**Regional and local  
government,  
semi-public services**

**SERVICES**

**Vote**

**Sign up for a referendum**

**Obtain a grant**

**Manage your taxes**

**Register a birth**

**Notify a change of address**

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**A  
ONE-STOP  
ROLE  
for**

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**File plans**

**Fix a date for a car test**

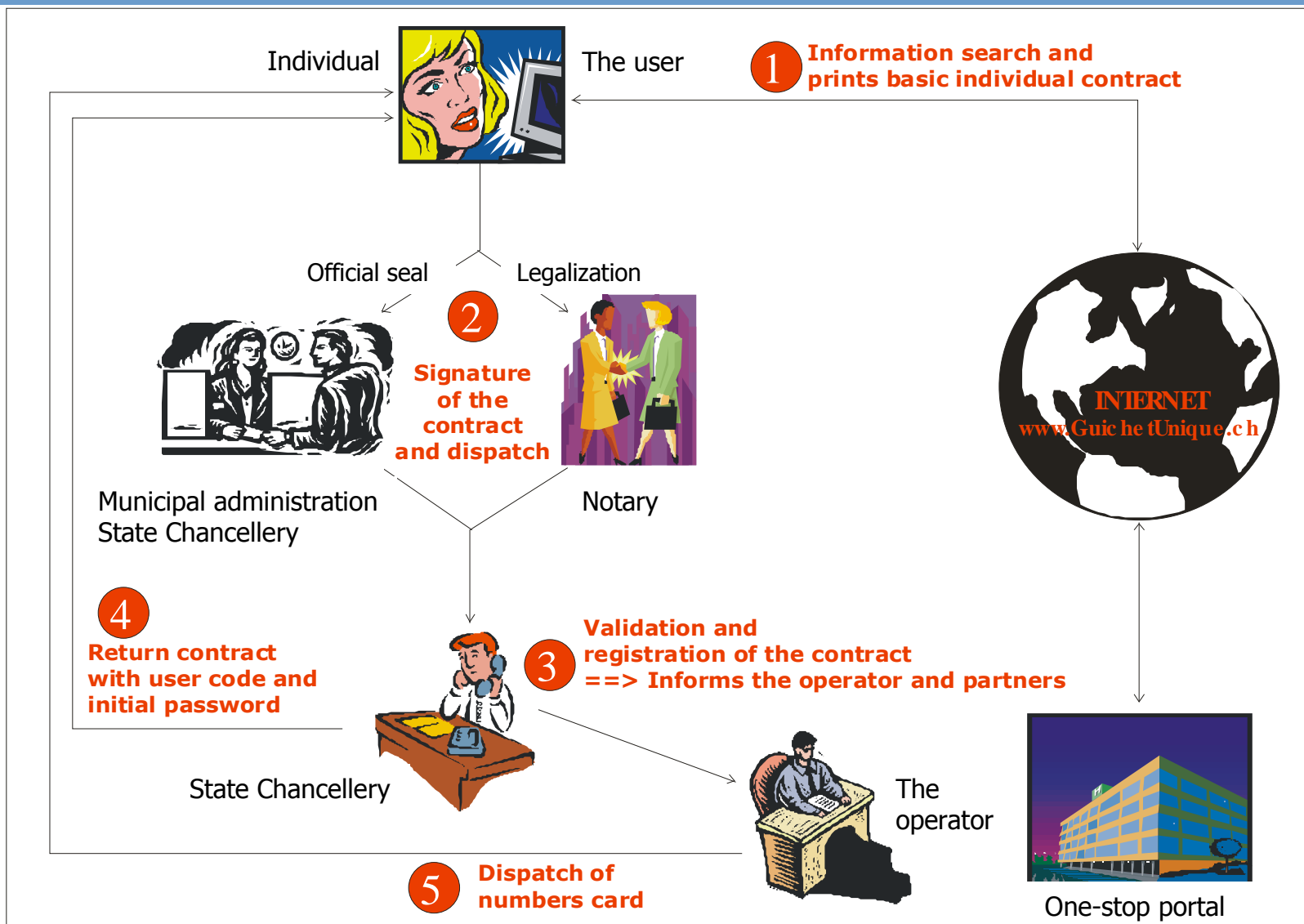
**Settle an inheritance**

**File a tax declaration**

**List public bids**

**Request a certificate**

# Registering the contract for individuals



## Roles and services for citizens

- **Insurances**
  - My contracts for insurance related to buildings
- **Individual taxation**
  - My scale for calculating the various taxes
  - My current tax accounts
  - My due dates and amounts of taxes to be paid
  - My tax notifications
  - My request regarding the submission date of my tax form
- **Mobility**
  - List of car number plate holders
  - My dates for my car's official control
  - My dates for my theory or practical driver's test

