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KARTOGRAPHIE  
Research Group Cartography

# The Impact of the Contributor in VGI Projects

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# Initial research idea

- Personal experience: few female OSM participants
- Also several studies showing small percentages of female participants. Also the male participants reflect just a small fraction of our society.
  - Why?
  - Is that a general issue of VGI (volunteered geographic information)?
  - How do imbalanced user structures influence the resulting data?
  - How can more users be attracted to VGI?

# Research design

## USER

**Aim: Identify potential motivators for increasing the diversity of contributors in VGI (OSM).**

## DATA

**Aim: Analyze consequences of different contributors on data.**

### CASE STUDY

Approach from existing platforms:  
What makes platforms attract different user groups?

### LONGITUDINAL STUDY

Approach from the user: What are different needs and requirements on VGI projects?

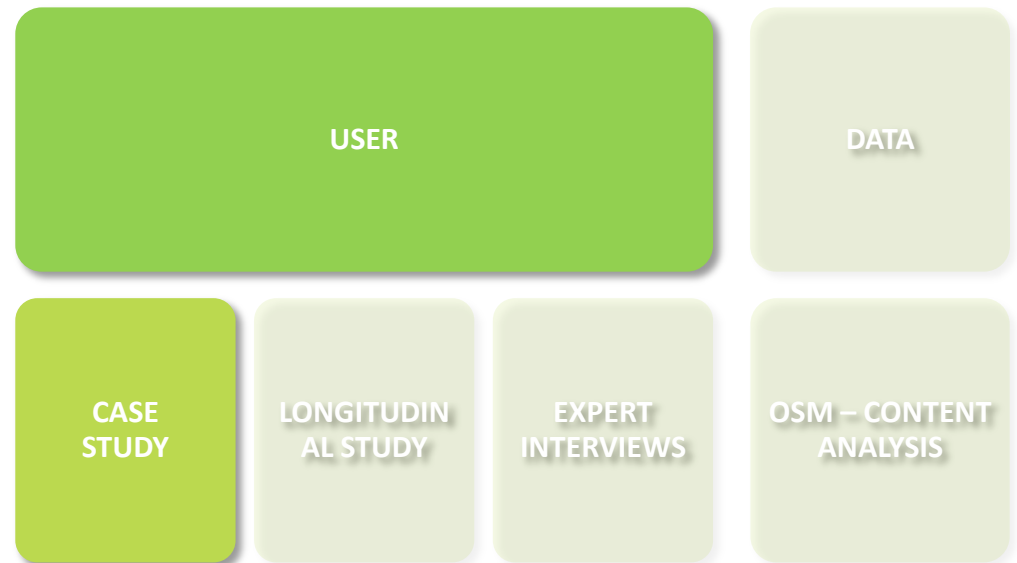
### EXPERT INTERVIEWS

In-depth interviews of barriers and motivations within OSM.

### OSM – CONTENT ANALYSIS

Do different contributors map differently?

# CASE STUDY



# Aims of Case Study

- No satisfying answer to the question of participation imbalance in spatially explicit UGC projects
  - Is gender participation imbalance a question of UGC in general or is the spatial aspect a critical point for participation/ non-participation?
  - Which criteria influence gender participation imbalance in spatially explicit, implicit and non-spatial UGC projects?
  - Are there differences in the criteria influencing gender participation imbalance in spatially explicit, implicit and non-spatial UGC projects?
- There is no comparison between spatially explicit, spatially implicit and non-spatial UGC platforms available yet

