

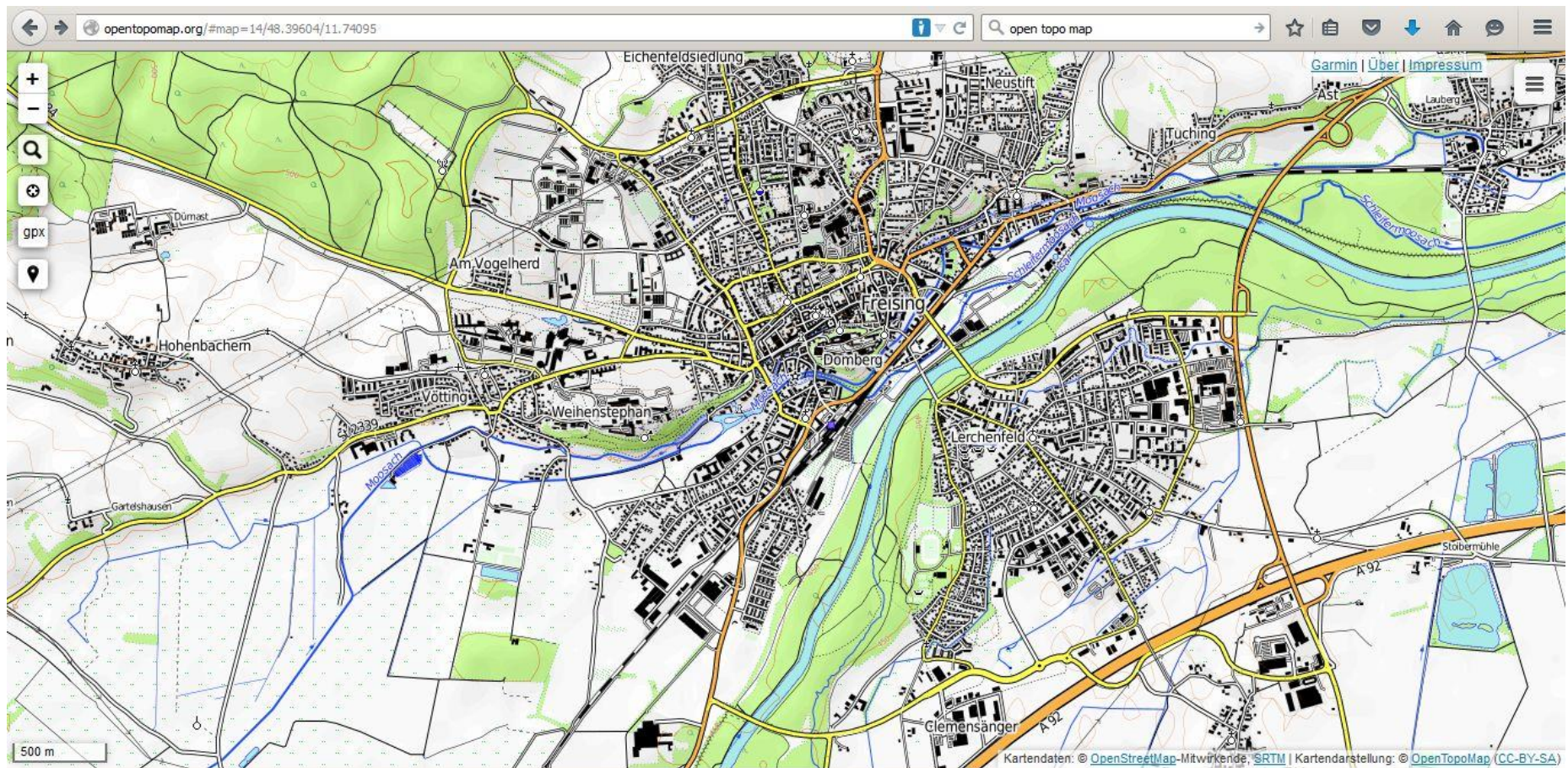


"Open Street Map" as a Problem Based Learning Project:

