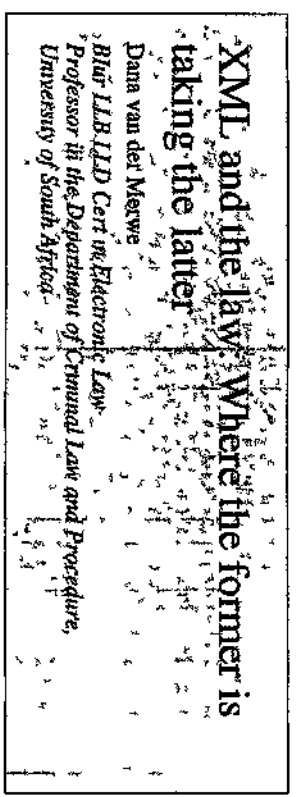


MITLW01-



OPSOMMING

"XML" en die reg: Waarheen eersgenoemde net laasgenoemde op pad is
XML is die afkorting vir Extended Markup Language, 'n uitdrukking wat moeilik vertaal maar wat oorspronklik geslaan het op die "opmerkings" wat 'n redakteur in die kantlyn van 'n manuskrip maak. Dit is nou verwant aan "HTML" of "Hypertext Markup Language" wat die grondslag van die hele Internet vorm. Die basiese doel van XML is om rekenaardata beter te orden en op 'n heel nuwe wyse toeganklik te maak. Die oorsprong van hierdie nuwe "taal" word ondersoek, asook die toekomstige belang wat dit vir sowel die informantkareg as die regsinformantika inhou. By eersgenoemde speel XML reeds 'n belangrike rol by die immateriele goedere, e-handel en veral die bewysreg (in laasgenoemde geval gaan dit meestal oor digitale handtekeninge). By regsinformantika bied dit nie net beter moontlikhede om elektroniese inligting te vind nie, maar begin die hele gebied van kunstmatige intelligensie nou ook weer hierdie as gevolg van hierdie ontwikkeling. Die VSA gebruik XML, byvoorbeeld op groot skaal om hul sekuriteit na die 11 September voorvalle op te skep.

1 INTRODUCTION

Those readers who have bothered to read past the title would probably have a fair idea of what "XML" means, but I still owe it to others to spread the good word. It is a three-letter acronym for "Extended Markup Language", a sister to "HTML" or "Hypertext Markup Language". Both have developed from "SGML" or "Standard Generalized Markup Language", which has been developed over a number of years as a medium for electronic text interchange, independent of whatever hardware (computer) or software (programme) is being used. SGML has grown into an international standard of the International Standards Organisation (ISO 8879:1986) and is established and well-respected, if somewhat too comprehensive for easy assimilation and implementation. The term "mark-up" refers back to the cryptic instructions that editors and reviewers affixed to preliminary drafts of documents in order to convey instructions to printers and typesetters, for instance, as to what the lay-out of the document should look like.

A more glamorous spin-off from SGML, namely HTML, has formed the backbone of the Internet revolution. It uses a much-reduced set of mark-up instructions and the whole purpose of HTML is simply to indicate to the Internet browser programme (such as Internet Explorer) that the following section of text should, for instance, be in a bold font and be coloured green. It is thus centred on display alone, but no one can argue with its success in transforming publishing from paper (hard copy) to computer screens.

Let me try to illustrate HTML by means of an example:

<bold> This piece of text will be bold, because that is how HTML works. </bold>

The two sets of angle brackets respectively activate and close the "bold" command in the Hypertext Markup Language. One may also use italics, underline, different colours, etcetera, by means of HTML. It is merely a display language, but on this humble building block the whole World Wide Web has been built.

The subject of the present article, however, is XML. It has retained most of the features of its mother language, SGML, but has simplified these features in order to achieve high efficiency and quick adoption by learners.¹ It was designed by a group from the World Wide Web Consortium (W3C) as a "kindler and gentler version of SGML that people could use to make their data more easily used on the Web".² Magnusson-Sjöberg sums up the inter-relationship between the latter two mark-up languages as follows: "Summing up, XML ties together the diversified encoding possibilities of SGML with the distribution power of HTML. From a practical point of view XML and SGML may very well complement each other."³

Let me try to also illustrate XML by means of an example.