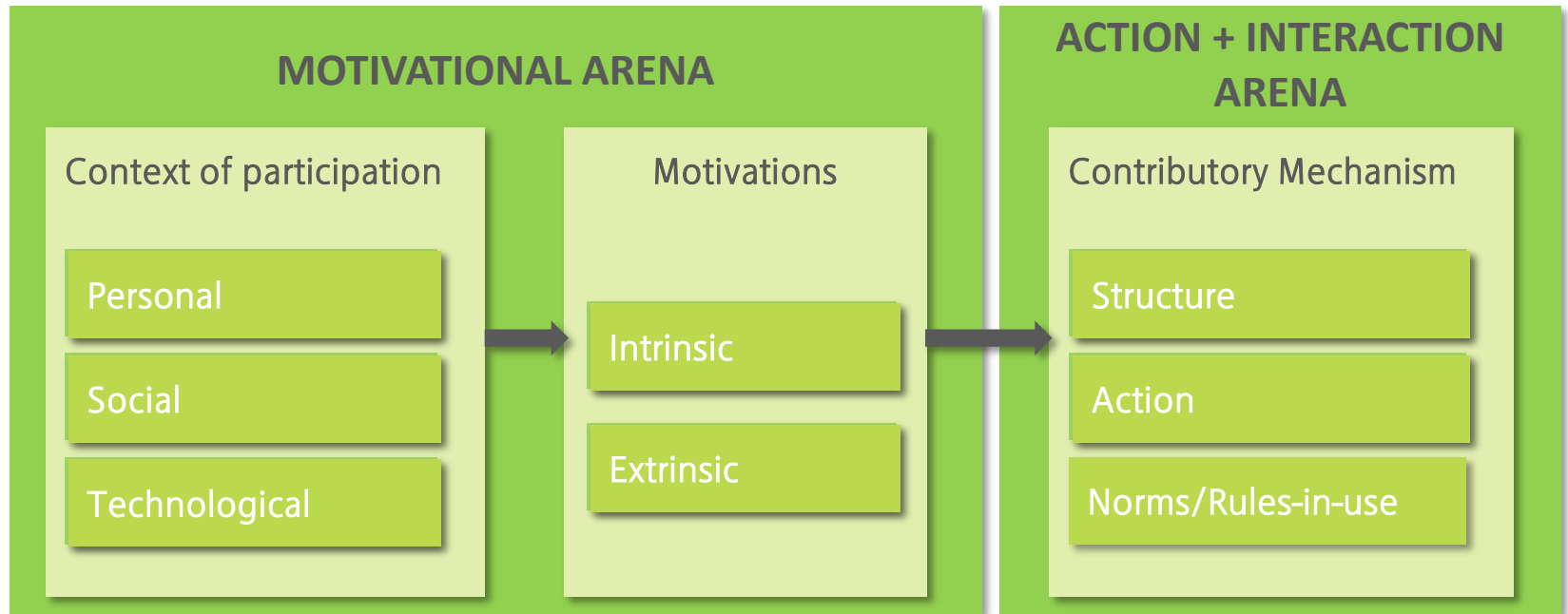
# Methodology



- Selected cases (based on Budhathoki, 2010)
  - Non-spatial UGC platforms: Facebook, Wikipedia
  - Spatially implicit UGC platforms: Panoramio, Foursquare
  - Spatially explicit UGC platforms: OpenStreetMap, GoogleMapMaker

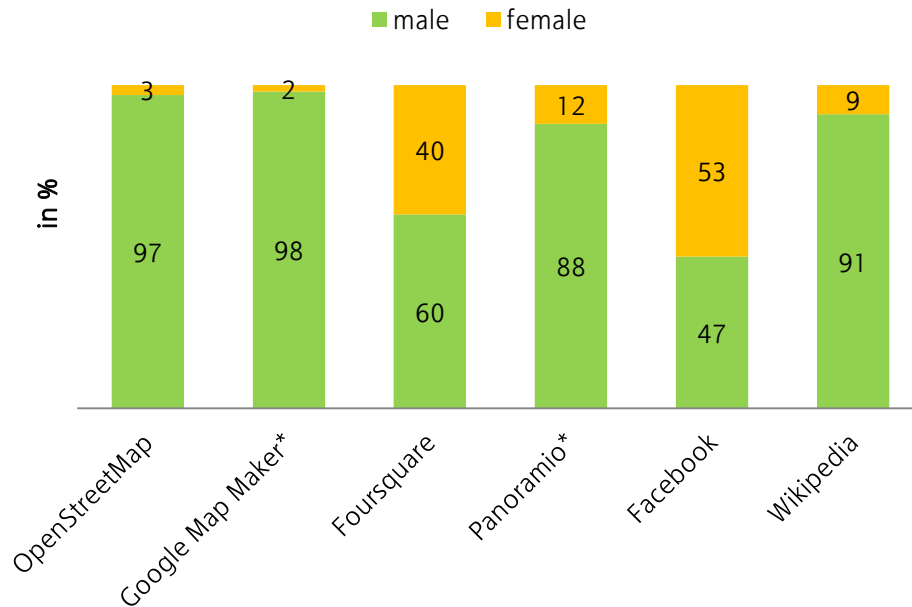
# Criteria for case study analysis

- Criteria selection builds on conceptual model for VGI of Budhathoki, Nedovic-Budic & Bertram, 2010



A conceptual framework for VGI, based on Budhathoki et al. (2010).

