

WORLDWIDE ACCESS TO FOREIGN LAW: INTERNATIONAL AND NATIONAL DEVELOPMENTS TOWARD DIGITAL AUTHENTICATION

*Claire M Germain**

Access to foreign law is essential in our global, inter-dependent world, for legal professionals as well as citizens. The focus in this article is on access to the official word of the law, specifically to statutes, codes, regulations, court decisions, and international agreements worldwide. The importance of improving global access to foreign law was highlighted at a 2012 joint European Commission/Hague Conference on Private International Law, with the hope for a global instrument to facilitate access to foreign law in civil and commercial matters.

Part I of this article discusses the challenges of digital law, and the importance of authentication of official legal information worldwide. Part II is devoted to some recent efforts at international cooperation, notably the 2012 European Commission/Hague Conference on Private International Law Guidelines on Access to Foreign Law in Civil and Commercial Matters, to be read together with the 2008 Hague Guiding Principles to be Considered in Developing an International Instrument. Part III discusses recent developments at the national level in different countries, including Europe and the South Pacific, and with a special focus on the USA. It retraces the history of what happened in the USA at the federal and state levels, in particular the successful information policy advocacy by law librarians that led to the enactment of the Uniform Electronic Material Act in 2012. The Conclusion mentions a few prospects for the future, and ponders whether there might be a role for the International Federation of Library Associations (IFLA) to develop a set of standards to encourage governments worldwide to authenticate their official legal information, in collaboration with other organizations and associations. This might fit well with IFLA's stature as a major forum to influence information policy at the international level.

L'accès au droit étranger tant pour les professionnels du droit que pour les citoyens, est devenu aujourd'hui un élément indispensable à la compréhension d'une société mondialisée où l'interdépendance des mondes économiques est de plus en plus prégnante.

Les travaux conjoint en 2012 de la Commission Européenne et de la Conférence de La Haye sur droit international privé, qui tendaient à l'élaboration d'outils de nature à faciliter l'accès au droit étranger en matière civile et commerciale, en portent témoignage.

Les réflexions de l'auteur portent sur les conditions d'accès à la connaissance des normes juridiques sous ses formes les plus diverses (Lois, codes, décisions de justice ou encore traités et conventions internationales).

Dans une première partie, sont évoqués les défis posés par le droit des nouvelles technologies et les difficultés inhérentes à son authentification.

La seconde partie des développements retrace les tentatives de coopérations internationales dans le domaine de la connaissance du droit, notamment les travaux conjoints de la Commission européenne et de la Conférence de La Haye sur droit international privé en 2012 qui doivent être analysés à la lumière des principes déjà posés en 2008 à La Haye.

Dans une dernière partie, l'auteur rappelle les développements récents en la matière y compris aux USA et dans le Pacifique Sud.

En guise de conclusion, il est proposé aux lecteurs quelques réformes envisageables notamment en prenant appui sur les initiatives de l'International Federation of Library Associations (IFLA), qui tendent à promouvoir un système unifié d'authentification des textes et informations de nature juridique.

I INTRODUCTION

Now more than ever, access to foreign law is seen as essential in our global, inter-dependent world, where multiple transnational transactions operate at various levels. One may need access to the copyright law of Australia, inheritance law of Bolivia, franchise law of Brazil, foreign investment law of Tanzania, a tax treaty between France and Japan, how to serve process in New Zealand, etc. Across the world, many issues involve more than one legal system, and determining what law applies to the relationship and transaction of the parties may involve the use of

international instruments such as the Hague Convention on Choice of Court.¹ Ready access to foreign law is needed for lawyers, judges, notaries, and other legal professionals to perform their duties, but it is also needed for citizens to know the law that applies to them in their own country, since no one is deemed to be ignorant of the law.²

Access to foreign legal sources has dramatically increased since the early 1990s, thanks to the revolutionary impact of technology and the internet on legal information.³ In a parallel evolution, emerging E-government information policies have led to a wider dissemination of legal sources in many countries of the world, to ensure the effective implementation of the rule of law and for legal security.⁴ Countries increasingly share the philosophy that governments have a duty to make their laws freely available to the public.⁵

The wide availability of sources is celebrated, with more progress every day. One aspect which is less well-known or written about, is the challenge of legal information in digital form, caused by the vulnerability of the medium and the risks of alteration, accidental or malicious. The challenge for governments is to find ways to ensure the authenticity and permanence of digital information, particularly born digital, which has no print equivalent. The large issue is to ensure the transmission of the "the official word of the law" in a digital environment to future

* Associate Dean for Legal Information & Clarence J TeSelle Professor of Law, University of Florida Levin College of Law. Gainesville, Florida/USA. This article was originally prepared for the IFLA World Library and Information Congress 2012, August 14, 2012, Helsinki, Finland.

1 Hague Convention of 30 June 2005 on Choice of Courts Agreements <www.hcch.net/index_en.php?act=text.display&tid=134>.

2 Claire M Germain "Legal Information Management in a Global and Digital World: Revolution and Tradition" (2007) 35 *International Journal of Legal Information* 134, 136 available at <scholarship.law.cornell.edu/cgi/viewcontent.cgi?article=1087&context=ijli>.

3 See Claire M Germain "Digitizing the World's Laws" in Richard Danner and Jules Winterton (eds) *International Handbook of Legal Information Management* (Ashgate, 2010) 182. Earlier version available at <scholarship.law.cornell.edu/clsops_papers/72/>. This chapter evaluates the current state of progress in online access to the content of foreign law, provides a world snapshot, and discusses such digital law issues as authentication and preservation for long-term access.