<ProfDana'sfirstLaw> Always open the door for ladies. </ProfDana'sfirstLaw>

Obviously this is no longer a display language. In fact, it has now entered the field of semantics, which means I can convey meaning with my headings. They are also my headings because I have invented them. To avoid confusion with any other similar rules of courtesy towards ladies, I should "anchor" my rule to a specific "namespace" (which is usually a website, but the concept will be further explained below).

Why should the entire subject of XML be of more than passing interest to lawyers reading the present journal? Let me try to explain. In the first place, I would like to make a very basic distinction in order to show the effect of XML in two quite disparate areas. In both editions of my book *Computers and the law*,⁴ I have drawn the distinction between informatics law on the one hand and legal informatics on the other. The former deals with the problems that the use of information technology pose to the law and the latter with the (many) ways in which information technology assists the law.

It is especially in the area of legal informatics that XML continues to reveal layer upon layer of exciting possibilities. Not only will it be possible to retrieve really relevant legal information in ways that have eluded the present "dumbed-down" retrieval machines, but the whole field of artificial intelligence in law is beginning to revive after a decade of dormancy. The more structure we are able to give to our legal (and other) documents, the more useful they will be: both for machine-to-machine interaction and for the machine-human interface. Present search engines can search for a word, or a number of words by wading through millions of web pages, but no semantic structure underlies these searches except for the Boolean operators of "AND", "OR", "BUT NOT", etcetera. XML will not only make it much easier for humans to frame intelligent searches, but will

also save valuable computing time as computers avoid tedious "number-crunching" between themselves. The advantages of XML will not be limited to legal information retrieval, but should extend to other areas of legal informatics such as litigation support, expert systems, document drafting, billing and scheduling by legal professionals, electronic mail and even teaching electronically.⁵

In addition, and this also forms an important argument of the present article, XML is likely to transform the present area of informatics law in ways that are as yet unheard (or unthought) of. One of the first of these areas consists of the field of intellectual property law. One of the interesting oddities of the "schema" component of XML lies in the fact that it has to be linked to the "namespace", which has already been mentioned above. A "namespace" is really a piece of unequal estate that is a mix of inventiveness and stealing another prospector's claim during a gold rush. The web address mentioned in the namespace has to contain a unique "domain name". This not only identifies the website to humans and search engines alike, but serves as a valuable trade name and also empowers one to lay down the law (in XML!) on that particular website. The XML naming conventions pertaining to a particular website lie particularly within the domain of the owner of the namespace (for instance, "ProfDana" in the example of XML given above).

One of the most controversial parts of South Africa's Electronic Communications and Transactions Act⁶ (popularly known as the ECT Act) has been its introduction of a special authority to look after domain names. The previous holder of these powers had been in the process of setting up a private organization called "Namespace" to see to the commercial registration of domain names and this led to bitter criticism of the new statutory body. In the end the matter was settled by giving wide representation to stakeholders in the "electoral college" to appoint nominees to the Domain Name Authority (or DNA for purposes of this article alone!). The ECT Act determines that a board of nine directors, one of these being the chairperson, should run the DNA.⁷ The electoral college was to be constituted by "five persons who command respect for their fairness, language, academia and business".⁸ These five wise people then had to recommend nine specific individuals to the Minister of Communications for appointment to the DNA, taking into account the interests of certain listed sectors of stakeholders.⁹ These are the following:

- (a) The existing Domain Name community (thus soothing ruffled feathers);
- (b) academic and legal sectors (a law professor would therefore be ideal!);
- (c) science, technology and engineering sectors;
- (d) labour;
- (e) business and the private sector;
- (f) culture and language (of great importance in a country with eleven official languages!);

1 See on SGML in general Magnusson-Sjöberg *Critical factors in legal document management* (1998).

2 *Ibid.* 53

3 *Ibid.*

4 1986 and 2000

5 See *Computers and the law* (2000) 265-275

6 Act 25 of 2002

7 S 62(1).

8 S 62(2)(b).

9 Listed in s 62(3)(b)

- (g) public sector; and
 (h) Internet user community.

