

CASE STUDY: W3C

Draft 2009-05-05 (Mattias Ganslandt, Jonas Andreasson and Martin Sutinen)

Work in progress, comments most welcome!

Brief facts about W3C

Webpage

www.w3.org

Organization tagline

W3C takes on responsibility for developing global standards for the World Wide Web

Main standardization areas

Web standards

Best known standards

[HTML](#), [XML](#)

Classification

Semi-formal and global, with NSO representation and a general scope.

Does the SSO have any explicit or implicit policy relating to interoperability?

W3C requires that there are independent and interoperable implementations of a standard in order to advance it.

Is there an explicit strategy to facilitate or contribute to interoperability?

The requirement of interoperable implementations is absolute. For some of its standards W3C supplies testing and validation software.

Procedures for testing of a proposed/developed standard with respect to interoperability and backward compatibility?

The requirement of interoperable implementations is the central test for interoperability.

What are the procedures (internal or external) for implementation?

W3C issues Conformance clauses which serve as a guideline for implementation.

How is compliance enforced and what are the consequences of defections and deviations from the standard?

W3C does not enforce compliance of its standards through certification. Conformance to W3C standards does not have to be complete but enough to function properly.

Did the SSO develop competing standards for the same or similar type of technical problem?
As a part of the standard process each specification is required to issue a statement on how it relates to other standards.

What is the value of interoperability in the specific area in which the SSO is active?
Interoperability is crucial for a global development of the World Wide Web.

What is the value of selection and conformity in the specific area in which the SSO is active?
Conformity is not critical as seen from the different implementations made by different browsers of the HTML and CSS standards.

Standardization Process

- The World Wide Web Consortium (W3C) was created in 1994 and has about 400 members.
- W3C develop standards related to web technology and has approved 110 standards.
- Membership is mostly intended for organizations but individuals can become members as well.
- There is only one membership class and the dues are dependent on the size, the not-for-profit status and the country of the headquarters of the organizations. The current dues range from 953 to 68 500 USD.
- All members can participate in working groups and non-member experts might be invited to participate. There are no voting requirements in general, instead W3C focus on achieving consensus. Consensus requires substantial support and that there are no Formal Objections. Only in exceptional circumstances might voting occur. The Director of W3C, [Tim Berners-Lee](#) who invented the World Wide Web, takes the final decision on approval of a standard. Decisions may be appealed.
- Initially working groups are free to set their confidentiality level but are expected to produce a public technical report every three months. Once a draft is advanced to recommendation status there are requirements that most of the working material is made publicly available. Official standards are freely available to the public.
- The Team (consisting of W3C managerial staff and W3C fellows) may propose new activities based on input from members and workshop participants. The Advisory Committee submits a review of the proposal and the Director, based on the degree of consensus that new work is needed, may consent to the new activity.

Improvement activities

- The Advisory Board is tasked with updating the W3C Process Document, which governs W3C's operations and stipulates the work process.
- Public review is part of the process of creating a standard.
- The mission of W3C is to ensure long term growth of the Web through development of protocols and guidelines.

- Specific targets are; creating a Web where everyone can participate and where most kinds of devices can connect, to safeguard the Web as a knowledge repository and to enable secure and trusted communication between parties over the Web.
- W3C activities coincide with several other organizations such as [CEN](#), [ECMA](#), [ETSI](#), [IEEE](#), [IETF](#), [ISO](#), [ITU](#), [OASIS](#) and [WS-I](#). W3C have liaison agreements with [3GPP](#), CEN, ETSI, IETF, ISO, ITU, OASIS and WS-I and cooperation agreements with [ICANN](#), IEEE and [OMA](#).

Interoperability

- Standards reaching the recommendation level require that IPR is available on RF terms. Draft standards have no such requirements. The original contributors retain the copyright but are required to accept the W3C Document License, giving users right to copy and distribute the documents free of royalty.
- Working group participants are considered to adhere to the W3C RF terms unless stated otherwise. As long as no disagreement to RF status occurs no disclosure is required. Where essential claims are made known and which are not encompassed by the RF terms W3C will put forth a disclosure request to the party, member or non-member, which hold the essential claim. Working group participants are allowed to exclude specific essential claims from the W3C licensing obligations by disclosing such claims in a timely fashion.
- W3C supplies tests, guidelines and validation tool for some, but not all, of its standards. W3C also requires that conformance clauses, which stipulate requirements to be fulfilled for conformance to specifications, are incorporated into standards.
- There is a recommendation that interoperable and independent implementations exist to advance a standard to higher recommendation levels. The W3C recommendations are open in order to promote interoperability. Conformance clauses are provided to promote interoperability. A W3C standard also includes statements on how the standard relates to other standards.