4 *Id.*

5 In France, this *droit au droit* reached the level of a principle of constitutional value in a 1999 French Constitutional Council decision. Germain, above n 3, at 182.

generations, and ensure the same trustworthiness that print documents have enjoyed and survived for centuries.⁶

The focus in this article is on access to the official word of the law, specifically to statutes, codes, regulations, court decisions, and international agreements (called "primary sources" in common law countries) that are binding on the courts, in contrast to "secondary sources," such as commentaries on the law, treatises, and law reviews, referred to as *la doctrine* (scholarly writings) in civil law countries.⁷ In those countries, the primary source of law is legislation, normally published in a country's official gazette.⁸ It is also important to have access not only to current and up-to-date legislation, but also to previous versions of the law.⁹

The importance of improving global access to foreign law via the Internet was highlighted at a 2008 international Meeting of Experts on Global Co-operation on the Provision of Online Legal Information on National Laws, organized by the Hague Conference on Private International Law.¹⁰ This meeting was followed in February 2012 by a joint European Commission/the Hague Conference on Private International Law meeting on Access to Foreign Law in Civil and Commercial Matters.¹¹ The two organizations joined together to develop guidelines with the hope for a global instrument to facilitate access to foreign law in civil and commercial matters.

Part I of this article discusses the challenges of digital law, and the importance of authentication of government official legal information worldwide. Part II is devoted to some recent efforts at international cooperation, notably the 2012 *European Commission/Hague Conference on Private International Law Guidelines on Access to Foreign Law in Civil and Commercial Matters*,¹² to be read together with the 2008 *Hague Guiding Principles to be Considered in Developing an*

6 Claire M Germain "Digital Legal Information: Ensuring Access to the 'Official' Word of the Law" (1999) 26 Cornell Law Forum 11-14; "Digital Legal Information: Here Today, Gone Tomorrow?" *Syllabus (ABA)* 17 (Spring 1998).

7 Germain above n 3, at 183.

8 *Id.*

9 *Id.* at 183-4.

10 I attended this meeting at the invitation of Secretary-General Hans van Loon. The Hague Conference issued a Report at http://www.hcch.net/upload/wop/genaff_pd11a2009e.pdf; See also <legalinformatics.wordpress.com/2010/01/03/accessing-the-content-of-foreign-law-and-the-need-for-the-development-of-a-global-instrument-in-this-area-a-possible-way-ahead/>.

11 <www.hcch.net/index_en.php?act=events.details&year=2012&varevent=248>.

12 Reproduced below Part III.

International Instrument.¹³ Part III discusses recent developments at the national level in different countries, including Europe and the South Pacific, with a special focus on the USA. It retraces the history of what happened in the USA at the federal and state levels, in particular the successful information policy advocacy by law librarians that led to the enactment of the *Uniform Electronic Legal Material Act* in 2011.¹⁴ The Conclusion mentions a few prospects for the future, and ponders whether there might be a role for the International Federation of Library Associations (IFLA) to develop a set of standards to encourage governments worldwide to authenticate their official legal information, in collaboration with other organizations and associations. This might fit well with IFLA's stature as a major forum to influence information policy at the international level, with the newly instituted IFLA Standards Committee.¹⁵

II OFFICIAL AND AUTHENTIC LAW IN THE DIGITAL AGE

The transition to digital information raises a number of issues for the legal profession and citizens alike. Some of the possible concerns focus on access to government information in an environment in which governments have stopped publishing laws and decisions in print, and moved to publishing only online, and where some official documents are "born digital," and never published in print. How does one ensure the trustworthiness, authenticity and accuracy of born digital information, and what will be the effect on the cost of government information distribution?¹⁶

Several definitions are now available to capture the issues related to primary materials in digital or electronic form. In the digital environment, the terms "official" and "authentic" are sometimes used interchangeably but mean different things. An online official legal resource is one that possesses the same status as a print official legal resource. In the United States, for instance, the definition of an official version of court opinions, statutes, session laws, or regulatory material is one "that has been governmentally mandated or approved by statute or rule. It might be produced by the government, but does not have to be."¹⁷ This definition is

13 Reproduced below Part V.

14 <[www.uniformlaws.org/Act.aspx?title=Electronic Legal Material Act](http://www.uniformlaws.org/Act.aspx?title=Electronic+Legal+Material+Act)>.

15 <www.ifla.org/en/standards-committee>.

16 Claire M Germain *Digitizing the World's Laws: Authentication and Preservation*. World Library and Information Congress: 76th IFLA General Conference And Assembly, 10-15 August 2010, Gothenburg, Sweden <conference.ifla.org/past/ifla76/96-germain-en.pdf>.

17 American Association of Law Libraries 2007 State by State Report.

firmly rooted in the print world. Courts and public officials turn to official legal resources for authoritative and reliable statements of the law and require citation to such sources in the documents that come before them. By itself, an online official legal resource offers no such automatic assurance.¹⁸

Authenticity refers to the quality and credibility of the document. It means that the text is provided by competent authority and that it has not undergone any alteration in the chain of custody. An online authentic legal resource is one for which a government entity has verified the content to be complete and unaltered from the version approved or published by the content originator.¹⁹ Typically an authentic text will bear a certificate or mark certifying that the text is authenticated. The standard methods of authentication include encryption, especially digital signatures and public key infrastructure (PKI), or similar technologies. Authentication of digital law varies by country; some provide authentication through a digital signature or PKI infrastructure, others through secure servers and certificates.²⁰

The US Government Printing Office (GPO) defines authentic content as "the complete and unaltered representation approved or published by the content originator or an authorised derivative with a trusted chain of custody to that representation."²¹ This definition creates a model for assuring the authenticity of electronic government information, regardless of changes in technology. In order to be satisfied that an item is authentic, users must be sure that (1) they can trust the source of the content, and (2) unauthorized alterations to content have not occurred (ie, content integrity is maintained).²²

A White Paper by the California Office of Legislative Counsel issued in December 2011, provides interesting examples of various methods of authentication of primary legal materials in electronic form and pricing options. It briefly reviews five methods of electronic authentication. These methods are based on trustworthiness, file types, effort to implement, and volume of electronic

18 Germain, above n 3 at 193.

19 Id.

20 Hietanen, Aki, *Electronic Publishing of Legislation – Towards Authenticity*. (Final working group report). Helsinki/Tallin, June 2007 <www.scribd.com/doc/35174375/Helsinki-2007-Authenticity-Final>.

21 <www.gpo.gov/pdfs/authentication/authenticationwhitepaper2011.pdf>.