It is interesting to note, in a parallel development, what happens in certain countries to domain names that do not end in ".com".¹⁰ Whereas countries such as the United States and France see this ending as first prize, it might be better to make more of the corresponding ".co.za"¹¹ ending, which leaves much more space for further development. An interesting example in this regard is the unqualified success that the firm "Demic", situated in Frankfurt, has had in Germany.¹² This firm effectively administers websites in Germany ending in ".de". The fact that the new IDN (Internationalized Domain Name) standard now also provides for all the German "umlaut" characters has led to a rush to Demic's doors by Germans to register local web addresses ending in ".de".¹³ This option would not be open to South Africa because the Domain Name Authority deals with the entire ".za" domain name space.¹⁴

A number of other areas of informatics law are also likely to be influenced by XML. The area of privacy protection is one of these. In a chapter entitled "The melting pot paradox of structured documents", Magnusson-Sjöberg¹⁵ points out that one requires consent from data subjects to collect, store and disseminate personal data. In addition, the identity of a service provider has to be provided in terms of the EC Data Protections Directive.¹⁶ She also points out that the law of contract will become very important, for instance, to sort out the liability issues for damages resulting from the abuse of a transferred authentication.

With authentication, one enters the area of the law of evidence. This is the real focus of the present article as far as informatics law is concerned, and the inter-action between this field and XML will be explored below in greater detail.

2 XML AND LEGAL INFORMATICS

As was pointed out above, XML presents breathtaking opportunities in the field of legal informatics. Given the limited scope of an article such as the present one, one should perhaps concentrate on the much greater access to relevant legal information that XML is likely to bring about.

Especially the United States of America has been galvanized by the events of 11 September 2001 to make XML a cornerstone of their "homeland security". Their department of justice has spent a considerable amount of time and money to develop a "Justice Information Exchange Model" (JIEEM) as well as a "Justice XML Data Directory" (JXDD).¹⁷ Some of the spin-offs from these models are being implemented on a state-by-state basis and Wisconsin and Kentucky have implemented the "trap sheet" model. This is an electronic means of finding out

about the relevant previous convictions of an accused person. This is especially valuable from a constitutional point of view, since it should prevent the many postponements of criminal cases in order to ascertain whether the accused has relevant previous convictions. This also entails that the accused usually has to remain in custody for periods of time, which in some cases may exceed the punishment that could be imposed.

Besides the "trap sheet", other promising XML developments are constituted by a comprehensive car and driver database called the "Data Dictionary for Traffic Road Systems", which is in full compliance with the ANSI D20-standard, and is also kept current in co-operation with the AAMVA.¹⁸ The new information systems are building on the foundations of existing systems. Thus, for instance, "CrimNet" uses XML to build on the basis of the existing Minnesota Sentencing Guidelines. The Georgia Tech Research Institute (GTRI) has created a "Justice XML Information Center" and incorporated the plea codes and military discharge codes of the Utah Offender Tracking Database. At present its Global Justice XML Data Model (GXJDM) and Global Justice XML Data Dictionary (GXJDD) are, according to its website, being adopted by almost all the American federal states.¹⁹ The "National Consortium for Justice Information and Statistics" goes by the title²⁰ of SEARCH. The goal of the "XML Structure Task Force" (XSTF) is to promote the broad-scale sharing of critical justice information.

One should not deduce from the above that the USA is alone in its enthusiasm for XML and related acronyms, or that this phenomenon is merely a hysterical overreaction to the terrorist attacks of the 11th of September 2001. Their transatlantic cousins in Europe share these same passions, although the focus is more on making money than on protecting the homeland. Thus, the "Danish National XML Committee" plans to make use of the Universal Business Language (UBL) – which builds on XML) to establish a standard for e-commerce in the public sector. Under the auspices of the University of Stockholm, Sweden has established a project for "Secure Legal Information Management" (SLIM) which has an up-to-date website.²¹

Closely related to the above is the Swedish "Legal Information Standards Action Network" (LISA),²² which has already done some groundbreaking work in this regard. LISA has an action plan and goal which focuses on three assumptions:

- (1) Information standards need to be legally managed;
- (2) the digital network society requires proactive law; and
- (3) trust enhancement is the goal.