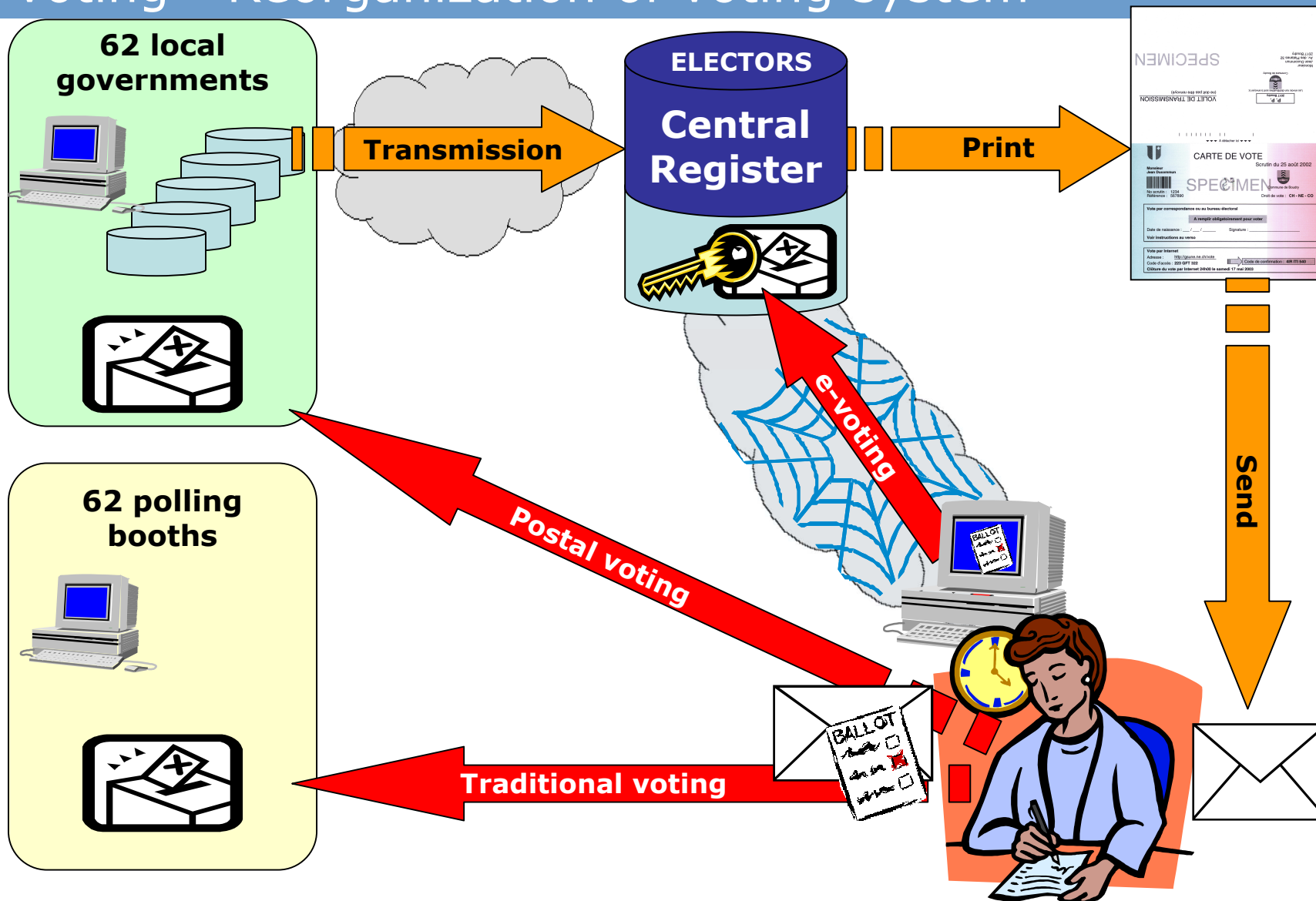
## Roles and services for citizens

- Online democracy
  - Voting
  - Checking my receipt
- Debt collection
  - Registering an application for debt collection
  - My extract of pending cases
  - My debt situation
  - My credit situation
- Profile
  - My user account
  - My contract

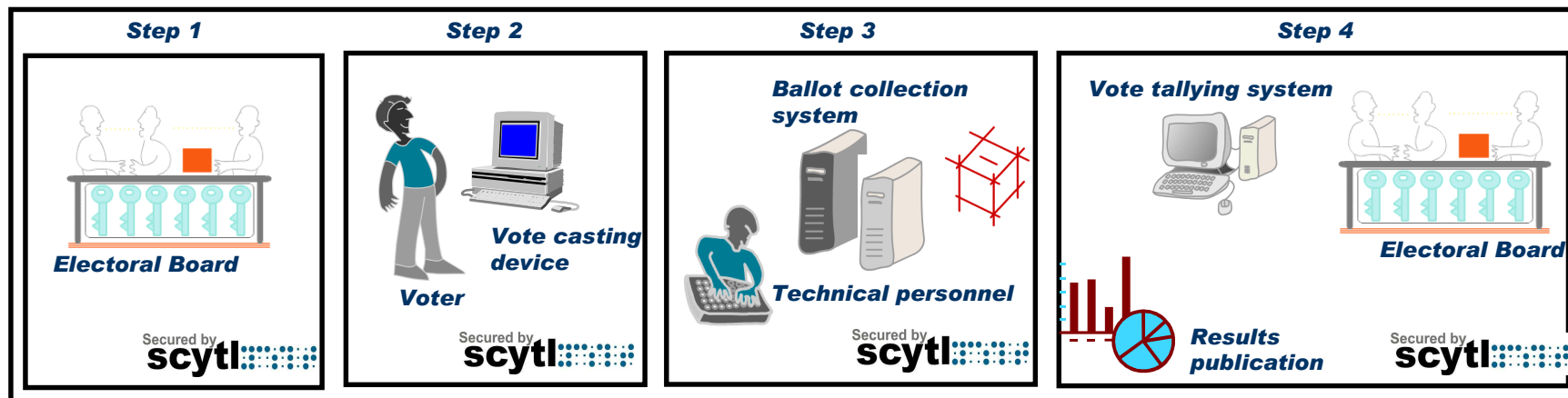
Equivalent services are available for  
companies

E-voting: A secure one-stop portal service

## E-voting - Reorganization of voting system



## e-Voting process



### Constitution of the Electoral Board

Creation of the Election Key pair and splitting and distribution in shares of the private key among Board members

### Voting process

A digitally signed applet is downloaded  
The voter identifies himself, casts his vote and is provided with a voting receipt

### Sealing and storage

The receipt and vote are sealed in a signed digital envelope before being sent and stored in the electronic ballot box

