

# Towards Preservation of Sustainability in Community Question Answering

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## Emerging Problems

### Community Question Answering

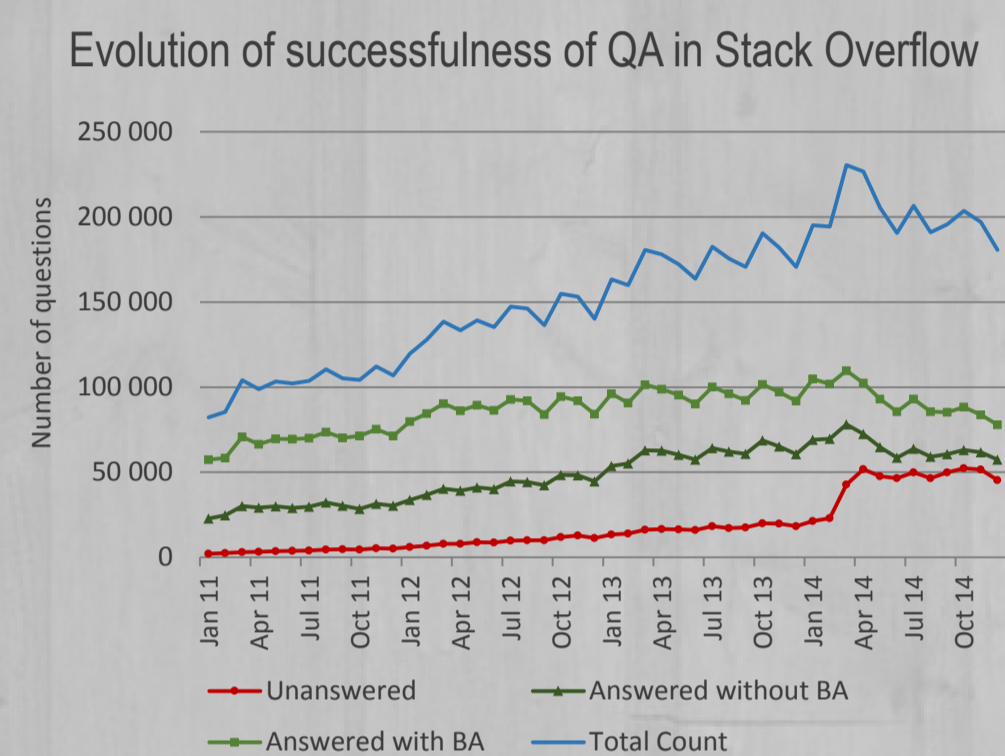
- Yahoo! Answers, Stack Overflow, Quora
- Perceived mainly as a successful example of collective intelligence
  - high popularity
  - fast question answering process
  - availability to anyone

### Long-term sustainability issues

- Hypothesis
  - Emerging problems can be explained by a constant evolution of proportionality of content quality and community structure in time