Opportunities to use and distribute to
the free map of the world

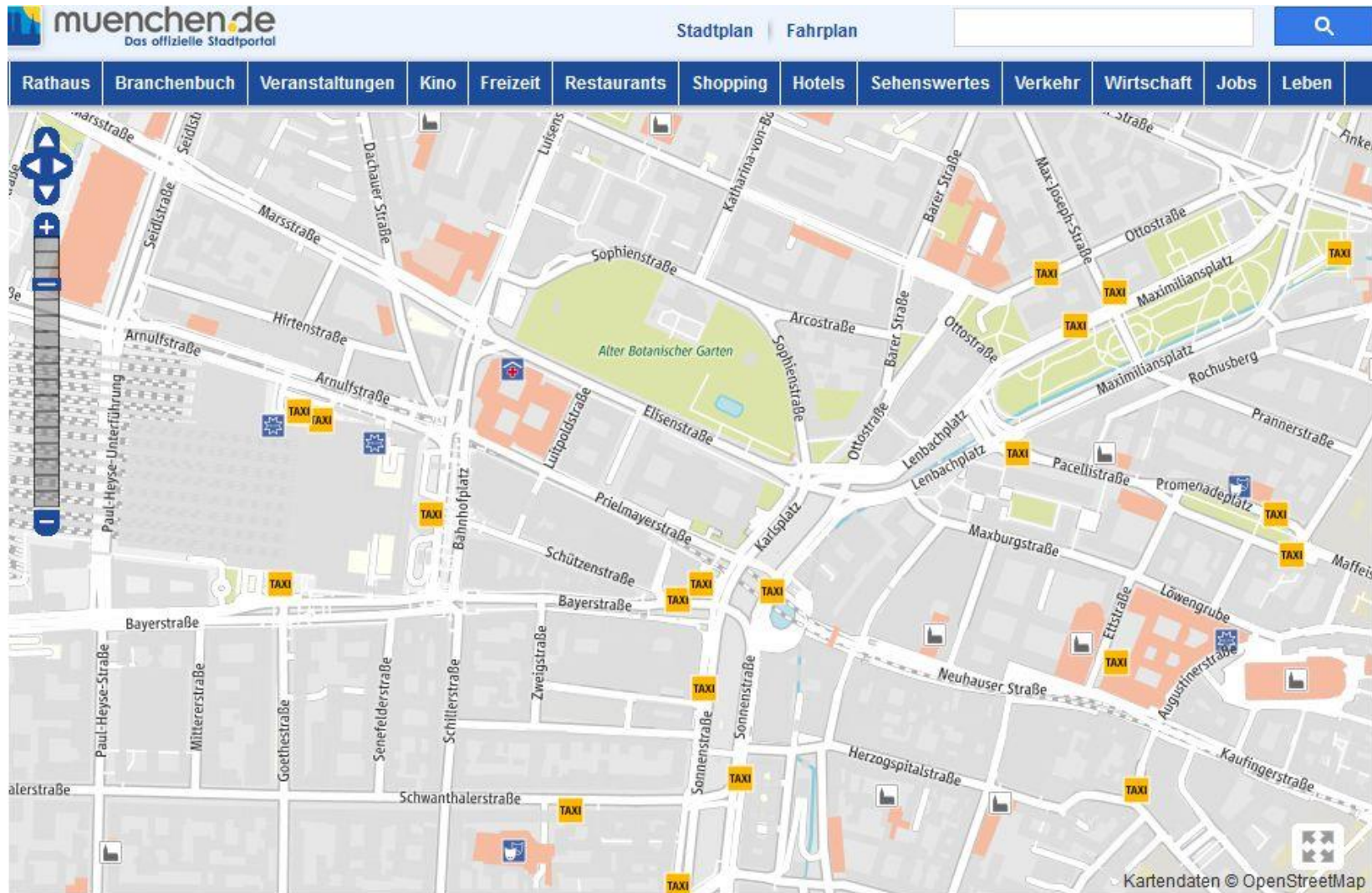
Prof. Dr. sc. techn. Ulrich Kias

High quality cartography: opentopomap.org *



* based on OSM data

Munich: OSM as official city map



IMLA: Students from all around the world





The sequence of learning in PBL as a learning circle

(according to BARROWS 2005)

- » 1. Perception and analysis of the problem
- » 2. Discussion with members of the learning group
Hypothesis building (ideas / assumptions)
Definition of learning targets
- » 3. Self study / research phase
Enhancing existing knowledge
- » 4. Discussion of results
Verification and modification of hypothesis



7 steps approach (University of Maastricht model)

Tutorial Group – Analysing a Problem (Steps 1 to 5)	
1	<u>What does that mean?</u> “I do not understand what ... means”]
2	<u>What is it about?</u> “The most important sub-topics are ...”
3	<u>What do you think?</u> “I suspect that ...”
4	<u>What do we think together?</u> “These statements belong together under the term ...”
5	<u>What are the learning goals?</u> “The most important open questions are ...” “For understanding this problem, we still need to work out/to find out/ answer/ learn about...”
Seeking information from learning resources	
6	<u>What answers do you get?</u> “These are my findings ...”
Synthesise and apply the new information	
7	<u>What is new, what has changed?</u> “That has changed ...”
8	<u>What has happened to me?</u> “Today I have learned ...” “Next time I would do this different...”