### Digital box transportation

by physical means to the tallying server operated by the Electoral Board

### Private key reconstruction

Opening of the digital envelopes

### Mixing protocol

breaks the correlation between the voters ID and the votes

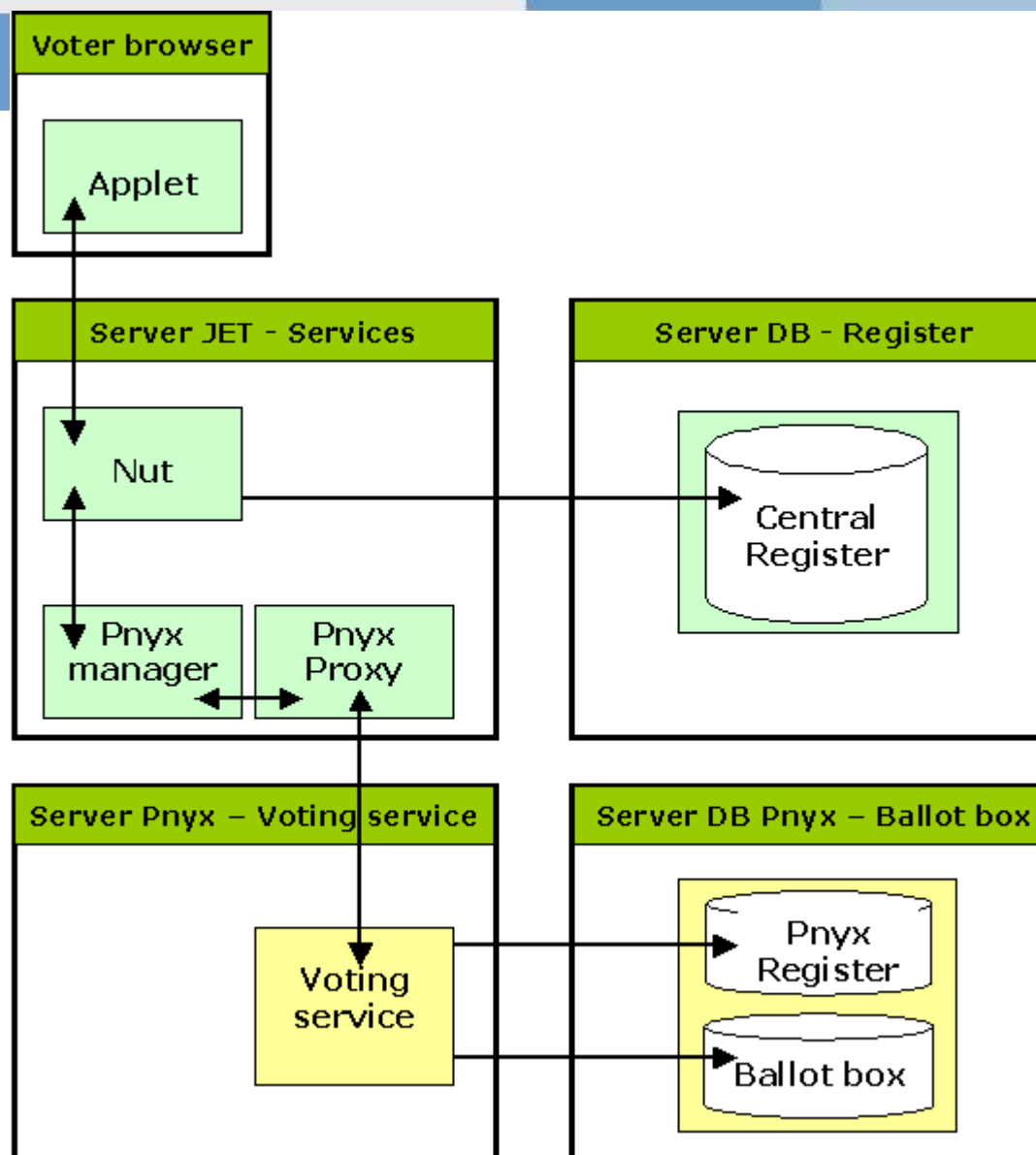


How does it work ?

## Components

- “Pnyx” by ScytI
- “Pnyx Manager” → voting management
  - Basic configuring of the vote
  - Creation of the certificates
- “Voting service” → authorization for the electronic vote
  - Vote opens
  - Votes are recorded
  - Vote closes
  - Votes cast are exported
- “Mixing service” → votes are tallied
  - Decrypting and mixing of the votes