With regard to the first goal, LISA takes responsibility for sharing information about the legal implications of information standards. The latter "give rise to questions of substantive IT-law as well as methodological issues associated with its design and implementation". As far as the second goal is concerned, LISA points out that the law has traditionally functioned as a reactive tool once things have already gotten out of hand and that earlier action is often needed: "The

¹⁰ The ".com" standing for "commercial".

¹¹ Or "ae.za", "org.za", "edu.za", etcetera

¹² See www.demic.de.

¹³ See "Das Zuhause der Internet-Domains ".de"" 2004-04-28 *Frankfurter Rundschau*.

¹⁴ S 65(1)(a) ECT Act 25 of 2002.

¹⁵ Seipel (ed) *Law and IT – Swedish views* (Official Report of the Swedish government 2002) 195 (198).

¹⁶ 95/46/EC.

¹⁷ See in general the website at www.h.opg.gov.

¹⁸ American Association of Motor Vehicle Administrators.

¹⁹ <http://justicexml.gtri.gatech.edu>

²⁰ One could hardly call it an acronym!

²¹ At www.juridicum.su.se/slm.

²² At www.lisanet.org.

introduction of different kinds of information standards calls for legal actions at a much earlier stage to avoid the establishment of legally non-valid technical solutions." In this regard, of course, XML is able to play a great consolidating role. The third goal turns on trust and proof, and this will be further discussed under the next heading when we have a look at substantive law as it relates to both of the latter goals.

Regarding XML in general, it is interesting to note that the Europeans have established a different "flavour" of XML, even though the technical standards are exactly the same. It is especially clear in the new European acronym of "LEXML".²³ In the USA and the rest of the civilised world, use is made of the acronym "LegalXML".²⁴ This latter version of XML bears the true bloodline of the old "SGML Open" and this is also the standard recognised by the "Organisation for the Advancement of Structured Information Standards" (OASIS).

Before leaving the field of legal informatics in order to focus on informatics law, one should perhaps also pay homage to the field of artificial intelligence, which XML and similar developments seem to have revived. Whereas HTML has everything to do with presentation, XML deals with syntax and content. A further development, namely Resource Description Framework (RDF), deals with relationships and metadata and enables sophisticated thesauri, mind-maps and lexicons to be built up by using related concepts as multi-connected building blocks.

Surpassing even these is a relatively new concept called a web ontology language, also characterised (somewhat confusingly) by the acronym OWL. Beyond this one may, in future, encounter intelligent software agents making use of some of the systematisation, which has already gone into the data by means of prior structuring by means of RDF, OWL, etcetera. The whole framework is based on ISO standard 11179, which deals with a data element naming syntax. Many of these elements would not have been possible without the intelligent data stratification, which XML has made possible. Perhaps the dream of artificial intelligence and law interacting often and usefully is showing signs of revival after remaining almost dormant for a decade or longer.

Already commentators in Europe are finding that the easier drafting and interpretation of legislation that follows this ontology amply repay the amount of thought that goes into building a coherent ontology. Thus a paper by Boer, Van Engers and Wirthlis at the 9th Conference on Artificial Intelligence and Law²⁵ held at Edinburgh in 2003, sings the praises of Unified Modelling Language (UML), which is also very compatible with XML. The latter also comes in for its share of praise: "XML has become the *de facto* international syntax standard for legal document interchange between organisations."

3 XML AND INFORMATICS LAW

3.1 Introduction

Even though many of the arguments made earlier in this article were necessary for advancing the arguments that follow, the reader is now getting to the meat of this article. Mention has already been made of the fields of intellectual property,

privacy and contract²⁶ and these will be discussed in order to see whether XML is likely to have an influence on them. However, the main emphasis will be on the law of evidence, and specifically how dramatic the impact of XML is likely to be on the aspect of electronic signatures in future.