Shortly clarify unclear terms in the group

Make an inventory of the sub-topics/sub-problems of the problem

Bring together what you already know

Start with your own experience and knowledge in order to bring clarification

Formulate **learning goals** using the *topics from the 4th step*

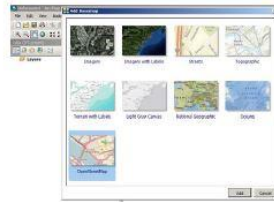
Work on understanding, explaining and solving the **learning goals from step 5**

Report on/Present the output of the **6th step**

Evaluate and reflect on the whole day

Division of students into 2 groups

Use of Open Street Map



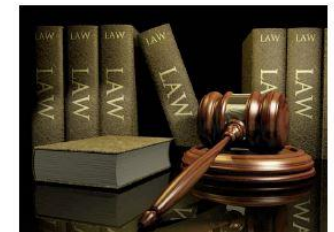
Contributing to Open Street Map



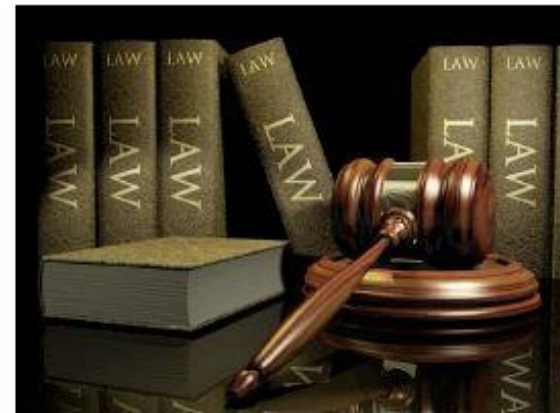
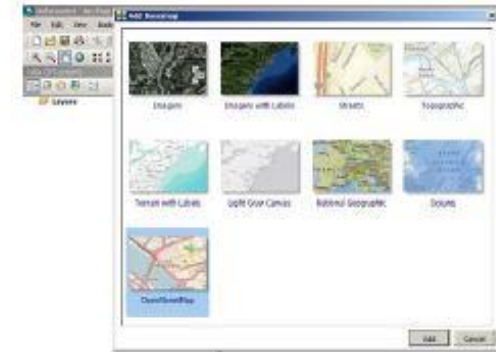
• Receivers



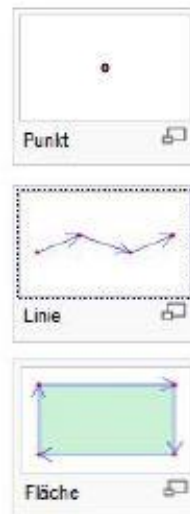
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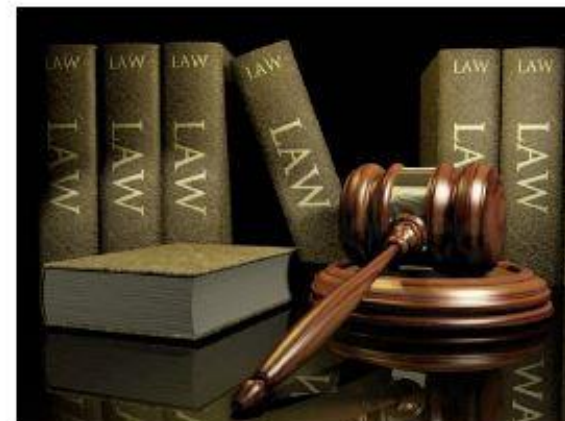
Use of Open Street Map



Contributing to Open Street Map



• Receivers



Group work in steps 1 - 5



1. step: "I do not understand what ... means"

2. step: "The most important subtopics are ..."

Brainstorming using cards and clustering



3. step: "I suppose that ...!"

4. step: "What do we think together?"

Examples for learning questions (step 5)

⑤ LEARNING QUESTIONS

DATA

- HOW WE COLLECT ^{+EDIT} DATA?
- WHO SHOULD COLLECT DATA?
- WHICH DATA SHOULD BE COLLECTED?