22 Id.

documents to be authenticated. Six sample solutions are described and their relative costs are compared.²³

III EUROPEAN COMMISSION/HAGUE GUIDELINES TO FACILITATE ACCESS TO FOREIGN LAW IN CIVIL AND COMMERCIAL MATTERS

In February 2012, the European Commission and the Hague Conference convened a Joint Conference on Access to Foreign Law in Civil and Commercial Matters in Brussels, Belgium.²⁴ Approximately 130 legal professionals from more than 35 States representing all continents discussed the need for a global instrument to access the content of foreign law.²⁵

Of particular interest for law librarians and other legal information specialists, was the panel on the availability of online legal information on national laws and issues such as language, interoperability, authenticity, up-datedness and historical information.²⁶ Recommendation 8 addresses the consensus of the group.

23 Authentication of Primary Legal Materials and Pricing Options California Office of Legislative Counsel white paper, Dec 2011. <www.mnhs.org/preserve/records/legislativerecords/docs_pdfs/CA_Authentication_WhitePaper_Dec2011.pdf>.

24 I was invited to this meeting as an academic expert on foreign law. The following documentation with regard to the Joint Conference has been made available: The Agenda, the Recommendations and Conclusions, and the Meeting Report. <www.hcch.net/index_en.php?act=events.details&year=2012&varevent=248>.

25 Access to Foreign Law in Civil and Commercial Matters Joint Conference of the European Commission - Hague Conference on Private International Law Brussels, 15 to 17 February 2012. The countries and organizations represented were Albania, Australia, Belgium, Canada, China, Croatia, Cyprus, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, India, Japan, Kenya, Latvia, Lithuania, Malta, Mexico, the Netherlands, Oman, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom, the United States of America, Venezuela, the United Nations, the International Monetary Fund, the World Bank Group, the Commonwealth Secretariat, the International Organisation of la Francophonie, the League of Arab States, the European Parliament, the European Commission, the International Bar Association – Arbitration Committee, the International Union of Notaries, the American Association of Private International Law, the Council of the Notariats of the European Union, the European Group on Private International Law, the Uniform Law Commission, the American Bar Association Section of International Law, the Max Planck Institute for Comparative and International Private Law, the Swiss Institute of Comparative Law, the Free Access to Law Movement, as well as the Permanent Bureau of the Hague Conference on Private International Law <www.hcch.net/index_en.php?act=events.details&year=2012&varevent=248>.

26 Panel V – Theme II – Subtheme 2 – Availability of Online Legal Information on National Laws; Some of the Existing Systems and Challenges Addressing Language Barriers, Interoperability, Authenticity, Up-datedness and Historical Information Chair: Daniel Poulin, Director, LexUM, University of Montreal, Faculty of Law, Montreal, Canada <www.hcch.net/index_en.php?act=events.details&year=2012&varevent=248>.

8. Mindful of the "Guiding Principles to be Considered in Developing a Future Instrument" (annexed hereto) proposed by the experts group convened by the Hague Conference on Private International Law in October 2008, the conference confirms that States should make available without cost to users legislation and relevant case law online. Such information should be authoritative, up-to-date, and also include access to law previously in force.

The EC/Hague guidelines are important because it is the first time an international organization expresses the need for a global instrument to facilitate access to foreign law. They are to be read together with the Guiding Principles issued at the 2008 Hague Conference.²⁷

The 2012 guidelines are succinct, but tailored to the various needs. They understand the importance of free information for access to the law, but also recognise that payment may be expected for tailored information. They are reproduced below *in extenso*, because they encapsule the common wisdom and agreement of a diverse group, and represent an important consensus of legal professionals coming from all parts of the world.

***IV EUROPEAN COMMISSION/HAGUE CONFERENCE
GUIDELINES ON ACCESS TO FOREIGN LAW IN CIVIL AND
COMMERCIAL MATTERS. CONCLUSIONS AND
RECOMMENDATIONS. FEBRUARY 2012***²⁸

The joint conference unanimously reached the following conclusions and made the following recommendations:

1. The conference emphasises the increasing need in practice to facilitate access to foreign law, in many areas of the law such as in family law, the law of succession and commercial law, as a result of, among other things, globalisation and the cross-border movement of persons, goods, services and investments.

27 Reproduced below Part V. An earlier 2007 Hague Conference set the stage for these efforts, by explaining the context for this effort, in the form of a *2007 Feasibility Study on the Treatment of Foreign Law Report*, which provides a synopsis of national law and existing international multilateral mechanisms dealing with the treatment of foreign law, including the London and Montevideo Conventions. See Preliminary Document No 21 A <www.hcch.net/upload/wop/genaff_pd21ae2007.pdf>.

28 Reproduced from: Agenda, Recommendations & Conclusions (and Annex, see next document) and Meeting Report at <www.hcch.net/index_en.php?act=events.details&year=2012&varevent=248>.

2. The conference stresses the need for, and the advantages of, co-operative mechanisms to be developed at the global level to facilitate access to foreign law.
3. The conference agrees that access to foreign law is an important component of access to justice, strengthens the rule of law, and is fundamental to the proper administration of justice.
4. The conference confirms that any global instrument in this field should focus on the facilitation of access to foreign law and should not attempt to harmonise the status of foreign law in national procedures.
5. Any future instrument in this field should not be exclusive in nature, but rather should be complementary to existing and future mechanisms that also facilitate access to and the treatment and application of foreign law.
6. Any future instrument should contemplate a range of mechanisms to cater to the needs of various actors of different means and resources who are seeking access to foreign law, including judges, legal practitioners, notaries, government officials and the general public, in a variety of circumstances, and should be operational in different legal systems and traditions, and address language barriers. Circumstances may include cross-border litigation and non-contentious matters such as contractual negotiations, estate planning, and family arrangements.
7. The conference recognises the opportunity offered by advances in information technology, with a view to providing effective, cost-efficient and prompt access to foreign law.
8. Mindful of the "Guiding Principles to be Considered in Developing a Future Instrument" (annexed hereto) proposed by the experts group convened by the Hague Conference on Private International Law in October 2008, the conference confirms that States should make available without cost to users legislation and relevant case law online. Such information should be authoritative, up-to-date, and also include access to law previously in force.
9. The conference recognises that additional mechanisms are needed to obtain tailored foreign legal information, for example, the application of the information to specific facts, which may require the interpretation of the relevant law by judges, government officials, foreign law experts or expert institutes.

