
Requirements Engineering II HS2016 - Assignment 3

Social Networks for Stakeholder Identification and Analysis
StakeNet

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Agenda

- ❑ **Motivation behind StakeNet**
- ❑ **StakeNet Concept**
- ❑ **Steps Involved**
- ❑ **Results of Applying it on RALIC**
- ❑ **Lessons Learned**
- ❑ **Questions/Discussion**

Motivation Behind StakeNet

- Impact of Stakeholder influence
 - Limitations of Existing Methods:
 - Overlook stakeholders
 - Return non-stakeholders
 - Assume stakeholders are equally influential
- Open and inclusive stakeholder analysis

*We have received input from all stakeholders
except one, so we are good to go head in
developing the system!*

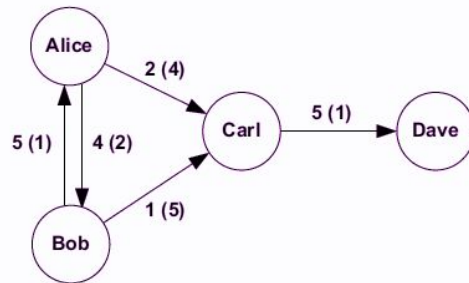


StakeNet Concept

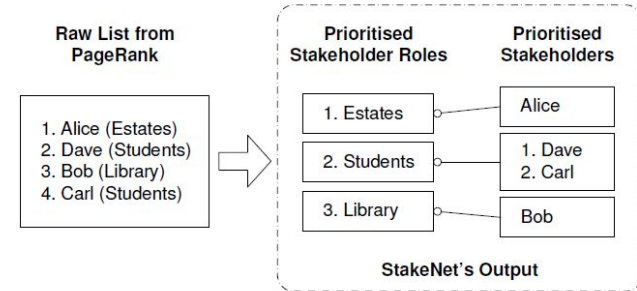
- Identify and prioritise stakeholders using social network measures
 - **Scope:** work required for completing the project successfully
 - **Stakeholder:** person/s who can influence/be impacted by success or failure of a project
 - **Stakeholder role:** part the stakeholder plays in the project
 - **Stake:** an interest, investment, share, or involvement in the project, as in hope of gain
 - **Salience:** level of influence a stakeholder has on the project

Step Involved

- 6 Steps



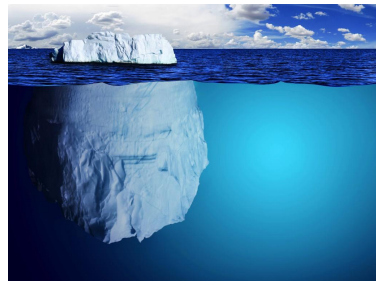
Step 5: Output



Step 6: Output

Results of Applying StakeNet to RALIC

- Identifying SH Roles
 - High Precision & Recall - 90%
 - Recall 50% better than with existing method
- Prioritizing SH Roles
 - High Accuracy - p between 0.71 and 0.78 for network measures
 - Network Measures are more precise than direct connections
- Identifying and Prioritizing SH
 - High Recall of 90% - 45% more than with existing methods
 - High Accuracy p of 0.78 with PageRank for prioritization
- OpenR vs. ClosedR



Ground Truth =
complete and
prioritized list of SH

Lessons Learned

- More complete and precise than existing method
- Identified SH that were overlooked by existing methods
- Different network measures prioritize different kinds of stakeholders
- Future work should consider:
 - Prioritize over time to account for changes (in e.g. scope, SH, Roles or salience)
 - Prioritize over different issues using multi-dimensional salience (e.g. power, legitimacy and urgency)

Questions / Discussions

- Do you think personal relationships could influence the recommendations in StakeNet?
- Would StakeNet be suitable in other RE activities for example Requirement Negotiation?

Appendix

Table 4: Identifying Stakeholder Roles

Method	Precision	Recall
Existing method	0.893	0.403
StakeNet	0.903	0.903

Table 5: Prioritising Stakeholder Roles

Measure	Accuracy
Betweenness	0.785
Closeness	0.628
PageRank	0.716
Degree	0.686
In-degree	0.653
Out-degree	0.625

Table 6: Identifying and Prioritising Stakeholders

Method/Measure	Recall	Accuracy
Existing method	0.465	N/A
Betweenness	0.920	0.517
Closeness	0.907	0.564
PageRank	0.867	0.778
Degree	0.907	0.649
In-degree	0.907	0.659
Out-degree	0.907	0.565

Table 7: OpenR vs. ClosedR

7.1 Identifying Stakeholder Roles

	Precision	Recall
OpenR	0.903	0.903
ClosedR	0.949	0.597

7.2 Prioritising Stakeholder Roles (Accuracy)

	btw	close	pgrank	deg	in-deg	out-deg
OpenR	0.785	0.628	0.716	0.686	0.653	0.625
ClosedR	0.712	0.467	0.767	0.802	0.786	0.713

7.3 Identifying Stakeholders (Recall)

	btw	close	pgrank	deg	in-deg	out-deg
OpenR	0.920	0.907	0.867	0.907	0.907	0.907
ClosedR	0.823	0.839	0.806	0.855	0.806	0.855

7.4 Prioritising Stakeholders (Accuracy)

	btw	close	pgrank	deg	in-deg	out-deg
OpenR	0.517	0.564	0.778	0.649	0.659	0.565
ClosedR	0.427	0.278	0.910	0.956	0.918	0.366