# Results: Personal Context / Gender (1/3)



## Sources

OSM: Haklay & Budhathoki (2010)

FOURSQUARE: Ignite Social Media (2011)

FACEBOOK: <http://www.checkfacebook.com/>

WIKIPEDIA: Wikipedia editors study (2011)

\* data based on own enquiry

GMM: analysis of profiles of discussion forum, filter 29/04/2012 until 14/09/2012;

PANORAMIO: analysis of profiles from 13/09/2011 to 21/09/2012

- OpenStreetMap, GoogleMapMaker, Panoramio and Wikipedia: low percentage of female participants
- Facebook and Foursquare: around half of the participants are female



# Results: Social Context / Motives (2/3)

- **Social motives** (communicate with friends and other people etc.) are rather irrelevant for GoogleMapMaker, OpenStreetMap or Wikipedia whereas this is the main motive for people participating in Facebook and Foursquare.
- The **altruistic motivation of volunteering** to share knowledge, information etc. is mentioned with all platforms
- **Self portrayal**
  - Motive that is especially present with Facebook, Foursquare and Panoramio
- **Overall vision** of the project is especially important for users of spatially explicit platforms (OSM and GMM), but also for Wikipedia
- Motivation for **professional reasons** is also important for following platforms: OSM, GMM, Facebook, Foursquare and Wikipedia

# Results: Technological Context / Education (3/3)

- Number of users with university degree
  - OSM: 78%
  - Wikipedia: 61%
  - Foursquare: 30%
  - Facebook: 24%
  - No data für Google Map Maker and Panoramio
- Wikipedia and OSM have in common that by trend computer-savvy persons are part of the community.
  - Wikipedia: computer-savvy participants, but not necessarily programmers (Wikipedia editors study 2010: 2/3 of Wikipedia editors are not programmers)
  - 50% of OSM users come from the GIS field (Nedovic-Budic et al, 2010)

# Assumptions which can be drawn from case studies

- **Vision of explicit spatial UGC platforms** seems to be not so interesting for women
- **Social motives** are rather irrelevant for OpenStreetMap and Google Map Maker (very important for Facebook and Foursquare)
- **Technology context** of spatially explicit UGC platforms (necessity of expert knowledge)



# LONGITUDINAL STUDY



# Aims of Longitudinal Study

1. Identifying motivators and barriers of new mappers when engaging with OpenStreetMap (as example of VGI projects).
  - positive experiences and motivators
  - negative experiences and frustrations
2. Developing guidelines for improvements

Overall aim: Increasing the diversity of contributors

# Methodology

## MAPPING SESSIONS

### Walking Papers



Session 1:  
Outdoor mapping  
with Walking-Papers



Session 2: Armchair-  
mapping from  
satellite images



Session 3:  
Outdoor mapping  
with GPS (group  
activity)



Session 4:  
free mapping task  
and final reflection

## OPEN-ENDED QUESTIONNAIRE

## POST-EVENT QUESTIONNAIRES

2 months after

4 months after

# Conclusions: Barriers (1/3)

- OSM is quite rather complex in the beginning.
  - requires some amount of expert-knowledge (e.g. finding the right tags)
  - OSM does not appear as one united project, due to the variety and diversity of services and functionalities that are provided (e.g. editors, support).
- The collection of data, its upload and download can be quite time consuming.
- The data contribution can be complicated and frustrating.
  - E.g. problems with GPS or satellite images.
- Feedback is sometimes insufficient.
  - Missing visual feedback if elements are not included in the standard rendering.
  - A positive feedback is missing, in terms of „thank you for contributing!“



# Conclusions: Motivations (2/3)

- Mapping is fun when it is easy and fast
- Sharing local knowledge
- Contribution to the society – others can use data
- Gaining new knowledge / skills
- The visual feedback of completing maps and seeing own results
- Outdoor mapping in combination with group-experience
  - → the most favorite OSM activity in our sample



# Conclusions: Recommendations (3/3)

## 1. Attract diverse groups of people with project-related mapping

- Project-related mapping events, e.g. mapping benches for elderly, may be more attractive and meaningful for beginners
- Mapping in a group addresses the social aspect yet missing, as well as the possibility of direct support if needed

## 2. Make mapping easy for beginners

- a comprehensive tutorial „OSM step by step“ for beginners is missing
- Make VGI platforms intuitive, little time consuming + user-friendly

## 3. Keep people mapping with social mapping events

# DATA ANALYSIS



# Aim

- Analysis of contributors' mapping activities
  - Do females and males contribute differently in OSM? Are the mapping activities similar e.g.
    - kind of attributes tagged
    - amount of time spend for mapping
- Indicate consequences for geodata

# Work in progress

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# Thank you for your attention!

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