# OASIS Open Reputation Management Systems (ORMS) Technical Committee

## Normative Information

### The name of the TC

OASIS Open Reputation Management Systems (ORMS) Technical Committee

### A statement of purpose, including a definition of the problem to be solved

The increasing reliance on the Internet as a medium for social interaction and online collaboration, and the emergence of converged networks with ubiquitous services that span different wire-line, wireless, mobile networks, devices, and users are placing new emphasis for developing reputation mechanisms for electronics based communities.

The use of reputation systems has been proposed for various applications such as:

- Validating the trustworthiness of sellers and buyers in online auctions (which sites like eBay have proved can have large influence on sellers)
- Detecting free riders in peer to peer networks
- Ensuring the authenticity of signature keys in a web of trust.
- Smarter searching of web sites, blogs, events, products, companies and other individuals.

Reputation in ~~this context~~these examples refers to the opinions about an entity, from others. Reputation is one of the factors upon which trust can be based through the use of verifiable claims. Reputation changes with time and is used within a context. Trust and reputation are related to a context. For example, my trust in Sam as a doctor can be different from my trust in Sam as my financial advisor.

There are various methods for generating user's reputation data or trustworthiness. Some methods are based on user's feedback through appropriate feedback channels, such as in eBay. Other methods include having viewers participate in the reputation-building process through the user's profile at specific sites and communities. Each method has its limitations in terms of its susceptibility to bad actors, manipulation of data for specific purposes, and spammers.

Current thrusts with user-centric Identity solutions place immediate and urgent importance for the development of online reputation management systems that could

be used for enabling trust and collaboration in a distributed manner while preserving the privacy of Personally Identifiable Information (PII).

Reputation models are built using diverse mechanisms to meet specific needs - such as the feedback system of eBay. In general reputations systems collect, distribute, and may aggregate feedback about a principal's past behavior. The availability of online reputation feedback systems and the use of data extraction mechanisms will eventually lead to the wide availability of reputation information about users (human, devices etc.) on the Internet. As such, there is a need to have users control how, when and by whom their reputation data is accessed. At the least, there is a need for users to be aware and in control of privacy related components of their reputation data. These issues are also related to how global reputation is computed based on observed user's interactions.

Reputation based techniques can be used as the basis for building trust and enhancing cooperation in peer-to-peer networks, either in a centralized manner or through the use of aggregators and brokers. Currently, because the majority of existing online reputation based mechanisms is developed by private companies and use proprietary schemas for representing reputation data, there is no standard way to query, store, aggregate, or verify claims between systems. There is no standard way for users to participate or determine the reputation of the reputation data providers. Additionally, there is no standard communication protocol for exchanging reputation data.

The following text describes the potential structure and properties of a Reputation Management System. It is provided to generally frame the problem space and not to limit the solution to a narrow set of alternatives.

Evaluating large sets of different and possibly contradictory opinions is a non-trivial process. The trust model of a reputation system represents the core component of the system. It defines all assumptions on the properties of trust and describes how to calculate reputation ~~scores~~ values (~~trust values~~scores). A ~~trust~~ reputation value cannot be applicable in all contexts. As such, there is a need for a Reputation Management Framework that enables users to acquire raw reputation data and calculate their own reputation ~~scores~~values, either using their personal experience or with the help of data aggregators.

A good Reputation Management System will separate the reputation of the evaluator from the data that is used to evaluate a give entity in the system. The same concept should apply to all entities in the eco-system. In this fashion, aggregators will have a reputation that can be used to score how well they do in gathering good data, and feedback providers will have their own reputation that could be used as a means to purge or clean feedback that they provide on other entities. Such systems will be less susceptible to data manipulation and have the ability to provide constructive reputation or trustworthiness ~~scores~~values.