10. The conference notes initiatives among courts of different States to facilitate the requesting and the receiving of opinions or decisions on foreign law in particular cases and encourages broad dissemination of the terms, the implementing procedures and actual experience with such initiatives.
11. The conference recognises that where in the context of adjudication involving foreign law, an opinion or a decision on the application of that law from a foreign court is requested, procedures should assure the due process rights of the parties.
12. The conference notes initiatives in different States and regions establishing and promoting networks for legal professionals, including judges, which facilitate co-operation and enhance access to foreign law.
13. The conference highlights the value of establishing or improving mechanisms to identify qualified experts or expert institutes to assist with accessing the content of and interpreting foreign law.
14. The conference recognises that tailored foreign legal information, for example, the application of the information to specific facts, which may require the interpretation of the relevant law by judges, government officials, foreign law experts or expert institutes, does not necessarily have to be provided without cost to users, and the provision of such services at a cost may enable better services.

V GUIDING PRINCIPLES TO BE CONSIDERED IN DEVELOPING A FUTURE INSTRUMENT, OCTOBER 2008²⁹

These Principles were developed by the experts who met on 19-21 October 2008 at the invitation of the Permanent Bureau of the Hague Conference on Private International Law as part of its feasibility study on the "access to foreign law" project.

A Free Access

1. State Parties shall ensure that their legal materials, in particular legislation, court and administrative tribunal decisions and international agreements,

²⁹ Reproduced from <www.hcch.net/upload/wop/genaff_pd11a2009e.pdf> at 8. More information on the various documents available at <legalinformatics.wordpress.com/2010/01/03/accessing-the-content-of-foreign-law-and-the-need-for-the-development-of-a-global-instrument-in-this-area-a-possible-way-ahead/>.

are available for free access in an electronic form by any persons, including those in foreign jurisdictions.

2. State Parties are also encouraged to make available for free access relevant historical materials, including preparatory work and legislation that has been amended or repealed, as well as relevant explanatory materials.

B Reproducing and Re-use

3. State Parties are encouraged to permit and facilitate the reproduction and re-use of legal materials, as referred to in paragraphs 1 and 2, by other bodies, in particular for the purpose of securing free public access to the materials, and to remove any impediments to such reproduction and re-use.

C Integrity and Authoritativeness

4. State Parties are encouraged to make available authoritative versions of their legal materials provided in electronic form.
5. State Parties are encouraged to take all reasonable measures available to them to ensure that authoritative legal materials can be reproduced or re-used by other bodies with clear indications of their origins and integrity (authoritativeness).
6. State Parties are encouraged to remove obstacles to the admissibility of these materials in their courts.

D Preservation

7. State Parties are encouraged to ensure long-term preservation and accessibility of their legal materials referred to in paragraphs 1 and 2 above.

E Open Formats, Metadata and Knowledge-based Systems

8. State Parties are encouraged to make their legal materials available in open and re-usable formats and with such metadata as available.
9. States Parties are encouraged to cooperate in the development of common standards for metadata applicable to legal materials, particularly those intended to enable and encourage interchange.
10. Where State Parties provide knowledge-based systems assisting in the application or interpretation of their legal materials, they are encouraged to make such systems available for free public access, reproducing and re-use.

F Protection of Personal Data

11. Online publication of court and administrative tribunal decisions and related material should be in accordance with protection of personal data laws of the State of origin. Where names of parties to decisions need to be protected, the texts of such decisions and related material can be anonymized in order to make them available for free access.

G Citations

12. State Parties are encouraged to adopt neutral methods of citation of their legal materials, including methods that are medium-neutral, provider-neutral and internationally consistent.

H Translations

13. State Parties are encouraged, where possible, to provide translations of their legislation and other materials, in other languages.
14. Where State Parties do provide such translations, they are encouraged to allow them to be reproduced or re-used by other parties, particularly for free public access.
15. State Parties are encouraged to develop multi-lingual access capacities and to co-operate in the development of such capacities.

I Support and Co-operation

16. State Parties and re-publishers of their legal materials are encouraged to make those legal materials more accessible through various means of interoperability and networking.
17. State Parties are encouraged to assist in sustaining those organisations that fulfil the above objectives and to assist other State Parties in fulfilling their obligations.
18. State Parties are encouraged to co-operate in fulfilling these obligations.

A few developments have occurred since the February 2012 meeting. Secretary-General Hans van Loon addressed the Legal Research group of the American Society of International Law in Washington DC, in April 2012, and had a lively discussion with attendees on this topic.³⁰ The Hague Conference Council on

³⁰ "Message from the Chairs," *International Legal Research Informer* 1 Summer 2012 <www.asil.org/pdfs/IG/ILRIG_Informer_Issue%204_Final.pdf>.

General Affairs and Policy met in April 2012 and asked the Permanent Bureau to continue monitoring developments but not take any further steps in this area at this point.³¹ The Council of Europe may take up the project in the context of a possible revision of the 1968 London Convention.³²

VI DEVELOPMENTS TOWARD DIGITAL AUTHENTICATION IN DIFFERENT COUNTRIES, WITH FOCUS ON UNIFORM ELECTRONIC LEGAL MATERIAL ACT (UELMA) IN USA

Developments toward digital authentication have occurred in different countries, including France, Brazil, and countries in the South Pacific, such as Australia and New Zealand.