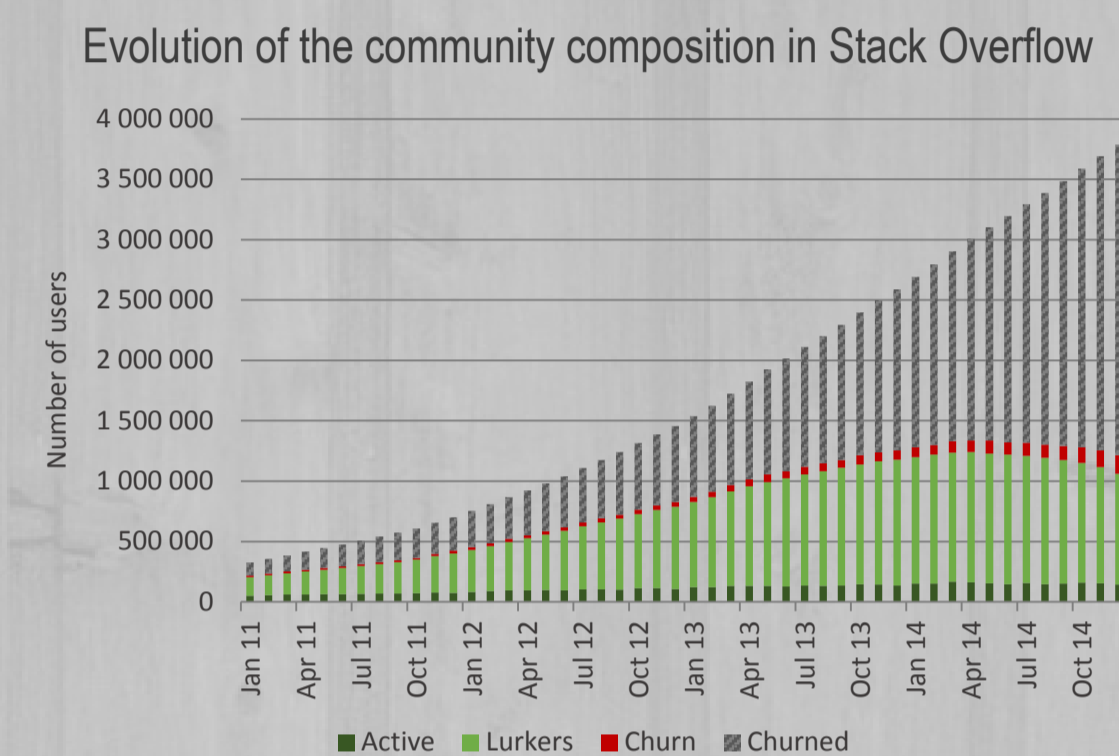
### Failure rate

- Proportion of unanswered questions
  - 9.98% in 2013
  - 23.40% in 2014



### Churn rate

- Proportion of users who leave the community
  - 5.84% in 2013
  - 9.95% in 2014



## Qualitative Study

### Community perception

- Analysis of discussions in Meta Stack Overflow
  - increasing amount of questions that point to negative development of the community
- Proportionality of undesired user profiles has put the CQA ecosystem off balance

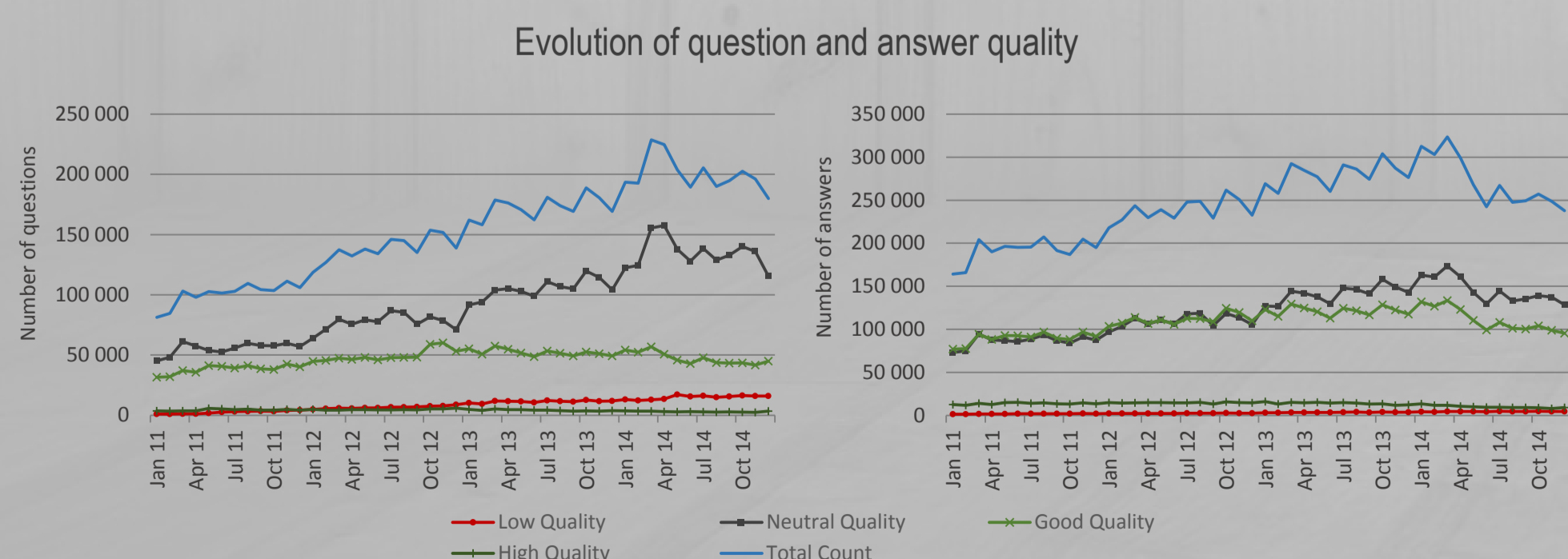
### Undesired users profiles

- Help vampires
  - ask a great amount of tedious or duplicated questions
  - do not return the received help back
- Noobs
  - ask trivial questions with poor quality
  - include students and newcomers
- Reputation Wh\*res
  - answer as much questions as possible to gain a reputation
  - mutually reinforce and motivate help vampires and noobs

