

Regulating E-Commerce using XML

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1 Specification of problems from an Electronic Commerce angle

E-commerce, which is short for 'Electronic Commerce', is simply the idea of replacing physical business transactions with electronic business transactions using the Internet. E-commerce cuts through boundaries such as time and geography to put business owners and customers into virtual contact with one another. A key idea behind E-commerce is the ability to take orders and receive payments through an electronic storefront. Philosophically, E-commerce is about openness, connectivity, and integration between businesses and customers.

From the business owner's perspective, E-commerce provides a way to instantly satisfy demand for products, services, and information of each customer individually. From the customer's perspective E-commerce offers convenience, variety, cost savings, and anonymity. Ultimately, E-commerce shifts the power from the merchant to the consumer. E-commerce also provides a way for the business to connect its customers, vendors, suppliers and employees all over the world. The business, as such, is now capable of reaching an infinite number of customers over the Web, seeking out potential markets that were once outside its traditional business boundaries. [5]

E-commerce is a growing area of business and the number of online buyers is increasing exponentially. Further to the issues highlighted previously, that effect the Internet structure as a whole, there are issues specific to the commercial use of the web, that hinder the use of E-commerce to its full potential.

- Lack of experience a major factor.
- Lack of knowledge is significant.
- Internet does not yet meet business needs
- Internet not yet an essential business tool
- Current E-commerce sites not always easily accessible

2 Research, Hypothesis, Aims and Objectives

Simplistically, the main hypothesis of this research is that as other areas of the Web have benefited through regulation and standardization, be it network systems, or simply web browsers, the same must hold true for e-commerce. In effect, to standardise e-commerce one must in fact standardise the actual business. Whilst the methodology of every business is specifically dependant on the physical business and as such impossible to standardise, the processes undertaken are not. This means that while all businesses have a procurement process, for example, it's the method this is carried out that varies. Moving down the levels, business processes function on an important element, that is, data. The data required is, in most cases, the same for the specific processes, it is the method of storage and retrieval that is the variable in the equation. Our hypothesis revolves round the

possibility of describing the data transferred in a transaction to satisfy a particular process, and if that description is than standardised, such that it is valid for every business indulging in commerce over the web, then the control on the transfer of data should result in the indirect regulation of e-commerce itself. The current technology evolving round the description of data is the extensible Mark-up language (XML). The application of the meta-language to business promises to be the basis for the description and standardization of data in e-commerce transactions.

2.1 Aims

The aims of the research is to:

1. Analyse current e-commerce standards based on XML
2. Design and develop a framework which provides a method for the standardisation of the data, describing the business and its processes, whatever the nature and size of the business.
3. Develop the framework in a way as to allow for its use in conjunction with various technologies and scenarios.
4. Analyse Business processes data requirements, based on Enterprise Resource Planning systems (ERP) for the structure of our framework
5. Develop an evolvable framework, allowing the description of particular data, required for specific transactions that are unique for particular business sectors.

2.2 Objectives

The objectives of the research are to show:

1. Current XML based standards, developments and research being done by other bodies on the subject of e-commerce regulation
2. Demonstrate how the framework we will be developing can be of benefit to an online business scenario, such as in a business-to-customer or a business-to-business environment.
3. Highlight principle back-end systems in use today, such as ERP systems, which we will be considering in conjunction with the framework, as the most possible source of data for business transactions in the physical business environment
4. Demonstrate how the developed framework interacts with other technologies, and how this can be used as a building block to more complex solutions.

2.3 Tasks

To achieve these objectives we will carry out the following tasks:

1. Develop a framework for the description and standardisation of business data, based on the requirements of business back-end systems, and able to cater for the complexity of an ERP system.
2. Develop and implement an online business system, based on a Business to customer environment with a virtual marketplace scenario, where through our E-commerce framework, multiple businesses can offer their services online, in a simple and cost effective manner. This online business system will generate a direct connection between the customer and the business the customer selected, allowing direct handling of transactions by the business's own back-end systems.

3. This prototype will be developed through the use of particular technologies, and the dot net development environment, with the objective of keeping the system as evolvable as possible, due to the nature of the aforementioned development environment in catering for a heterogeneous coding language base.
4. We will be mapping a number of businesses, with different back-end systems and complexity, to our framework, in this way effectively standardising the data required for their business processes
5. Present other scenarios and technology interactions with our framework, such as the use of SOAP as a platform for other online business scenarios.
6. Perform a full evaluation of the developed online business systems in handling the various back-end systems interactions and the customer transactions. We will also be analysing the performance of the developed framework in handling the various business transactions, in order to test the research hypothesis' validity

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