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Is the idea of the Semantic Web practical?

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Introduction
There is much debate around whether the Semantic Web is going to be practical and useful, or whether it is an unattainable utopia. Tim Berners-Lee (who else?!) is the originator of the idea of the Semantic Web. He and others punt it as a 'new form of Web content that is meaningful to computers [which] will unleash a revolution of new possibilities' (Berners-Lee, Hendler and Lassila 2001). As they point out in their article, Web content has been designed for humans, and the Semantic Web aims at allowing computers to interpret Web content meaningfully.

A new structure coded into Web pages has the potential to enable software agents to find more meaningful content. The Semantic Web can be seen as 'an extension of the current one, in which information is given well-defined meaning, better enabling computers and people to work in cooperation' (Berners-Lee, Hendler and Lassila 2001). Although search engines are not only useful but essential to find reasonably high quality information, it is difficult for these engines to fully recognize as well as understand users' needs. The idea of the Semantic Web is to provide a way to construct 'context-understanding' programs to retrieve exactly what users want.

For the Semantic Web to become possible, there are various steps that need to be followed, as outlined by Dumbill (2002):

- Sources of information will need to be in the same structured format, so that programmers, or user agents will be able to communicate with each other. With eXtendible Markup Language (XML) and the Resource Description Framework (RDF) most of this work is potentially complete – these are two elements essential for the envisaged format. That is, the structure standards have been decided, and some sites have already converted.

- The next step is that data will be able to describe the various forms they can take (the semantics). Some critics believe that 'the problem of knowledge representation addressed by the Semantic Web is too complex to be solved by simple solutions' (Van der List 2001). However, there are already several interested groups of people forming and working together on the knowledge representation side.

The Semantic Web Agreement Group (SWAG) is one interest group that are collaborating on the development of the Semantic Web. A section of the Group is working on a standardized glossary, which will be needed to ensure that computers will correctly identify terms (Semantic Web Agreement Group 2001). The Semantic Web Community Portal outlines Semantic Web projects, products sites, news, technical information, and so on. It also outlines some initiatives with regard to standardising ontologies, such as by the Business Process Management Initiative. Industry-specific attempts at developing the Semantic Web, as has been seen with Web services, will potentially prove the more successful. As the

ontologies are being created, this is the start of various data concepts being linked to each other

Another vital element will be security. This needs to be in place first so that trusted sources of information can be found or, as Dumbill (2002) states, a vital element is trust. Should an agent need to find and book an appointment of some sort that involves a financial transaction, and should this be automatic, the user needs to know that the transaction will not be usurped. Dumbill also says that the work with XML encryption and signatures is mature, but will still need to be integrated with Semantic Web technologies.

There is a lot of competition on the World-Wide Web for user share – getting users to your site and keeping them there. Maybe the technology behind the Semantic Web will give some sites the leading edge – for example, those that use meta-tags, and later XML. Also, some criticisms seem to be based on expecting perfection, pointing out that it will be near impossible to get computers to always be able to explain data, and their specific meanings. However, there has already been substantial research on this, and initiatives are underway. The Semantic Web may not be the next silver bullet, but it has potential.

SAJIM's next issue, same column, will take the discussion on the Semantic Web one step further ... watch this space!

References
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downtime arising out of or relating to the user's use of the Website.