



**Hasso  
Plattner  
Institut**

IT Systems Engineering | Universität Potsdam

## Analysis and Research Assignments

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# It's everywhere

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- E-Commerce
  - eBay
  - Amazon
  - Epinions
  
- Web 2.0
  - Qype
  - Slashdot
  
- Crowdsourcing
  - Yahoo! Answers
  
- Gaming
  - XBox

# Ratings Methods

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- Ratings
- Favorites and Flags
  - Vote to Promote)
  - Favorites
  - Report Abuse
- This-or-That Voting
- Reviews
- Points
- Karma

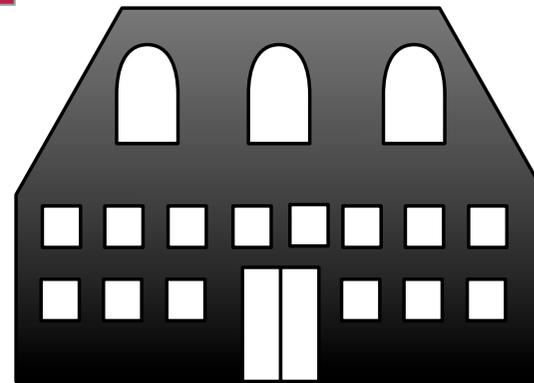
# Implicit vs. Explicit Ratings

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Where are you

**Implicit: Actually going there**

your graduate studies?



I'm going to Stanford. I just accepted 2 days ago.

Why Stanford? You could go to Yale or Harvard.



**Explicit: the statement**



Stanford has the best Design Thinking program. They were the 1<sup>st</sup> ones to start the discipline

# How to Quantify Reputation?

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- How do we represent trust numerically? fractions, integers, percentages or some other representation?
- What is the range of possible values for a trust value? What meaning can we assign to a particular value?

Trustworthiness level	Trustworthiness value (user defined)	Visual representation (star rating system)
Level -1	$x = -1$	Not displayed
Level 0	$x = 0$	Not displayed
Level 1	$0 < x \leq 1$	From  to 
Level 2	$1 < x \leq 2$	From   to  
Level 3	$2 < x \leq 3$	From    to   