In France, the *Journal Officiel* (Official Journal), which publishes new laws and regulations, was authenticated in 2004.³³

In Brazil, until December 2002, legal documents on the internet were only for information purposes. With the advent of Decree No. 4,520, all official documents are published by the Official Gazette of the Federal Government and the Official Gazette of the Justice, are available at the official website of the National Press, and are certified by the Brazilian Public Key Infrastructure (ICP-Brazil), thus giving them the same authenticity and validity as the printed ones.³⁴

In Australia, the *Legislation Register* is an authorized electronic statute book that provides the community with free and quick access to ACT legislation and related information. The ACT Legislation Register was established by the Legislation Act 2001. It began operation on an approved secure web site. It makes authorized versions of new and up-to-date ACT legislation freely accessible, and provides a mechanism for notifying new laws electronically. It thus makes timely and comprehensive information about ACT legislation freely accessible.³⁵

31 Council on General Affairs and Policy of the Conference (17 - 20 April 2012) Conclusions and Recommendations. *Accessing the content of foreign law and the need for the development of a global instrument in this area* <www.hcch.net/upload/wop/gap2012concl_en.pdf>.

32 Conversation with M. Hans van Loon, April 2012.

33 <www.journal-officiel.gouv.fr/>.

34 Edilenice Passos "Doing Legal Research in Brazil" July 2008 <www.nyulawglobal.org/Globalex/Brazil1.htm>.

35 <www.legislation.act.gov.au/about/default.asp>.

In New Zealand, legislation enacted after 2007 enjoys semi-official status and does not require further officialization. Officialized items include an image of the New Zealand Coat of Arms in the PDF or HTML versions.³⁶

A report on authentication of official gazettes in many European countries documents the progress accomplished toward authenticity.³⁷

In the USA, the move toward authentication has seen much progress in recent years. At the federal level, the US Government Printing Office (GPO) is a recognised leader in digitally authenticating federal government information available through the Federal Digital System (FDsys).³⁸ Public and private laws have been authenticated since 2007, as well as House and Senate bills, and the *Federal Register*, which publishes federal regulations and other information.

At the state level, the Uniform Electronic Material Act (UELMA) was enacted in 2011 by the Uniform Law Commission (ULC).³⁹ The Act requires that official electronic legal material be: 1. Authenticated, by providing a method to determine that it is unaltered; 2. preserved, either in electronic or print form; and 3. Accessible, for use by the public on a permanent basis. The Act applies to legislative materials, Each state can determine which other categories of legal information will be included in the act's coverage.

36 See the legislation.govt.nz website for further explanation. Legislation accessible on the legislation.govt.nz website enacted prior to 2007 is being checked to confirm its accuracy.

37 Berger, Albrecht, editor, *Access to Legislation in Europe, Guide to the legal gazettes and other official information sources in the European Union and European Free Trade Association*. Publications Office of the European Union, 2009. <circa.europa.eu/irc/opo/ce/ojf/info/data/prod/data/pdf/AccessToLegislationInEuropeGUIDE2009.pdf>. See also, Hietanen, Aki, *Electronic Publishing of Legislation – Towards Authenticity*. (Final working group report). Helsinki/Tallin, June 2007 <www.scribd.com/doc/35174375/Helsinki-2007-Authenticity-Final>. The following slides present the different models of authentication and consolidations of laws in different countries. <www.legalaccess.eu/IMG/pdf/00_seppiusparis08seppiushietanen.pdf> <circa.europa.eu/irc/opo/ce/ojf/info/data/prod/data/pdf/AccessToLegislationInEuropeGUIDE2009.pdf>.

38 Some useful resources include the US Government Printing Office's 2005 *Authentication* white paper <www.gpo.gov/pdfs/authentication/authenticationwhitepaper2011.pdf>; US Government Printing Office (2005). *Authentication: Frequently Asked Questions*. <www.gpo.gov/authentication/faq/> US Government Printing Office (2005, October 13). *Authentication White Paper* <www.gpo.gov/pdfs/authentication/authenticationwhitepaperfinal.pdf> <www.gpo.gov/authentication/index.htm>.

39 Also known as the National Conference of Commissioners on Uniform State Laws (NCCUSL), the ULC was established in 1892, to "provide[s] states with non-partisan, well-conceived and well-drafted legislation that brings clarity and stability to critical areas of state statutory law. <uniformlaws.org/>.

The American Bar Association adopted a resolution supporting it in February 2012,⁴⁰ as well as the Council of State Governments (CSG) as "Suggested State Legislation, in May 2012.⁴¹ There are already a number of states where legislation was introduced or passed, including Colorado, California, Connecticut, Minnesota, Rhode Island and Tennessee.⁴² Colorado was the first state to enact it in April 2012.⁴³ California enacted it in September 2012.⁴⁴

Below is a summary of the Electronic Legal Material Act.

VII ELECTRONIC LEGAL MATERIAL ACT SUMMARY⁴⁵

Increasingly, state governments are publishing laws, statutes, agency rules, and court rules and decisions online. In some states, important state-level legal material is no longer published in books, but is only available online. While electronic publication of legal material has facilitated public access to the material, it has also raised concerns. Is the legal material official, authentic, government data that has not been altered? For the long term, how will this electronic legal material be preserved? How will the public access the material 10, 50, or 100 years from now? The Uniform Electronic Legal Material Act (UELMA) provides states with an outcomes-based approach to the authentication and preservation of electronic legal material. The goals of the authentication and preservation program outlined in the Act are to enable end-users to verify the trustworthiness of the legal material they are using and to provide a framework for states to preserve legal material in perpetuity in a manner that allows for permanent access.

The Act requires that official electronic legal material be:

40 Debra Cassens Weiss, "ABA Supports Uniform Law for Online Publication of Court Decisions and Laws" <www.abajournal.com/news/article/aba_supports_uniform_law_for_online_publication_of_court_decisions/>.

41 <www.uniformlaws.org/NewsDetail.aspx?title=CSG%20Approves%20Uniform%20Electronic%20Legal%20Material%20Act%20as%20a%20Suggested%20State%20Legislation%22>.

42 <www.uniformlaws.org/Legislation.aspx?title=Electronic%20Legal%20Material%20Act>.

43 <library.kentlaw.iit.edu/blogs/govdocs/>; <www.uniformlaws.org/NewsDetail.aspx?title=Colorado%201st%20State%20to%20Enact%20Uniform%20Electronic%20Legal%20Material%20Act>.

