Social Embeddedness of Large-scale Collaboration on the Internet

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Social Embeddedness of Large-scale Collaboration on the Internet
The Phenomenon

New type of innovation process on the Internet

Cases: development of Wikipedia, Open Source Software; facebook, youtube; recommender-services (such as tripadvisor)

- Development of
  - sophisticated free access alternatives to established products
  - new products or services
- Large numbers of co-innovators/co-producers
- Co-innovators/co-producers are users
- Innovation based on voluntary contributions (not contract base)
- No monetary compensation for contributions
New type of innovation process

- Large-scale collaboration
  - large number of co-innovators
  - high division of labor
  - specialization of tasks
  - economies of scale

- Governance of large-scale collaboration:
  - neither market
  - nor hierarchy
  - nor network
New type of innovation process

- In the case of commercial services or platforms:
  - contributors to collaborative innovation are “external” actors
  - contributions of “external” actors are not contract based
Internet as enabling technology

- Widespread availability of means of production (PC + Internet-access)
- Global network of participants/contributors
- Global division of labor
- Development of digital products allows:
  - granular task structure
  - development as aggregation of small-scale contributions
  - easy to change product releases
- Ex-post coordination of development activities
- Transparency of development process for co-developers
Large-scale collaboration: motivation of co-innovators

- Intrinsic motivation of voluntary co-innovators:
  - interest in product functionality (user-driven innovation)
  - interesting tasks
  - fun
  - creativity
  - scalable size of tasks fit to interest structure of co-innovators

- Non-monetary rewards: reputation

However: there is a collective action problem
Specifics of collective action problem

Governing the commons (Ostrom)

- commons: collective goods
- problem: over-usage of the commons
- collective action problem: preserving the commons

Governing collaborative innovation

- products: public goods
- no over-usage problem (due to no-rival use)
- problem: to be user-only is possible
- collective action problem: producing the commons
Solving the collective action problem: Social embeddedness

Commonalities of social embeddedness

- Shared goals, norms and institutionalized rules

Specifics of embedding collaborative innovation

- Shared goals regarding the product (idea, design, modules)
- Institutionalized norms for participation (e.g., appropriate treatment of others)
- Rules for contributions (How to contribute? What are possible contributions?)
- Meritocratic decision rules
- Shared vision of the usefulness (“Leitidee” [Lepsius])
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Specifics of communities

Traditional communities

- strong norms of reciprocity
- norm based obligations
- trust based
- clear membership status
- “strong ties”

... based on:

- physical proximity/co-presence
- face-to-face interaction
- small communities (personal relationships)
- long-term relationship
# Specifics of communities

<table>
<thead>
<tr>
<th>Traditional communities</th>
<th>Virtual communities</th>
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<tbody>
<tr>
<td>strong norms of reciprocity</td>
<td>absence of norms of reciprocity</td>
</tr>
<tr>
<td>norm based obligations</td>
<td>absence of obligations</td>
</tr>
<tr>
<td>trust based</td>
<td>Not necessarily trust based</td>
</tr>
<tr>
<td>clear membership status</td>
<td>(volatile) membership based on voluntary contributions</td>
</tr>
<tr>
<td>“strong ties”</td>
<td>“weak ties“</td>
</tr>
</tbody>
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... based on:

| physical proximity/co-presence           | globally dispersed actors                                    |
| face-to-face interaction                  | Internet communication                                       |
| small communities (personal relationships)| large communities (unpersonal relationships)                 |
| long-term relationship                    | Frequently changing                                          |
The problem of weak ties: how can collaborative innovation communities work?

The problem of uncertainty (due to lack of obligations)

- high volatility of contributors
- but: large base of possible contributors
The problem of weak ties: how can collaborative innovation communities work?

Social structure in spite of weak ties

- Role differentiation within communities: “core” versus occasional contributors
- Core contributors: non-monetary rewards
  - influence on decisions
  - influential positions
  - reputation
- Influence and reputation (only) based on commitment to contribute
The problem of membership: how can collaborative innovation communities work?

Membership based on voluntary contributions

- Commitment by contribution
- Membership documented by contributions to the public good
- Volatility of membership compensated by openness
Firm driven collaborative innovations – the challenge of hybrid governance

- Firms provide service/development platforms
- Therefore: collaborative innovation in an commercial environment
- However: Firms have to respect the specifics of collaborative communities
  - shared goals, norms and institutionalized rules of the community
  - dynamic social structure based on contributions
  - membership by voluntary contributions
  - large base of possible contributors (openness)