## Quantitative Study

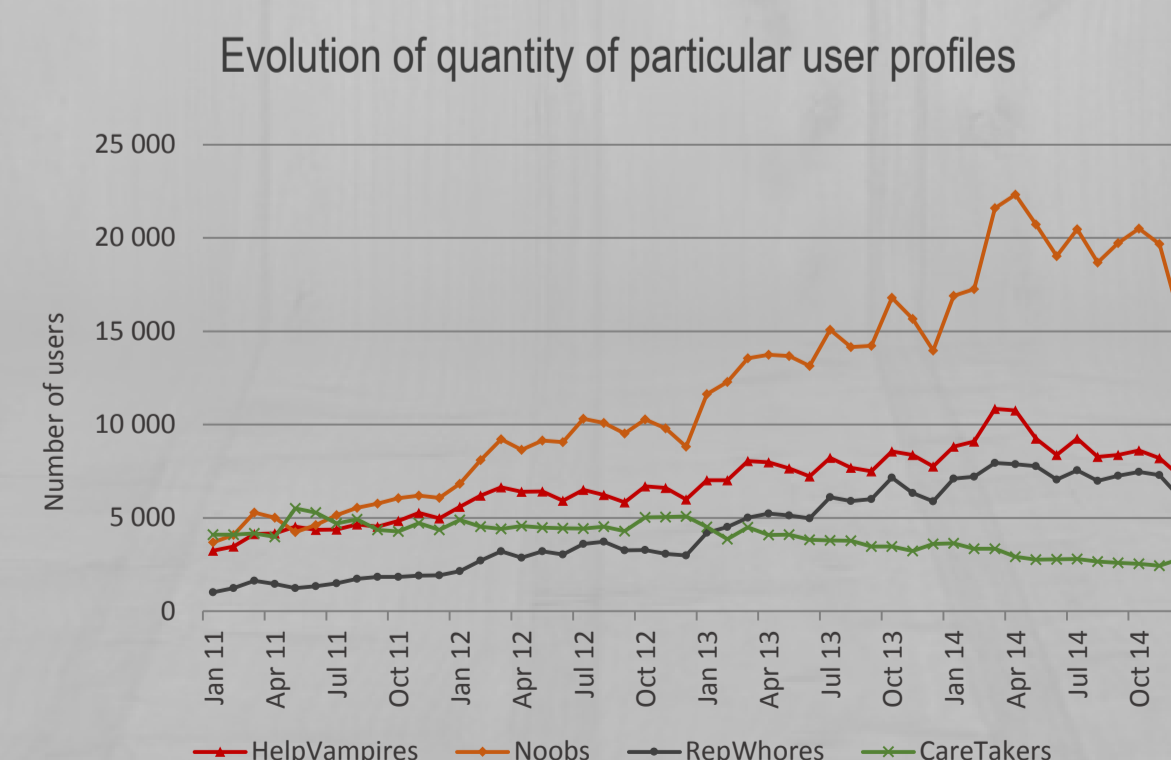
### Evolution of content quality in time

- Stack Overflow (model for Stack Exchange platform)
- Votes provided by a community in one month after question creation
  - the number of neutral quality questions increased by 60% (from January to March 2014)
  - answering potential of the community was not able to handle so many incoming questions
  - rapid decrease in the amount of answers (from April to June 2014)



### Evolution of user profiles

- User profiles were assigned to users by a set of rules based on the previous research
  - long-term outflow of care takers (in 2013 and 2014)
  - amount of undesired user profiles follows a similar trend as the failure and churn rate



## Proposed Solutions

### Answerer-oriented approaches

- Existing adaptive support methods (e.g. question routing) can be characterized as asker-oriented
  - focused on askers' goals
  - answerers' preferences and expectations are suppressed
- Example: Question routing which considers question difficulty or proactively diversifies recommendations

### Involvement of a whole community

- Existing adaptive support methods involve and motivate only a small portion of community in QA
  - active and expert users
  - to maintain CQA ecosystem, it is necessary to satisfy expectations of all types of users (e.g. newcomers, lurkers)
- Example: Question routing which considers non-QA data