In order to build an internet-scale trust-infrastructure, reputation data needs to be readily available for use and sharing in many contexts. Additionally, there is a need to ensure that users have a say in who owns their data, how it is protected and what mechanisms are available to manage it. Many OASIS and other open standards can play an important role in ensuring that reputation data stays open. The ORMS standards will be independent of ~~the~~ any one particular Identity Management System.

## The scope of the work of the TC

The purpose of this TC is to develop an Open Reputation Management ~~System~~Framework (ORM~~F~~FS~~)~~ that provides:

~~-~~(a) specification of reputation data represention ~~the ability to~~ use~~i~~ing common data formats ~~for~~ and/or encodings~~representing reputation data~~, and,

~~-~~(b) ~~a~~ specification ~~for~~of the representation ~~and interchange~~ of ~~the output of a~~ reputation calculation results~~standard definitions of reputation scores~~,and,

(c)~~.~~ specification for exchange of reputation data and reputation calculation results.

The ~~system~~framework will not define algorithms for ~~computing the scores~~performing ~~a~~ reputation calculations. However, it will provide the means for understanding the relevancy of a reputation calculation result ~~or~~ (reputation value)~~score~~ within a given transaction. The TC's output will enable the deployment of ~~a~~ distributed reputation systems, any of which ~~that~~ can be either centralized or decentralized with the ability for aggregators and intermediaries to be part of the business model.

### Scope of the work

#### *Analysis, Use Cases and Requirement Gathering*

- Use cases to gather requirements that ORMS will need to meet and understand the business and social impact of such a system including security, privacy, threats and risks requirements will also be developed. Explore the use of reputation mechanisms in novel settings.

- Document that analyzes performance of existing reputation mechanisms with respect to the requirements developed in the previous steps and identify current gaps.

#### *Develop Framework for Open Reputation Data*

Development a framework for reputation data gathering including:

- Development of common data models for expressing reputation data and values

- XML Schema for representing ORMS data~~-~~

- XML Schema for Reputation ~~Score~~Values~~ ~~

- Development of standard way of exchanging reputation claims among systems.

- Development of means of aggregating reputation data and reputation values including delegation of claims generations and assertions.

- Development of query/response communication protocols for exchanging reputation data and reputation values in ~~in~~ a trusted and secure fashion. This step may develop a new protocol, or extend current ones such as SAML, OpenID etc.

### *Security, threats and Risk analysis*

Perform Security Risk analysis and profiles for best practice.

### *Out of Scope*

- Algorithms that can be used for generating a reputation ~~score~~ values are out of scope of this work. The work will define a standard way to infer what a given ~~score~~value will mean but will not specify how to compute that value.

- The work does not exclude methods for asserting equivalence or relationships between ~~scoring~~ reputation systems. A possible output of the TC work might include methods to facilitate the calculation of comparisons between ~~score~~ values, ratings, or operations that take multiple ~~scores~~ values as inputs.

### *A list of deliverables, with projected completion dates*

- Use Cases document; October~~July~~ 2008

- Requirements document; ~~September~~ December~~Decemberr~~ 2008

- Framework for reputation data gathering; ~~January~~ April 2009

- XML Schema for representing ORMS data; ~~March~~ June 2009

- XML Schema for Reputation Score; ~~March~~ June 2009

- Assertions/claims (tokens) profiles; ~~March~~ June 2009

- Protocol(s) for exchanging of reputation data and assertion tokens; ~~September~~ December 2009

- Security, threats and Risk analysis; ~~January~~ December 2010

### *Specification of the IPR Mode under which the TC will operate*

The TC shall operate under: RF on limited Terms

### *The anticipated audience or users of the work*

The output of this work will have ~~direct~~ benefits for the use of the internet as a medium for ~~conducting~~ commerce and social internetworking. The work will have direct impact of the users of ~~the~~ identity m~~M~~anagement systems, blogs, forums, ~~OpenID~~ and other open onlinecommunities. It will facilitate ~~and~~ trust establishment in peer to peer and social networks.

### *The language in which the TC shall conduct business*

This TC will use English as the language for conducting its operations.