3.2 Intellectual property

As far as intellectual property (IP) is concerned, the question of domain names has been discussed in the introductory part of this article since this is the only aspect of IP to receive attention in the ECT Act,²⁷ which was supposed to bring South African commerce and law into the computer age. The whole question of how to deal with namespaces remains cloudy even on an international basis, as has clearly been shown by Ronald Bourrel.²⁸

Another aspect of IP touched upon by XML specifically, lies in the area of rights management. Many authors regret the restrictive regime imposed upon readers by the present copyright system and have found a compromise in the so-called "Rights Expression Language" (REL) or its XML embodiment named "XrML".²⁹ The standards body OASIS mentioned above has created the eXtensible Access Control Markup Language (XACML) in the present context. This language focuses on expressing access control policies rather than high-level usage rights for digital goods or services. The "Creative Commons"-initiative has come up with creative³⁰ new ideas for people who place content onto the Internet to assign certain usage rights to their creative works, also by means of the Internet. Most of these new initiatives and developments are dealt with in their work by Becker, Borchse, Gunneuring and Rump.³⁰

3.3 Privacy

The field of privacy is one of the most controversial in the "Big Brother" era of the Internet. The name is derived from a pervasive government surveillance by means of technology as expressed by Orwell in his 1984.³¹ All citizens are provided with television sets by the government, but the screens are "two-way" and may be accessed by government eyes at times unknown to the citizens. Thus, the widely held fear that the government is spying on one is expressed in a vigorous emphasis on privacy in most modern legal systems.

In South Africa the ECT Act³² was supposed to give effect to the constitutional right to privacy. Section 50 sets out the scope of protection, namely only personal information that has been obtained by means of electronic transactions. Section 51 requires a "data controller" to have express written permission from the "data subject" before any personal information may be collected, collated, processed or disclosed. Despite the restricted nature of privacy protection contained in these two sections, the peremptory nature of these provisions was

²⁶ Actually, electronic commerce in general is a more accurate description than focussing on the contract in isolation.

²⁷ Act 25 of 2002.

²⁸ See www.xml.com/pub/a/2000/03/08/namespaces.

²⁹ True to their name!

³⁰ *Digital rights management* (2003).

³¹ The year 1984 was supposed to be very far in the future at the time of writing, which was in 1948!

³² Ss 50 and 51 Act 25 of 2002.

²³ See eg www.lexml.de.

²⁴ See www.legalxml.org.

²⁵ Entitled "Using ontologies for comparing and harmonizing legislation".

changed at a fairly late stage in the legislative process. The protection is now limited³³ to data controllers who "voluntarily subscribe" to the privacy provisions of the Act. This may be because of a separate initiative by the South African Law (Reform) Commission and the Department of Justice, that has already produced an issue paper that should lead to legislation providing for compulsory protection of privacy.³⁴ Both these entities might be well advised to consider the sophisticated possibilities that XML provides for data protection. At the moment the European Union has not yet specifically incorporated any of these in its directives on privacy.³⁵

3.4 E-commerce

The abovementioned privacy directives may be overtaken by the dramatic developments in the area of e-commerce. Again the European directive in this regard³⁶ does not really address XML by name. However, a parallel development in the area of e-business has by now far surpassed the official EU-efforts.

The first link between XML and e-commerce was a so-called "Transaction Authority Markup Language" (XAML) that has been described as "a vendor-neutral standard that enables the co-ordination and processing of online transactions in the rapidly emerging world of xml web services".³⁷ This has now been superseded by the latest standard of "Electronic Business eXtensible Markup Language" (ebXML).³⁸ This "dialect" has now gained full respectability in the sense that the International Standards Organisation (ISO) has fully accepted the OASIS³⁹ recommendations in this regard. On 29 March 2004 a new ISO 15000 designation was created and subdivided into the four following categories:

- O 15000-1: ebXML Collaborative eXensible Partner Profile Agreement;
- O 15000-2: ebXML Messaging Service Specification;
- O 15000-1: ebXML Registry Information Model;
- O 15000-1: ebXML Services Specification.

A previous model of electronic business data interchange has been in service for a number of years, but has since become cumbersome and only usable between two specific parties who have made all the necessary prior arrangements. This was "Electronic Data Interchange" (EDI).⁴⁰ I have personally described the difference between e-commerce (in general) and EDI as follows:

"E-commerce may be distinguished from EDI by the fact that the latter is usually between two known partners who have previously agreed to do business in this way by means of a so-called 'EDI-agreement'. By contrast, e-commerce is carried on with the whole world as customer, necessitating a high degree of upfront security. It is hoped that this will be accomplished by forms of encryption [such as

³³ By s 51(2)

³⁴ See Issue Paper 24, Project 124 of the SALRC *Privacy and data protection* (ISBN 0-621-34530-X)

³⁵ 95/46/EC and 2002/58/EC.