LAW

- WHICH ARE THE RULES + RESTRICTIONS?
- ADVERTISEMENT CONDITIONS?
- POSSIBILITIES → WHICH DATA CAN BE USED? (CONSIDERING GLOBAL DIFFERENCES)
- CONDITIONS

QUALITY

- QUALITY CONTROL - WHO?
- HOW?

TECH

- CRITERIA TO EVALUATE SOFTWARES CHOOSE
- HOW DO USERS AND DEVELOPERS PROFIT?
- HOW TO CONTRIBUTE?
- WHO ARE THE EXPERTS?
- WHICH SOFTWARES/TOOLS ARE USED?
- WHAT ARE THE POSSIBILITIES FOR IMPROVEMENT?
- HOW TO GET FEEDBACK FROM USERS?

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Steffi/Julia/Tina/Rasha/Tsang

Learning questions

LAW → Legal aspects

- How can we use OSM as LA s?*)
- Are there conflicts between private & Commercial use?

(Why there is a project like OSM?)

- What about the copyright? → each country
- legal / illegal use of maps / sources?
- What are my rights? Licences ...

Route planning → User specific

- How many countries are supporting OSM? Availability
- How can we see the fastest route?
- How can we record our favourite route?
- For which activities can we use OSM?
- *
- What specific information can you get?
- Quality of the information?

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Poster with working results

ROUTE PLANNING

HOW MANY COUNTRIES ARE SUPPORTING OSM? → 97 countries, 1.5 Mio users

HOW CAN WE USE THE FASTEST ROUTE? → different options → km / time

FOR WHICH ACTIVITIES CAN WE USE OSM?

- + bike, trekking
- + Fire stations
- + Sea maps
- + Railway
- + ...

HOW CAN WE RECORD OUR FAVOURITE ROUTE?

- Login
- edit functions

WHAT SPECIFIC INFORMATION CAN WE GET?

- Traffic: bus stations, bus line
- Parking
- Gas stations
- Service locations
- Traffic lights, direction
- Staircase

Quality of information

- depends on location
- depends on contributors
- ↳ System of mistakes

Legal aspects

You are free:

Referencing:

According to ODbL it is the right to share / publish people's contributions (source: your copy) by means to ODbL

SHARE-ALIKE

SHARE

CREATE

ADAPT

... as long as you:

ATTRIBUTE

SHARE-ALIKE

KEEP OPEN

StreetMap Contributors

When Using Open StreetMap DB in Creating Produced Work:

ELECTRONIC MAPS

PRINTS

Poster with working results

RESTRICTIONS & CONDITIONS

OSM = open data → under ODbL.

We are free to:

- SHARE: COPY, DISTRIBUTE AND USE DATABASE
- CREATE: PRODUCE WORKS FROM DATA BASE
- ADAPT: MODIFY, TRANSFORM AND BUILD

as long as we:

- ATTRIBUTE: ANY PUBLIC USE OF DATABASE KEEP ORIGINAL NOTICES
- SHARE-A-LIKE: OFFER ADAPTED DATABASE (ODbL)
- KEEP OPEN: REDISTRIBUTE DATABASE WITHOUT MEASURES RESTRICTIVE

NEVER ADD DATA FROM COPYRIGHTED SOURCES

PUBLICLY...

USING:

- DATA BASE
- DERIVATIVE DATA BASE
- COLLECTIVE DATA BASE

OFFER:

- ENTIRE DATA BASE
- ALL ALTERATIONS + NEW CONTENTS

ADVERTISING CONDITIONS?

- worldwide royalty-free
- rights for now known/future
- rights to collect or waive royalties

© Open Street Map Contributors

HOW AND WHO CONTROLS THE QUALITY?

"QUALITY ASSURANCE TOOLS LEAD TO BETTER QUALITY BY PROVIDING A LIST OF DOGS IN THE DATA, WHICH MAPPERS CAN THEN FIND AND FIX USING EDITING TOOLS"

1. BUG REPORT
2. ERROR DETECTION
3. VISUALISATION T.
4. T. MONITORING T.
5. ASSISTANT T.
6. TAG STATISTICS

53
QUALITY CONTROL TOOLS

ERROR DETECTION BY THE USERS
ERROR CORRECTION BY USERS / IMPROVEMENT

CRITERIA TO CHOOSE SOFTWARE?

GOOGLE BING MAP
CLOSED SYSTEM
COMPANY OWNS UNDERLYING DATA

OPEN STREET MAP
OPEN DATA
DATA AVAILABLE FOR DOWNLOAD

COPYRIGHTS? GLOBAL DIFFERENCES?