44 For a history of efforts in California, see Michelle Finerty's report at <www.mcgeorge.edu/Newsroom/News_Archive/Finertys_UELMA_Efforts_About_to_Pay_Off.htm>.

For current information on the final act, comments, legislative information kit, and legislative tracking, see <[www.uniformlaws.org/Act.aspx?title=Electronic Legal Material Act](http://www.uniformlaws.org/Act.aspx?title=Electronic%20Legal%20Material%20Act)>.

45 Reproduced from <www.uniformlaws.org/ActSummary.aspx?title=Electronic%20Legal%20Material%20Act>.

1. Authenticated, by providing a method to determine that it is unaltered;
2. Preserved, either in electronic or print form; and
3. Accessible, for use by the public on a permanent basis.

If electronic legal material is authenticated, it is presumed to be an accurate copy of the legal material. If your state enacts UELMA, the presumption that your authenticated electronic legal material is accurate applies in every other state that has enacted UELMA. If another state enacts UELMA, and authenticates its electronic legal material, its legal material is presumed to be an accurate copy for use in your state. Adoption of UELMA will harmonize standards for acceptance of electronic legal material across jurisdictional boundaries.

If a state preserves legal material electronically, it must provide for back-up and recovery, and ensure the integrity and continuing usability of the material. The act has no special requirements if a state chooses to preserve its legal material in print format, in recognition of the years of experience all states have in the preservation of print materials.

State policy and discretion allow each state to determine which categories of legal information will be included in the act's coverage. For each category of legal information, an official publisher is named. The act requires that the official publisher be responsible for implementing the terms of the act, regardless of where or by whom the legal material is actually printed or distributed. For the purposes of the act, only a state agency, officer, or employee can be the official publisher, although state policy may allow a commercial entity to produce an official version of the state's legal material. The UELMA does not interfere with the contractual relationship between a state and a commercial publisher with which the state contracts for the production of its legal material.

The UELMA does not require specific technologies, leaving the choice of technology for authentication and preservation up to the states. Giving states the flexibility to choose any technology that meets the required outcomes allows each state to choose the best and most cost-effective method for that state. In addition, this flexible, outcomes-based approach anticipates that technologies will change over time; the act does not tie a state to any specific technology at any time.

The UELMA is intended to be complementary to the Uniform Commercial Code (UCC, which covers sales and many commercial transactions), the Uniform Real Property Electronic Recording Act (URPERA, which provides for electronic recording of real property instruments), and the Uniform Electronic Transactions Act (UETA, which deals with electronic commerce).

In conclusion, the UELMA addresses the critical need to manage electronic legal information in a manner that guarantees the trustworthiness of and continuing access to important state legal material.

VIII HOW DID UELMA COME ABOUT? A NATIONAL CASE STUDY IN ADVOCACY BY LAW LIBRARIANS AND THE ROLE OF THE AMERICAN ASSOCIATION OF LAW LIBRARIES (AALL)

This part is dedicated to the many law librarians who worked on digital authentication of law in the United States. It documents the history of the digital authentication project, and it explains the essential role of librarians in government advocacy and how they were successful in effecting a major change in government information policy. Many individuals contributed to its success. It was a true team effort, which continues to this day.⁴⁶

First, a brief summary: it all started with a 50 state study that I commissioned in 2005-06 during my AALL Presidency, to ascertain their level of authentication and preservation of digital law.⁴⁷ The results documented the need for action. The following year, as AALL President, Sally Holterhoff took the crucial step to convene a National Summit which occurred in 2007. Mary Alice Baish, then AALL Director of Government Relations, played an essential role in moving the agenda forward, working mostly behind the scenes.⁴⁸ Once the National Conference of Commissioners on Uniform State Laws (NCCUSL), now called the Uniform Law Commission (ULC) decided to take on the project, Keith Ann Stiverson⁴⁹ became the AALL Observer, Barbara Bintliff⁵⁰ was appointed the Reporter and led the project to a successful conclusion, the enactment of the Uniform Electronic Legal Material Act (UELMA). Post UELMA, several

46 See Darcy Kirk's rowing metaphor in "From the President, The End of the Row but Not the End of the River," *AALL Spectrum* 4 (June 2012). <www.aallnet.org/main-menu/Publications/spectrum/Vol-16/No-8/president.pdf>.

47 See AALL's State-by-State Report on Authentication of Online Legal Resources. Introduction 2007. Acknowledgments iii of <www.aallnet.org/Documents/Government-Relations/authen_rprt/introduction.pdf>.

48 Mary Alice Baish was appointed Assistant Public Printer, Superintendent of Documents, in January 2012. She now oversees the Government Printing Office, including its new Federal Digital System (FDsys <www.fdsys.gov>).

49 Director of the IIT Downtown Campus Library and Senior Lecturer, Chicago-Kent Law School, Chicago.

50 Joseph C Hutcheson Professor in Law; Director, Tarlton Law Library/Jamail Center for Legal Research, University of Texas, Austin, Texas.

librarians are hard at work advocating and moving the agenda forward to introduce and implement UELMA in as many states as possible.

The following section is a first attempt to put together the history of AALL's leadership on digital authentication leading to UELMA and, hopefully, to future developments in many different states. As Sally Holterhoff stated, "it is important to assure that in future years it cannot be assumed that somehow all this just happened, by accident, because it was time, or whatever. It could easily have NOT happened."⁵¹

The process took several years, and this national case study can be divided into several phases:

1. Identify the problem
2. Gather empirical evidence that there is a problem
3. Seek major players to gain consensus about the problem with prospective solutions
4. Find a mechanism to reach a solution leading to UELMA (Uniform Law Commission) (ULC), American Bar Association (ABA), Council of State Governments)
5. Advocate for implementation.