³⁶ 2000/31/EC.

³⁷ See www.xml.net.

³⁸ See www.ebxml.org

³⁹ Organisation for the Advancement of Structured Information Standards.

⁴⁰ See in this regard Eiselen "Elektroniese dataverwysing (EDV) en die bewysreg" 1992 *THRHR* 204.

the 'digital signature' which is more fully discussed below). More than mere encryption is needed, however. Unless the whole legal or regulatory infrastructure is changed or modified to accommodate the new way of doing business, it will always remain a bit of a legal gamble. Businessmen will simply not know what legal effect courts will render their contracts and other e-commerce dealings."⁴¹

OASIS themselves describe the phenomenon of EDI as follows: "Many companies find EDI expensive and difficult to implement. The ebXML initiative, using the economies of scale presented by the Internet breaks through these obstacles."⁴²

A group of initiatives are operating under the umbrella title of "web services". The fact that the major players in the hardware and software industry, such as IBM and Microsoft (to mention but two), are whole-heartedly supporting the new web services initiative⁴³ augurs well for its success. Readers will have to become used to another acronym in this regard, namely SOAP.⁴⁴ SOAP has been defined⁴⁵ as: "A simple extensible XML protocol framework for communication between distributed peer processes."

Translated, this simply means that SOAP is the language in which one is going to communicate when doing business by means of the Internet in future. SOAP is therefore also of vital interest for the success of the "web services" concept described above.

In closing it should be mentioned that the ECT Act⁴⁶ also contains measures that should help enable e-commerce in South Africa. The biggest stumbling block is likely to be one of trust and in this regard the next heading may be considered to be of the greatest importance.

3.5 Electronic signatures and other problems of proof

The question of digital signatures was mentioned when dealing with e-commerce above. Again the European Union has a directive in this regard.⁴⁷ The EU Directive on Electronic Signatures enables "electronic signatures" and even "advanced electronic signatures" to be used. The overall objective of the directive has been described as "the co-ordination of the legal and technical work of the Member States as regards electronic signatures, removing in this way the obstacles to the internal market, especially as regards e-commerce."⁴⁸ The author feels, however, that a "lot of work" remains in the area of minimising uncertainties, both legal and practical (partly technical). She suggests that XML might have a major role to play in this regard by means of its "XML related security enhancing factors".⁴⁹

These factors may be roughly summarised as follows. Firstly, XML is a *non-proprietary format*, which means that it should remain accessible over the long

⁴¹ *Computer law* (2000) 242.

⁴² At www.oasis-open.org.

⁴³ This support is not surprising, since web services should sell more computers and programmes!

⁴⁴ "SOAP" used to stand for "Simple Object Access Protocol" but its role has now expanded to such an extent that the acronym is no longer valid. Nonetheless, the name has stuck!

⁴⁵ Eastlake and Niles *Secure XML* (2003) 145.

⁴⁶ Ss 20-26 ECT Act 25 of 2002.

⁴⁷ 1999/93/EC.

⁴⁸ Magnusson-Sjöberg in Seipel (ed) 195 203.

⁴⁹ *Ideem* 204.

term. Secondly, it already serves as a tried and tested *quality control in document production as well as document distribution*. In the third place, it is a *container of legal directives* and, finally, it enables *secure electronic messaging*.

Magnusson-Sjöberg again brings electronic signatures and XML into the same frame of reference in a recent publication of the conference proceedings on EU electronic commerce law.⁵⁰ In this contribution she explains the system design of the present infrastructure of digital signatures, making use of "legally relevant building blocks" consisting of "concepts" and "actions". She stresses the functionality of electronic signatures, but warns that even though the present PKI⁵¹, infrastructure supports authenticity, the control of data integrity and non-repudiation (in a technical sense), it still does not guarantee data integrity or confidentiality. Even though PKI may not have lived up to the high expectations that were raised with its introduction, it should perhaps be updated in accordance with the very latest technologies.