## How does it work ?



## Some results and some observations

## Some results...

30 November 2008 → eighth federal poll !					
Polls	Voters total	Voters GU	Votes Internet	% Internet	% traditional
25.09.2005	112'640	1'732	1'178	<b>68.01</b>	60.31
27.11.2005	106'097	2'442	1'345	<b>55.07</b>	50.53
26.11.2006 1)	106'721	3'554	1'311	<b>36.89</b>	49.23
11.03.2007 2)	106'795	3'757	1'538	<b>40.93</b>	57.15
17.06.2007 2)	124'694	4'151	1'542	<b>37.15</b>	46.89
24.02.2008 2)	109'486	4'385	1'523	34.75	47.53
01.06.2008 3)	107'099	4'705	1'593	<b>33.86</b>	48.27
30.11.2008 3)					

1. Limit of the number of voters : 4'000
2. Limit of the number of voters : 6'000
3. Limit of the number of voters : 8'000 included the Swiss ones from abroad

## The Wassenaar Arrangement - [www.wassenaar.org](http://www.wassenaar.org)

*The Wassenaar Arrangement has been established in 1995 in order to contribute to regional and international security and stability, by promoting transparency and greater responsibility in transfers of conventional arms and dual-use goods and technologies, thus preventing destabilising accumulations. **Cryptography appears in the control list.***

*The objective of the Wassenaar Arrangement is to prevent the accumulation of military capacities likely to threaten regional and international security and stability. It controls the exportation of cryptography techniques as dual-use goods, meaning having civil and military applications at the same time. However, the agreement of Wassenaar concerns only the proliferation of the offensive weapon, and recommends to **release controls in exportation for general public software and public domain software.***