A Identify the Problem

AALL and other stakeholders had identified the problem a number of years ago.⁵² My own involvement dates back to 1997, when, as the AALL Representative, I participated in the Canadian Association of Law Libraries (CALL)'s National Summit on authentication and preservation of digital law.⁵³ Following in the footsteps of that Association, AALL created an AALL/Library of Congress Task Force on Preservation of Digital Law in 1998 and a Special Committee on Authentication and Preservation of Digital Law in 1999.⁵⁴ I was a member of these two groups, and a Summit was organized at Cornell University, Ithaca, New York, in 1998 with the Library of Congress, to discuss authentication

51 Sally Holterhoff's email to Claire Germain, May 18, 2012. On file with author.

52 See Claire M Germain, "Web Mirror Sites: Creating the Research Library of the Future, and More...," in Michael Chiorazzi and Gordon Russell (eds) *Law Library Collection Development in the Digital Age* (Haworth Press, Binghamton, NY, 2002) 87, 88. Earlier version available at <library2.lawschool.cornell.edu/oldsite/2007/SERVICES/Faculty/facbib/WebMirrorSites.pdf>.

53 *The Official Version: A National Summit To Solve the Problems of Authenticating, Preserving and Citing Legal Information in Digital Form*, November 20-22, 1997, Sheraton Hotel, Toronto.

54 <www.aallnet.org/assn/Committees.aspx?code=SCOM_DIGITAL>.

and preservation of official primary law in digital form.⁵⁵ The group was planning a US National Summit for 1999, which did not occur.⁵⁶ However, when I became President of AALL, I put this issue back on the front burner.

B Gather Empirical Evidence

As AALL President in 2005, I called Richard Matthews, Editor-in-Chief of AALL's 2003 *State-by-State Report on Permanent Public Access to Electronic Government Information (PPA)*⁵⁷ and Mary Alice Baish, then Director of Government Relations at AALL,⁵⁸ to ask if the Report had included the question, "which states, if any, have adopted website versions of primary legal resources as official and authentic?"⁵⁹

Richard and Mary Alice were intrigued by the question, since between the 2003 PPA Report and 2005, more and more primary legal information was available online.⁶⁰ They decided to meet during the American Library Association (ALA) Annual Conference in Chicago, IL, June 23-29, 2005, to discuss the possibility of doing a second report to answer the question and at the same time, get an update on PPA. They brainstormed for a few hours, deciding that the request merited a second survey/report, and he and she committed to this new effort, relying on the diligent support of the many volunteers from the various states who committed

55 "The Future of Legal Documents: National Summit to Address Technology," *Library of Congress Information Bulletin*, Oct. 1998. <www.loc.gov/loc/lcib/9810/law.html>. I was the Edward Cornell Law Librarian and Professor of Law at Cornell Law School from 1993 until 2011. I am now Professor Emerita.

56 Carol Billings, "Digital Preservation Task Force Meets to Plan Summit," *AALL Spectrum* 20 (Oct. 1998). <www.aallnet.org/main-menu/Publications/spectrum/Archives/Vol-3/pub_sp9810/pub-sp9810-digital.pdf>.

"The Future of Legal Documents: National Summit to Address Technology," *Library of Congress Information Bulletin*, Oct 1998. <www.loc.gov/loc/lcib/9810/law.html>.

57 <www.aallnet.org/Archived/Government-Relations/Issue-Briefs-and-Reports/2003/ppareport.html>.

58 For those interested in how a library association shapes information policy, see an interesting history of AALL's Government Relations Office (formerly the Washington Affairs Office), <www.aallnet.org/Documents/Government-Relations/grohistory.pdf>, and Timothy L Coggins "The American Association of Law Libraries and Its Government Relations Program" (Parts I & II) in Laura N Gasaway and Michael G Chiorazzi (eds) *Law Librarianship: Historical Perspectives* (1996) 309.

59 See AALL's State-by-State Report on Authentication of Online Legal Resources. Introduction 2007. Acknowledgments iii of <www.aallnet.org/Documents/Government-Relations/authen_rprt/introduction.pdf>.

60 Email from Mary Alice Baish to Claire Germain, 20 May 2012. On file with author.

much time and work to the effort. The leadership for both reports came from AALL's policy committees: PPA Report was the Government Relations Committee (GRC); the Digital Authentication Report was the Access to Electronic Legal Information Committee (AELIC), with support of GRC.⁶¹

As Sally Holterhoff recalls, "Mary Alice got the final version of the 50-state Authentication Survey report written, edited, compiled, and produced in print form by sheer stubbornness and determination. Without her monumental efforts behind the scenes, her consummate networking skills, and her unfailing optimism, we would never have pulled off the Summit."⁶²

The Authentication Survey, completed by AALL Members in 2006 and published in 2007, targeted six sources of law: state administrative codes and registers, state statutes and session laws, and state high and intermediate appellate court opinions. The summary answer to the question of their trustworthiness was this: A significant number of the state online legal resources are *official* but none are *authenticated* or afford ready authentication by standard methods. State online primary legal resources are therefore not sufficiently trustworthy.⁶³ The result of the Authentication Survey had demonstrated the extent of the problem.

61 AALL's State-by-State Report on Authentication of Online Legal Resource, 2007. Acknowledgments at iii. We graciously thank AALL Immediate Past President Claire M Germain for initiating this important state survey and report by posing a simple question – "which states, if any, have adopted website versions of primary legal resources as official and authentic?" Ms Germain's longstanding commitment to ensuring the preservation of authentic legal information has inspired this study. We acknowledge with gratitude the work and dedication of members of the 2005-2006. Access to Electronic Legal Information Committee (AELIC): Mr Christopher T Bloodworth, Ms Terrye Conroy, Ms Audrey Gauna, Mr Rick Goheen, Mrs Angelina G Joseph, Ms Anita Rubin Postyn, and Ms Karen L Wallace. Our AALL colleagues who completed the online surveys and authored the state. reports. 2005-2006 Government Relations Committee (GRC) for their participation in this project. We would like to recognise last year's GRC Chair Timothy L Coggins who continues to be involved in this work as the current chair of AELIC. GRC member Judith Meadows was especially helpful in recruiting other state law librarians to author their state's report. Special thanks go to Peter W Martin, the Jane MG Foster Professor of Law at Cornell Law School and co-founder of the Legal Information Institute, for helping to shape the project; to Elizabeth B LeDoux, for her superb cite checking and copy editing of the final drafts; and to Elizabeth B Maculo for her excellent online publishing skills. Last but far from least, we graciously thank AALL President Sarah G Holterhoff for recognizing the value of this project to the legal community by convening a National Summit on Authentication of Digital Legal Information to be held in Chicago on April 20-21, 2007. Ms Holterhoff has invited approximately fifty delegates from the judiciary, the legal community, state governments, and interested organizations, all of whom share AALL's concern about ensuring the authenticity of digital legal information. Richard J Matthews Mary Alice Baish.