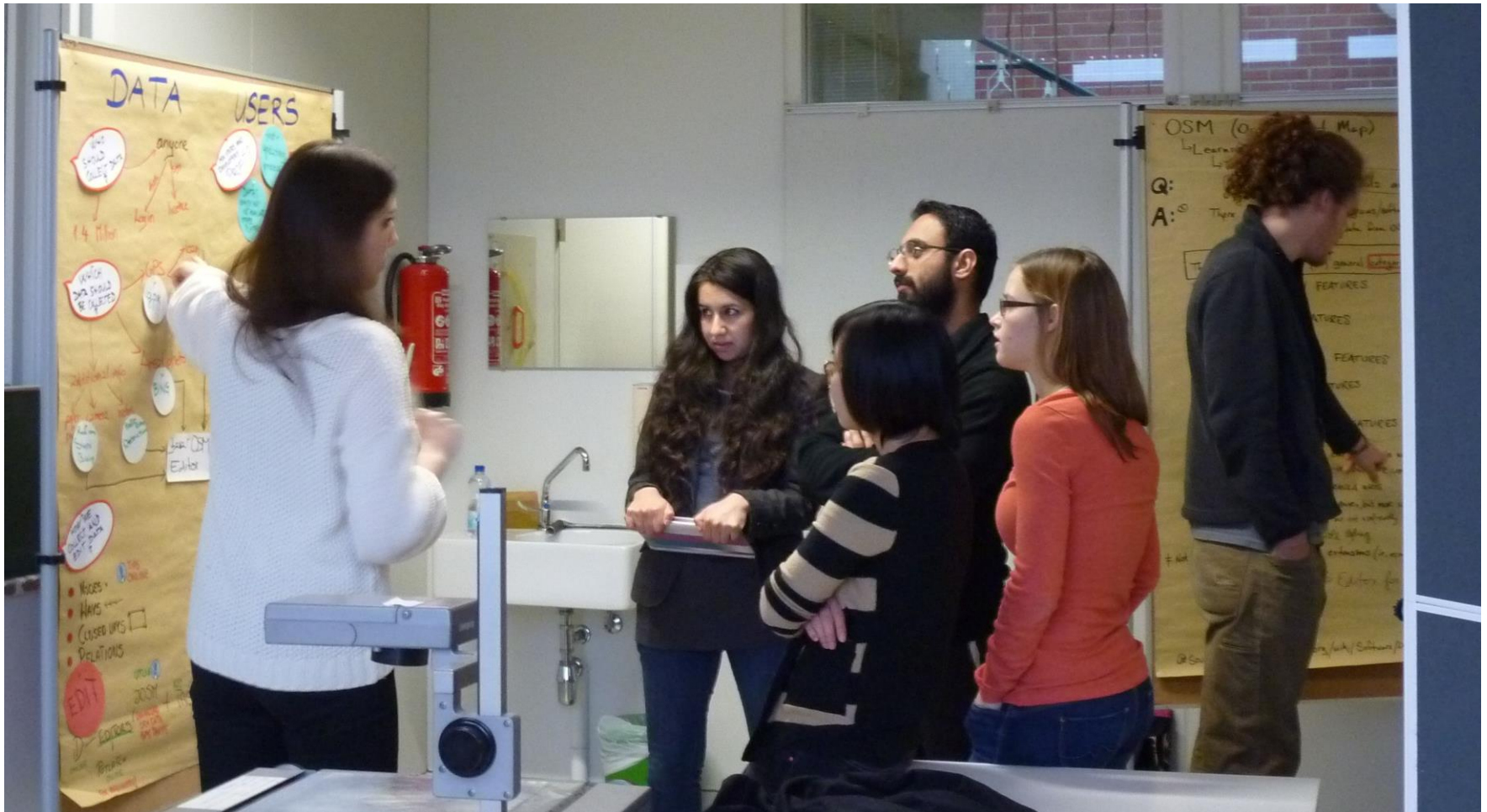
- Global differences?
- Copyrights and licenses under diff. jurisdictions
- Copyrights/licenses over Databases, not over CONTENT, programs used, patents or trademarks
- Right to extract/reproduce for private, research or educational use.
- LICENSORS should use ODbL together with individual license for content.

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Info market: rotating explanations



Info market: rotating explanations



Info market: rotating explanations



Closing the day: Reflection

- » Which role could OSM play in my further career?
- » Are there open questions left today?
- » Are there any other abilities that I have learnt/improved today?
 - › Working under time pressure
 - › Working in groups
 - › Having to play a role
- » Highlights? What would you change?