The challenge of opinion formation in large groups

Binary relations of one-on-one communication grow quadratically with number of participants.

Group discussions are limited by the number of (active) participants and/or the ability of participants to speak as they see fit.

Online group discussions lack quantification (“50% impression”) and tend to become dysfunctional with real conflicts.

By definition moderation imposes democratic deficits.
The challenge 1/2

• Democratic **self organization** of an **unlimited** number of participants.

• Applicable in organizations with **real conflicts**.

• **No moderator** or request commission.

• Bipartisan cooperation **must not** be a precondition.

The challenge 2/2

• Consider **pros, cons and alternatives** prior to voting.

• **Minority protection**.

• Protection against dominance of **noisy minorities**.

• No encouragement for **tactical voting**.

• **Credible** process with trustworthy and indisputable results.
LiquidFeedback: 4 Principles

- Transparency
- Credibility
- Proxy Voting
- Scalability
- Collective Moderation
- Preferential Voting

Transparency and Collective Moderation

- democratic self organization
- no moderator or request commission
- applicable in large organizations with real conflicts
- (bipartisan) cooperation must not be a precondition
- trustworthy and indisputable results

Many drafts will still be created by closed groups or even individuals.
Structured discussion process

- user driven, self organized process
- every member can start an initiative
- quantified constructive feedback
- initiators decide about adoption
- no fundamental opposition within an initiative
- every member can start an alternative initiative

The structured discussion is supplemented by a variety of unstructured discussion formats, both online and offline.
### Transparency and Collective Moderation

<table>
<thead>
<tr>
<th>support</th>
<th>potential support based on suggestions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• must</td>
<td>• must</td>
</tr>
<tr>
<td>• should</td>
<td>• should</td>
</tr>
<tr>
<td>• should not</td>
<td>• should not</td>
</tr>
<tr>
<td>• must not</td>
<td>• must not</td>
</tr>
</tbody>
</table>

- yes/no
- multiple choice
- open answer

searching for the question
Function of the process steps

<table>
<thead>
<tr>
<th>admission</th>
<th>discussion</th>
<th>verification</th>
<th>voting</th>
</tr>
</thead>
<tbody>
<tr>
<td>eg. 4 weeks</td>
<td>e.g. 8 weeks</td>
<td>e.g. 4 weeks</td>
<td>e.g. 4 weeks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>search for the question, create set of answers (voting options)</th>
<th>decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>flow control</td>
<td>improvement</td>
</tr>
</tbody>
</table>

Searching for the Question

initiatives are possible answers and define the issue
Minority protection

unalienable rights
proportional representation
technical measures

Display position

5

Initiative A1
Initiative A2
Initiative A3
Initiative A4
Initiative A5
Initiative A6

...
Initiative A100

3

Initiative B1
Initiative B2
Initiative B3

Group A

Group B

Copyright 2016 Interaktive Demokratie e. V.
Display position

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1. Initiative A1</td>
<td>100. Initiative A100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Initiative A2</td>
<td>101. Initiative B1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Initiative A3</td>
<td>102. Initiative B2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Initiative A4</td>
<td>103. Initiative B3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Initiative A5</td>
<td></td>
<td></td>
<td>R.I.P.</td>
</tr>
<tr>
<td></td>
<td>6. Initiative A6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Group A

Group B

Harmonic weighting

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1. Initiative A1</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Initiative A2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Initiative A3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Initiative A4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Initiative A5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Initiative A6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Group A

Group B

Copyright 2016 Interaktive Demokratie e. V.
Harmonic weighting

<table>
<thead>
<tr>
<th>Minority</th>
<th>$M = 1$</th>
<th>$M = 2$</th>
<th>$M = 3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>40%</td>
<td>2</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>30%</td>
<td>3</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>25%</td>
<td>4</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>20%</td>
<td>5</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>15%</td>
<td>6</td>
<td>13</td>
<td>20</td>
</tr>
<tr>
<td>10%</td>
<td>10</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>5%</td>
<td>20</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>3%</td>
<td>33</td>
<td>66</td>
<td>100</td>
</tr>
<tr>
<td>1%</td>
<td>100</td>
<td>200</td>
<td>300</td>
</tr>
<tr>
<td>$p%$</td>
<td>$100/p$</td>
<td>$200/p$</td>
<td>$300/p$</td>
</tr>
</tbody>
</table>

guaranteed worst case display position

Proxy voting (Liquid Democracy)

<table>
<thead>
<tr>
<th>area</th>
<th>representation</th>
</tr>
</thead>
<tbody>
<tr>
<td>finances</td>
<td>→ Alice</td>
</tr>
<tr>
<td>health</td>
<td>→ Bob</td>
</tr>
<tr>
<td>town planning</td>
<td>self</td>
</tr>
<tr>
<td>traffic</td>
<td>self</td>
</tr>
<tr>
<td>all other areas</td>
<td>→ Charlie</td>
</tr>
</tbody>
</table>
Proxy voting (Liquid Democracy)

- full election period
- long term
- short term

representative democracy

pure democracy

0 delegated areas all

Liquid Democracy (proxy voting)

dynamic division of labor

based on individual choice
Proxy voting in LiquidFeedback

- Delegations are applied to both discussion and final voting.
- Are overruled by more fine graded delegations.
- Automatically suspended by activity for the given activity.

Liquid Democracy

direct participation
- Knowledge
- Interested in
- Importance
- Affected by

presentation
- Expertise
- Reputation
- Trust
- Sympathy
Transitive delegations can break the iron law of oligarchy. Proxies allow intervention. Power lasts as long as principals are „happy“.
Circular delegations

1. Bob
2. Chris
3. Alice

1. +2
2. +2
3. +2

Copyright 2016 Interaktive Demokratie e. V.
Circular delegations

1. Alice delegates to Bob.
2. Chris delegates to Alice.

Preferential voting

1. *1st quorum*:
   - Admission: eg. 4 weeks
   - Discussion: eg. 8 weeks
   - Verification: eg. 4 weeks

2. *2nd quorum*:
   - Voting: eg. 4 weeks

Clone proof
Thunder Bay, Ontario amalgamation referendum (1969)

- Thunder Bay: 15870 votes
- Lakehead: 15302 votes
- The Lakehead: 8377 votes

Copyright 2016 Interaktive Demokratie e. V.
Anonymity and verifiability

...don't go together with computers,
...let alone secrecy and computers!

---

LiquidFeedback is no Black Box

A correct function can be fully audited by the users

- all process relevant data is available
  - both human and machine readable
- snapshots of all decision relevant states
- users can compare checksums and avoid „alternative realities“
Application fields

- political parties
- associations
- civic participation
- constituency participation
- corporations
- cooperatives

participation quota

**increasing factors**
- binding results, commitment
- interest in issues
- personal assessment of importance

**decreasing factors**
- barriers
- trust in representatives
- satisfaction with administration

The participation quota does not qualify as a target function.
The five questions of participation

Who may participate?
What is the subject of participation?
Which instruments are used?
How are the instruments used?
Why to participate?

what it needs to be successful

- access control (accreditation)
- verifiability and transparency (recorded vote)
- serve a purpose (as binding as possible)
- avoid false expectations (be clear on limitations)
Publications

The Principles of LiquidFeedback
http://principles.liquidfeedback.org/

The Liquid Democracy Journal
on electronic participation, collective moderation, and voting systems
http://www.liquid-democracy-journal.org/

Thank you!

liquidfeedback.org
interaktive-demokratie.org
twitter: @liquidfeedback