Here, of course, she is thinking of the recent legal application of modern information standards such as XML, UBL,⁵² ebXML⁵³ and SAML.⁵⁴ Universal Business Language (UBL) is a specific dialect of XML and its (self-stated) purpose is to develop a standard library of business documents, such as purchase order, invoices, etcetera. It is also intended to become an international standard for electronic commerce and will truly be "open source" in the sense that it will be freely available to everyone without licensing or other fees. From its area of application it is easy to see that this standard is likely (with ebXML), to take over the role that EDI has played over the last two decades or so.

Security Assertion Markup Language (SAML) is even more vital toward equalizing (or even surpassing) the role of "web" signatures in commerce. In September 2003 SAML came to be accepted as an official OASIS standard. It is self-styled as "an XML-based framework for exchanging security information". The "security" is to be grounded in the form of an "assertion" about an "entity" (which might be human or computer) that can be trusted by other entities engaged in a transaction or transactions with the first entity. This brings one to the whole brave new world of certificate and authentication authorities. It is interesting to note that the recent South African ECT Act⁵⁵ actually provides for these authorities, and does so in a technology-neutral way in order that SAML may immediately start playing a role in e-commerce in South Africa. The point of a whole argument is to show that XML and its related standards will have to play a key role for e-commerce to be conducted successfully at all in South Africa and in the rest of the world.

A penetrating analysis of the "nuts and bolts" of digital signatures (and even the basic idea of a "document") has been done in a thoughtful work cited above, namely *Secure XML*.⁵⁶ The authors draw a distinction between the traditional

"paper" point of view of documents, "where digital objects of interest are like pieces of paper written and viewed by people" and the new "protocol" point of view, "where objects of interest are dynamic composite protocol messages".⁵⁷ Space does not permit an exhaustive analysis of this fascinating argument, but it boils down to the fact that the proof of the protocol type of "document" might have to be furnished in an entirely different fashion to the traditional proof of a paper document. With regard to the protocol view, one would, in all probability, need an expert witness to introduce this type of document into evidence:

"What is important are bits on the wire generated and consumed by computer protocol processes. These bits are marshalled into composite messages that can have rich, multilevel structure. No person ever sees the full message as such, rather it is viewed as a whole entity only by a 'geek' when debugging – even then he or she sees some translated visible form. If you ever have to demonstrate something about such a message in a court or to a third party, there isn't any way to avoid having experts interpret it."⁵⁸

The modern model of Internet communication (and even of "web services") is that of "packets" of data that are separated at transmission, then stream towards their common destination by different highways and by-ways of the Internet and are finally assembled by a receiving computer at that destination. Yet, because the digitally re-assembled "document" will probably be printed out at the point of destination, one fondly imagines that one is still dealing physically with the same "document" that was originally sent.

Although a number of other model laws in the area of electronic and digital signatures exist, it seems clear that the South African ECT Act⁵⁹ has also followed the EU model of electronic signatures. However, no mention is made of XML in this regard and it appears that there was some attempt to keep the definition of electronic signatures "technology-neutral". Nonetheless, as has been shown above, there have been dramatic developments as far as XML and electronic signatures are concerned, and therefore the South African legislature as well as advisory organisations such as the South African Law (Reform) Commission would be well advised to follow these developments with great attention. If a country wishes to trade internationally, it has to adopt measures that will ensure trust in its transactions.

4 CONCLUSION

I am of the opinion that the above arguments and proofs show evidence of good tidings for e-commerce in South Africa, whatever the shortcomings in this presentation by the present bearer of the good tidings. Nevertheless, it is of the utmost importance that the entire legal fraternity in our country takes note of the recent technological developments, that have been sketched above.

The academic sector bears the primary responsibility and was given an especially important role to play. Not only does it have a duty to do the necessary research, but it should also publish its findings in a manner that the ordinary lawyer and businessman (or woman) may understand. The present article represents an effort in this regard. In addition, however, one may expect attorneys,

⁵⁰ Magnusson-Sjöberg "Managing electronic signatures" in Nielsen *et al* (eds) *Electronic commerce law* (2004) 95 ff.

⁵¹ Public Key Infrastructure

⁵² Universal Business Language.