Case study

The World Wide Web Consortium (W3C) is an international consortium founded in 1994, which develops open standards (called “Recommendations”) and guidelines to create interoperability on the Web.

The ambition is to prevent fragmentation of the Web and ensure continued growth by promoting standards for languages and protocols to be used in applications. The consortium is jointly administered by [MIT/CSAIL in the United States](#), [ERCIM in France](#) and [Keio University in Japan](#) and in total the consortium has over 400 members from over 40 countries.

Membership in W3C is open for any organization. The annual membership fee is up to 65 000 USD, but the fee depends both on the size of the member and which country the member is from, because W3C has a fee structure intended to promote participation from members from less developed countries. W3C is not structured for individuals but they may join as affiliate members. However, individual non-

members, such as experts from the academic world, may also be invited to contribute in the development of a standard. Various forums and workshops are also open to non-members and comments from non-members are encouraged in the public review of proposed standards. W3C is organized by a management team consisting of roughly 60 persons employed by W3C and by a board whose members are elected by a committee in which every member organization is represented.

The development of a standard is done in a working group, where all members are free to participate. In total there are 72 such active working groups at the moment and they are organized into 23 different areas. Once a working group reaches consensus, it publishes a proposition as a draft for public review. The definition of consensus within a group is set by each group individually, but the general view of consensus is when nobody formally objects to a decision. Once the public review has been done and the draft has been revised accordingly, it can be advanced to a recommendation. However, many of the developed drafts are never intended to be advanced beyond a draft status. There are three different levels of recommendations: Candidate-, Proposed- and W3C Recommendation. Each step of progress in status requires a review where a set of demands have to be met. The advancement from a draft to a Candidate Recommendation for example requires a statement about how the standard relates to all other relevant standards and ongoing developments in other standards development organizations. The advancement to a Proposed Recommendation requires that the technology has been successfully implemented, and it is suggested that at least two independent and interoperable implementations should have been done. The final advancement to a W3C Recommendation demands that the technology can be considered ready for worldwide implementation. If a member strongly disagrees with a decision, that member may appeal to the chair of the working group at the earlier stages and to an Advisory Committee at the final stages. It should also be noted that during the public review of a draft non-members are free to comment on it and a working group is required to formally document how it has considered each comment that has been made about a draft.

W3C is dedicated to support of the recommendations until removal, something which is done under a defined process. Revisions of recommendations may be done through a short process if the changes are minor, but if new features are included the revision of a recommendation follows the same process as the development of a new one. For some of the recommendations, various tests, guidelines and validation tools are made publicly available online.

Each working group is free to decide its own confidentiality level but is expected to produce at least one public version of its technical report every three months. Conversely, the advancement of a draft to a recommendation requires that a large part of the working material is published.

Specifically, the advancement of a draft to a recommendation requires that any essential third party technologies are made available under a royalty-free license. Published material is regulated by the W3C Document License, which grants everyone the royalty-free right to copy and distribute it.

In total W3C has published over 110 recommendations and the W3C has been a very important factor in the development of the Web. The W3C also cooperate closely with a number of other standards

development organizations. Compared to IETF, W3C's area concerns a higher level of technology hierarchy. The IETF develops standards for the structure of the Internet, and the Web is one application of the Internet.

The first standard for HTML, the language used in the construction of Web pages, was published by the IETF. But after W3C was formed the development of HTML was moved to W3C, and today there are still three working groups actively working to improve the HTML standard. Another very important standard for languages is eXtensible Markup Language (XML), which was developed by W3C and reached the status of W3C Recommendation in 1998.

Key success factors

- W3C recognizes the need for diversified membership status levels to ensure participation from different sectors, countries and individuals on a global scale.
- W3C is among the few SDOs which puts a special emphasis on developing countries and which specifically aims to include these in the development process. This is an important driver for global adoption of W3C standards.
- The process of advancing drafts to various stages of recommendation incorporates a control of conformance with other standards and standardization work within the specified area. As such W3C can ascertain that recommendations are aligned with other relevant work and this greatly enhances the adoption rate of W3C recommendations.
- The rigorous review process of advancing a draft to a W3C recommendation ensures that all interested parties, both members and non-members, have a chance to give input to the development process and drives timely adoption of a published recommendation.
- The requirement of royalty-free terms for IPR incorporated in recommendations makes implementations feasible in all parts of the world and drives global adoption.