The exponential and unchecked growth of the World Wide Web has revolutionised modern society. However, the pioneer of the World Wide Web, Tim Berners-Lee, has proposed an overhaul of the web in an attempt to provide a more rewarding experience for users. ‘The Semantic Web’ (Berners-Lee, Hendler & Lassila, 2001) outlines the desire of Berners-Lee et al. to bring about a second web revolution, one which allows the web to function with more automation thereby imparting the user with more value.

The proposed Semantic Web will bring about the evolution and transformation of the web for the purpose of making the web more effective for users. In theory, it will result in a more intelligible web that will, according to Berners-Lee et al., “better enable people and computers to work together in cooperation.”

The underlying principle of the Semantic Web is that every page on the web has an accompanying page that links to an ontology. “This mark-up makes it much easier to develop programs that can tackle complicated questions whose answers do not reside on a single Web page.” (Berners-Lee et al., 2001)

For the Semantic Web to function, computers need access to sets of inference rules which define the relationship between terms, and the classes and subclasses of objects. Consequently, underlying the Semantic Web is the Resource Description Framework (RDF) and the Web Ontology Language (OWL). These standards have been created to allow information to be embedded into web pages consistently. Furthermore, this metadata is decipherable by computers only and is an expansion of XML.

The concept of the Semantic Web is a thought provoking attempt to optimise the web’s capabilities. However, the nature of the web does not support the structured approach that is needed to develop a robust classification schema that reflects traditional knowledge management systems. Berners-Lee et al. have recognised this and have developed RDF and OWL to be flexible, as building, maintaining and enforcing a controlled vocabulary is not at the core of the Semantic Web.

The development of systems to retrieve meaningful and accurate information has proven to be an iterative process which has no single, all-encompassing solution. Indeed, the creation of a standard, all-encompassing ontology will clearly be at odds with the unregulated nature of the web. The proposed solution is to allow an infinite amount of ontologies to be created which are meaningful to the individual by whom it was fashioned. These schemas will then be related to one another via “equivalence relations”, allowing my definition of ‘Phone Number to match your ‘Telephone Number’. What Berners-Lee et al. fail to demonstrate is who is responsible for creating and maintaining the index which is used to relate one ontology to another. Who will provide these ‘equivalency relations’? Shirky elaborates on the
implementation of ontologies in regard to the Semantic Web, explaining that if making a thesaurus of field names were all there was to it this process would work today. Human names are not globally unique. Consequently, linking terms is difficult and because meta-data describes a worldview, incompatibility is an inevitable by-product (Shirky, 2003).

Furthermore, when conducting searches on the Semantic Web, who will determine that Microsoft's metadata is more authoritative and therefore probably more valuable than metadata I have produced myself? Issues of authority and expertise are without a doubt subjective and will need to be evaluated in the same way that users evaluate web content at present.

Berners-Lee et al. have been too optimistic in regard to the anticipated capabilities of the Semantic Web. Many of the examples illustrated, such as Lucy and Pete’s arrangement of medical care of their mother, are heavily reliant on the participation of technology literate users. The examples involve the digitisation of a vast amount of information such as timetable, address books and phone numbers, all of which can be considered sensitive personal details. Certainly, the potential of the Semantic Web to transform modern society will parallel the application of information and internet technologies by consumers to manage both their social and professional activities.

Berners-Lee’s proposal is overly ambitious as it is based on the false premise that everything on the web is tagged accurately and truthfully. Online information retrieval is exposed to the potential for retrieval devices to be inundated with false and inaccurate metadata. Pilgrim (2002) recalls the problems faced by the World Wide Web in its infancy, with web pages “stuffed with keywords in a wildly successful attempt to influence the first generation of search engines. Developers still try all sorts of tricks to include text in the body of their pages that people can’t see but machines can.” Berners-Lee et al. do not outline any measures the Semantic Web will implement to counter the use of deceptive metadata therefore rendering it susceptible to manipulation.

A fundamental hindrance to the progress of the Semantic Web is convincing developers to implement the technology. It will be difficult to persuade companies to overhaul their web pages with semantic metadata when there are no clear economic benefits. Whilst Berners-Lee does discuss the use of of-the-shelf software for embedding metadata into pages, these applications are not yet available for purchase. Until these software packages are readily accessible to developers of web content, the Semantic Web will not prosper simply because of the time, resources and expertise required to overhaul web content.
Quite simply, if the majority of developers consider learning a second layer of rules on top of the standard XML too difficult, RDF will become redundant and will, as a result, stifle the model outlined by Berners-Lee et al.

Certainly, the structure of web could be improved, however the implementation of the Semantic Web as defined by Berners-Lee et al. is a doubtful concept at present that needs industry wide support if it is to prosper. To garner this support, the cultivators of the Semantic Web need to outline obtainable goals which will be realised through the development of descriptive technologies which are not overly complex, therefore allowing their widespread use by creators of web content.
BIBLIOGRAPHY