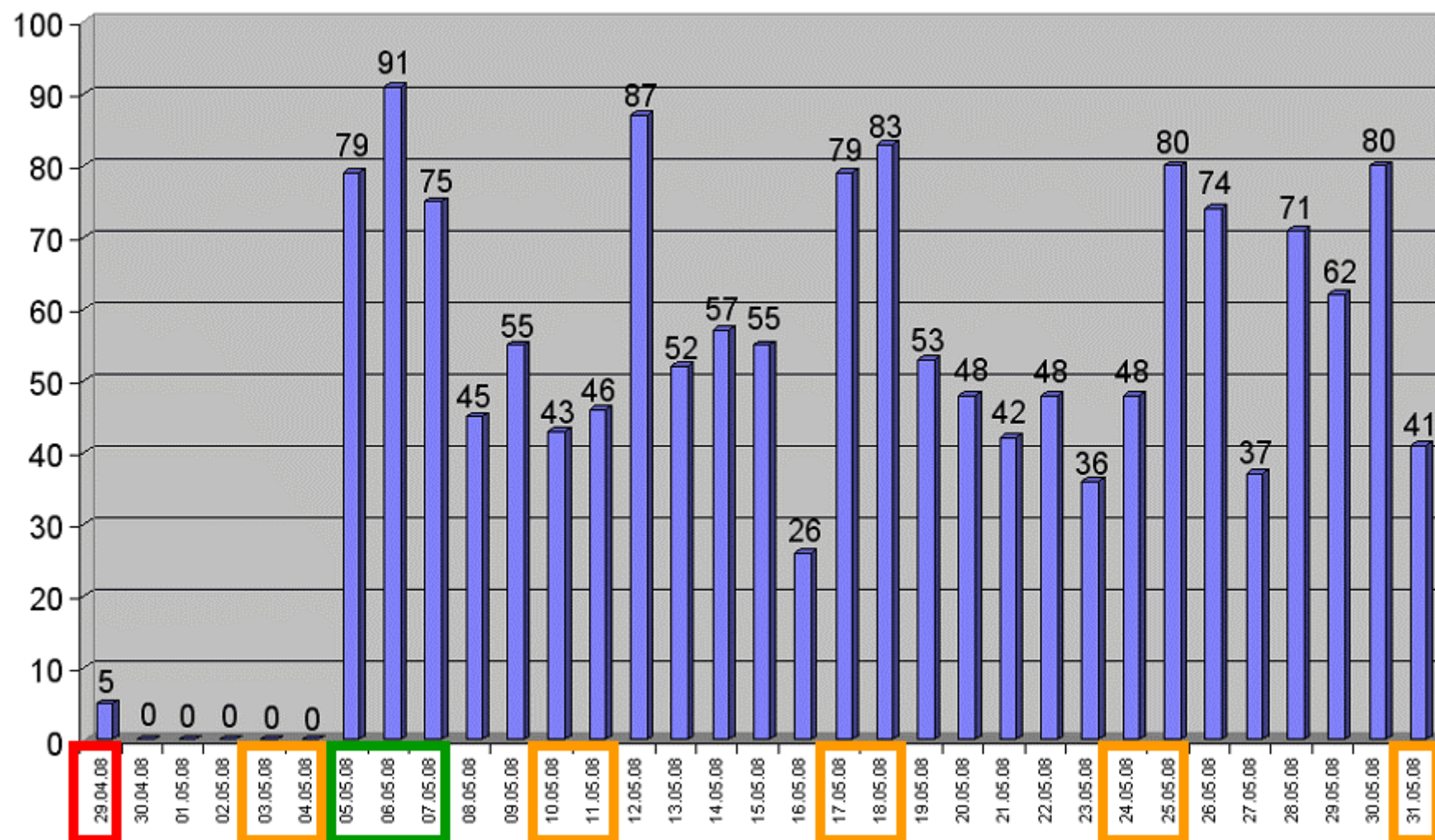
## The countries signatories

40 countries + 1...

Argentina, Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, Malta, Netherlands, New Zealand, Norway, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, United States

+ Cyprus (not signatory of Wassenaar)

## Some facts...





## Some facts...

- **Voting times**
  - Votes at reception of voting material
  - Votes concentrated on weekends and Mondays
  - Few votes the last day
- **Impact on voters**
  - No particular increase in the participation
  - Little impact on young people
  - Interests for the 30 to 65 years old
- **Impact on results**
  - No difference between the electronic vote and the traditional vote

So let's log on!

KARTE GUTSCHRIFTENRECHT

STADT GUTSCHRIFTENRECHT  
STADT GUTSCHRIFTENRECHT

Gutschrift Nr. 123456789

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STADT GUTSCHRIFTENRECHT


User code: A100039  
Initial password: \*\*\*\*\*)

# Number card




L / C	1	2	3	4	5	6	7	8	9	10
A	4313	2430	4847	4421	3450	8434	4240	4422	3753	2205
B	1844	0871	0288	2370	2447	4824	2823	3424	4487	4432
C	8025	4138	1382	2234	1782	4423	5453	8285	3753	4833
D	1021	8544	4528	0074	4722	1237	5227	0822	2744	4448
E	4123	4407	4380	0227	2770	4228	7257	1217	2435	8824
F	1172	3823	4070	8042	3541	8724	5147	4224	2444	2730
G	4221	2025	4252	2035	2472	8273	3405	2780	5722	7552
H	1450	3502	1442	8420	4112	0337	3440	7452	4244	8224
I	1184	4228	4444	7242	3828	8242	4572	1075	2452	5022
J	4024	2085	4458	0414	1142	7283	0541	5324	4008	8220


## Voting card

 **CARTE DE VOTE** Scrutin du 8 mars 2006

Monsieur  
Albert Müller



No scrutin : 0007  
Référence : 100021  
No contrôle : 78

 Commune de Neuchâtel

Droits de vote : CO

*Spécimen*

Vote par correspondance ou au bureau électoral

A remplir obligatoirement pour voter

Date de naissance : \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Signature : \_\_\_\_\_

Vote électronique Adresse : <http://www.guichetUnique.ch>

Code de validation :  
**ngdh-qpeh-7df5-evtz**

Code de confirmation :  
**8wfy-aska-9q4t-quz9**

Clôture du vote électronique à 23h59 le mercredi 8 mars 2006

Contrôle : \_\_\_\_\_

Validation code: **ngdh-qpeh-7df5-evtz**  
Confirmation code: **8wfy-aska-9q4t-quz9**

## Demonstration

Access voter profile from the  
secure one-stop portal  
→ **E-voting**

[www.GuichetUnique.ch](http://www.GuichetUnique.ch)

Thank you for your attention