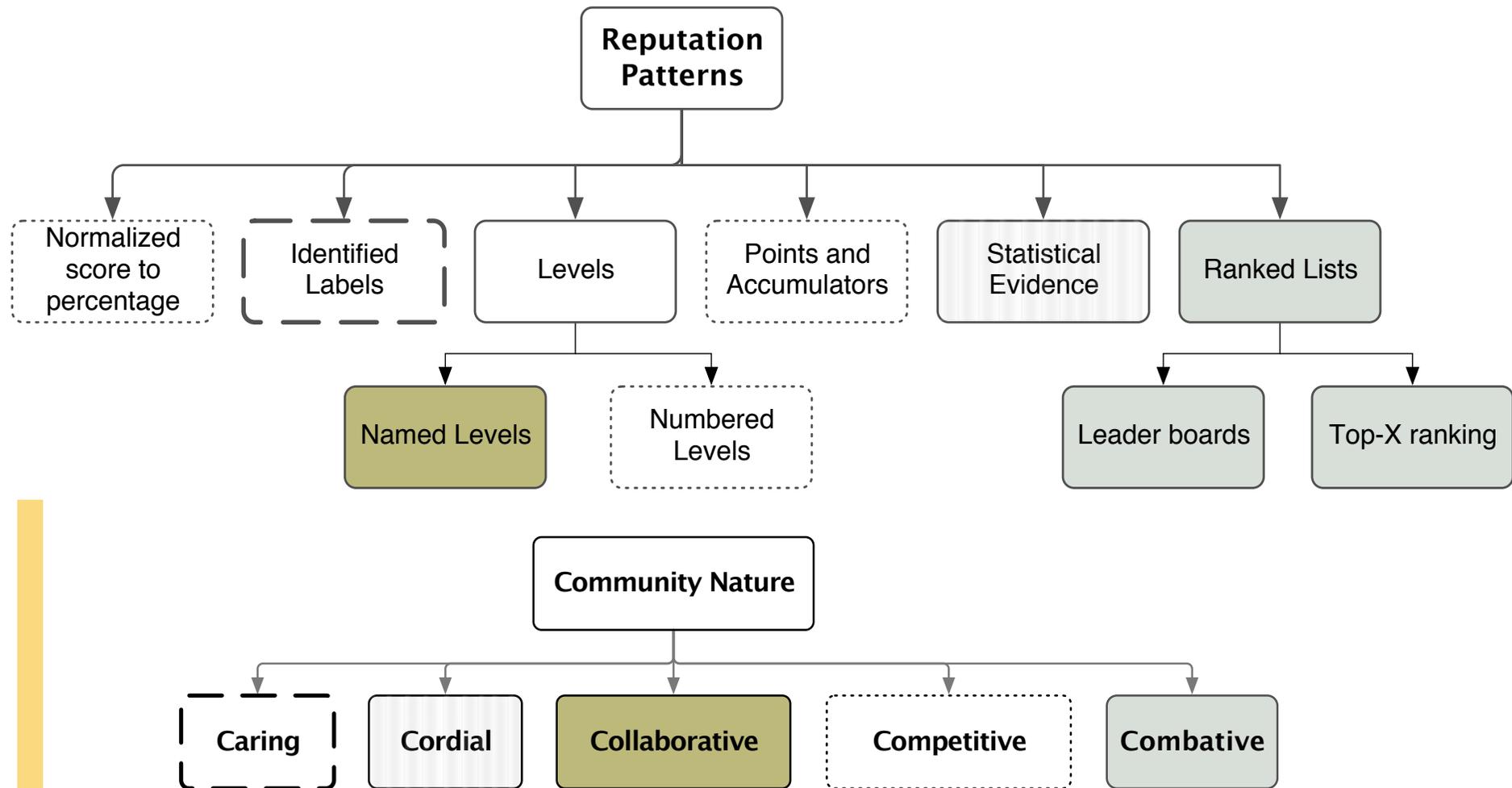
# Calculation Methods

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provide a method for calculating the trustworthiness value for use in the current timeslot. Such as:

- Sum
- Average
- deterministic
- Bayesian
- fuzzy systems
- .....

# Reputation Systems Design Decision



# Content control patterns

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Create

Evaluate

Remove

- **Web 1.0:** Staff Creates, Evaluates, and Removes
- **Bug Report:** Staff Creates and Evaluates, Users Remove (ex. *Bugzilla*)
- **Reviews:** Staff Creates and Removes, Users Evaluate (ex. *Amazon.com*)
- **Surveys:** Staff Creates, Users Evaluate and Remove (ex. *American Idol*)
- **Submit-Publish:** Users Create, Staff Evaluates and Removes (*Citizen news sites*)
- **Agents:** Users Create and Remove, Staff Evaluates (*Agents calculate*)
- **Basic Social Media:** Users Create and Evaluate, Staff Removes (*removing when conflict occurs*)
- **Part of Web 2.0:** Users Create, Evaluate, and Remove (*Wikis*)

# Design of Reputation Systems

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A reputation system should describe

- **Computation functions/mechanisms**, i.e. how to calculate reputation?
- **Communication model**, i.e. how to collect and disseminate reputation?
- **Participants**, i.e. who uses and/or is affected by reputation?
- **Resources**, i.e. what is the information used to calculate reputation?
- **Representation model**, i.e. how to represent, view, or visualize reputation?
- **Storage**, i.e. where and how is reputation stored?
- **Functionalities and applications**, i.e. what are the benefits of using reputation in the domain of its creation?

# Design of Reputation Systems

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- In the system design, questions need to be answered
  - What inputs should be solicited ?
  - What outputs should be presented ?
  - How transparent should the rules be ?
  - How should reputation evolve over time ?

## Some Analysis Questions

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### Reputation Statement

- What type of evaluation is the reputation statement?
- Is it quantitative (numeric) or qualitative (structured)?  
Numeric: accumulators, votes, stars, and roll-ups such as averages and rankings  
Nonnumeric: blocks of text, videos, URLs, photos, ....
- How should it be interpreted?
- What processes will be used to normalize, evaluate, store, and display this score?
- Level of activity: is it considered?
- Who: create, evaluate, and evaluate reputation statements?  
Staff, users,...

# Some Analysis Questions

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## Reputation Input

- What is the rate of inputs per minute?
- How many times will reputation scores be accessed for display or used by the application?
- How portable is the data – is the scores shared with other applications or integrated with their native application only?
- User Actions: can it participate in the reputation system?

# Some Analysis Questions

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## **Reputation Calculation**

- Are the reputation calculations static or dynamic?
- What is the scale of the reputation system?
- For quantitative methods: avg, sum, mix, weighted avg,...?
- Normalization? Pros and cons?

## **Reputation Complexity**

- How complex is the reputation model - complicated or simple
- Is cheating handled in the reputation system?

# Your Assignment

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- Team up with another student now!
  - 6 teams
- Pick two systems from the same category
  - Reputation of people
  - Reputation of things
- Example pick two of:
  - product review sites (Epinion, Bizrate,..)
  - expert sites (AllExperts, Askme,..)
  - discussion forums (Slashdot, Kuro5in, Digg,..)
  - Venues like TV Shows, concerts,..
  - Or any other categories from what we saw before
  - But NOT eBay!

# Your Assignment

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- Send me your team choice by Monday November 12<sup>th</sup>
- Analyse the two systems based on what we've learned so far
  - Analysis and comparison
- Prepare a presentation of your whole analysis
- Presentations on the 29<sup>th</sup> of November
  - 20 min presentation
  - Be prepared for questions and discussion



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