⁵³ EbusinessXML.

⁵⁴ Security Assertion Markup Language.

⁵⁵ Act 25 of 2002 ch VI.

⁵⁶ By Eastlake and Niles (2003) ch 10-12

⁵⁷ *Idem* 469 (annexure E).

⁵⁸ *Idem* 470.

⁵⁹ Ss 11–20 Act 25 of 2002.

advocates, judges, magistrates as well as private and legal advisors to take note of the present strides in (legally relevant) technology. South Africa is often seen as the torchbearer for new developments on our continent (as the ECT Act has shown) and we owe it to Africa not to neglect our legal and patriotic duty.

In the race for success a true (but chilling!) byword has it that "the devil takes the hindmost!"¹

Die antwoord van H. Gorter alhoewel onder krasservoer verset het, was natuurlik dat die oordeel van die oorspronklike verdedigers van die wet in die hande gegee is. Wending tot die oplossing van die probleem onder bespreking dwyn. Chouze payne om via die genue sodanige verdere betrekkinge oor die aanbod en streek van die bevoegde internasionale proewe te lei. Is dan die verhouding getruuk. Gestelstint die daad, so is bewys, kon nie op hierdie wese ingesluit word nie. Die kriek van Chouze op ooppleen die verhouding se streek van die verhouding van verhouding verdere getruuks geopper het. Is na ons mening misplaas. Daar kan nie gesê word dat die verhouding se streek in die opsig verduidelik geopen het. Op die gebied is thenging op middel dat ook nie berygende nie. Memaber AR en Comrade Mr. AR in Gibe-Galey (Pv) Ltd v. Lusho Farms (Pty) Ltd 30022 SA 447 (BHA) para 474H-475A.

Unlocking the future: Monitoring court orders in respect of socio-economic rights*
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OPSOMMING

Onsluiting van die toekomstige: Monitorering van hofbevele rakende sosio-ekonomiese regte

Die Suid-Afrikaanse Grondwet erken sosio-ekonomiese regte as beregbare regte. Hierdie regte is veral belangrik vir mense wat nie in staat is om hulself te onderhou nie, en wat dikwels ook nie in staat is om die Staat se versum om basiese dienste te verskaf, aan te spreek nie. Onlangse hofgedinge in verband met die miskenning van mense regte, insluitende sosio-ekonomiese regte, bevestig die dringende behoefte aan die herontwring van die beskerming van sosio-ekonomiese regte, soos in die geval van Suid-Afrika, waar die bereiking van sosiale geregtigheid hoog aangeskryf word deur die regering van die dag.

Hoewel die skrywers van die Grondwet van 1996 herbenoemingsnagte aan die regsbank toegees het in beslissings wat sosio-ekonomiese regte raak, was die debat hoofsaaklik gerig op die legitimiteit en doeltreffendheid van geregtelike ingryping met die oog op die inwerkingstelling van sosio-ekonomiese regte. Die doel van hierdie bydrae is om ondersoek in te stel na die mate waarin hofbevele rakende sosio-ekonomiese regte in Suid-Afrika suksesvol geïmplementeer is. Verder word veral aandag geskenk aan hoe die implementering van hofbevele rakende sosio-ekonomiese regte doeltreffend gemonitor kan word.

1 INTRODUCTION

"The commitment of the South African government towards a more integrated approach to governance and service delivery bodes well for the improved realisation of socio-economic rights."¹

The real test for a commitment to human rights norms, including socio-economic rights, lies in the mechanisms that are put in place for their enforcement. In order to ensure that socio-economic rights do not end up as rights on paper alone,²

* This article is an abstract from the author's unpublished LL.M dissertation *The implementation of court orders in respect of socio-economic rights in South Africa* (US 2003).

¹ President Mbeki "State of the Nation Address" 28 April 2004.

² In *Soobramoney v Minister of Health, Kwa-Zulu-Natal* 1998 1 SA 765 (CC) para 42 Madala J expressed this sentiment as follows: "Some rights in the Constitution are the ideal and something to be strived for". They amount to a promise, in some cases, and an indication of what a democratic society aiming to salvage lost dignity, freedom and equality should embark upon. They are values which the Constitution [of the Republic of South

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