62 Email from Sally Holterhoff to Claire Germain, 18 May 2012. On file with author.

63 AALL's State-by-State Report on Authentication of Online Legal Resources, Final Report 3 (2007) <www.aallnet.org/Documents/Government-Relations/authen_rprt/authenfinalreport.pdf>.

C Seek Major Players to Gain Consensus about the Problem with Prospective Solutions

It was around the fall of 2006, when the group had agreed to the spring 2007 publication date, that Sally Holterhoff, AALL President-Elect, Timothy Coggins, Chair of the Access to Electronic Legal Information Committee (AELIC) and Mary Alice realized that while the PPA report had gotten AALL good press, there was no plan for any strategic follow-up to the report. Hence the idea of the National Summit—As Mary Alice Baish recalls, "Sally Holterhoff deserves all the credit for the Summit."⁶⁴

Sally appointed the planning committee, who met in Chicago to brainstorm, and from that meeting they had the initial list of organizations who should be invited, and speakers. As staff, Mary Alice had the time to track down the leader in each organization. The National Conference of Commissioners on Uniform State Laws (NCCUSL) (now called Uniform Law Association, ULC) was on the list, and Mary Alice called Martha I Walters, then President, to invite her to attend. She wasn't able to come but suggested that AALL invite Michele Timmons instead, Revisor of Statutes in Minnesota, who became instrumental in moving the project forward, as a member of the ULC.⁶⁵

After seven months of planning, the AALL National Summit on Authentic Legal Information in the Digital Age was held on April 20-21 2007 in Schaumburg, IL. The 1½ day event went smoothly, the venue was excellent, the delegates were interested and engaging, and the discussions were lively and constructive. Many positive comments were heard during and after the event about how well-run and worthwhile it was and how much our sponsorship of it was appreciated. By all accounts it was a resounding success.⁶⁶ As Sally stated "without the vision and the hard work of Tim Coggins and Mary Alice Baish, the Summit would still be a nice idea—they made it happen!"⁶⁷

64 Email from Mary Alice Baish to Claire Germain, 20 May 2012. On file with author.

65 <www.revisor.leg.state.mn.us/>.

66 The Washington Brief column by Mary Alice Baish in the July 2007 issue of AALL Spectrum (<www.aallnet.org/products/pub_sp0707/pub_sp0707_Wash.pdf>) gives an excellent account of the Summit programs. Additional photos of the Summit are available at: <www.aallnet.org/products/pub_sp0707/pub_sp0707_WashExtra.pdf>.

67 Sally Holterhoff's email to Claire Germain, 18 May 2012. On file with author. See also Sally Holterhoff's President's Report 2007; President's Report for July 2007 Executive Board Meeting Authentication Summit and Follow-up Activities.

Michele Timmons was intrigued by the challenges of both digital authentication and preservation. Several attendees sat with her during lunch at the National Summit, right before Bob Oakley⁶⁸ led the closing session, "Where Do We Go from Here?" During that lunch, she first broached the idea of NCCUSL (now ULC) possibly having a role. Michele stood up toward the end of Bob's session and offered to submit a proposal that NCCUSL (now ULC) create a drafting committee to study the issue and determine the feasibility of a model state law. The rest is history!⁶⁹

D Find a Mechanism to Reach a Solution Leading to UELMA

The ULC agreed to consider the development of a uniform law and appointed a Study Committee for that purpose. Barbara Bintliff was appointed AALL Observer.⁷⁰ The Study Committee recommended that a law be developed and a Drafting Committee was charged with the task. Barbara Bintliff was appointed Reporter and Keith Ann Stiverson the AALL Observer.⁷¹ After two years of consideration, including several face-to-face meetings, conference calls, and circulation of numerous drafts by email, the UELMA was read and debated for the second time at the Annual Meeting of ULC in July 2011. After more than six hours of floor consideration, the ULC Committee of the Whole passed the draft act, sending it to a Vote of the States. UELMA passed its final hurdle with a positive Vote of the States, gaining approval by a vote of 45-0 (with 1 abstention and 7 jurisdictions not voting).⁷²

As reporter to the ULC Drafting Committee that produced the Uniform Electronic Legal Material Act, Bintliff served as the expert on the subject matter of the drafting project, drafted the text of the uniform act based on the deliberations of the Commissioners, and wrote the prefatory notes and comments.⁷³ She received

68 Robert (Bob) Oakley was Professor of law and Director of the Georgetown Law Library, Washington, DC, and the AALL Government Affairs Representative.

69 Email from Mary Alice Baish to Claire Germain. 20 May 2012. On file with author.

70 AALL Leadership on the Authentication and Preservation of Online Legal Resources. Rev June 2010. <www.aallnet.org/main-menu/Advocacy/aallwash/Issue-Briefs-and-Reports/2010/webinar-authentication.pdf>.

71 Id. See also <library.kentlaw.iit.edu/blogs/govdocs/2011/12/22/how-do-you-solve-a-problem-with-uelma>.

72 Barbara Bintliff wrote a report in <blog.law.cornell.edu/voxpath/2011/10/15/the-uniform-electronic-legal-material-act-is-ready-for-legislative-action/>.

73 <www.utexas.edu/law/magazine/2012/04/27/barbara-bintliff-recognised-for-her-work-by-aall-and-uw-school-of-information/>.

several awards for her crucial role, including the 2012 Robert L Oakley Advocacy Award.⁷⁴

E Advocate for Implementation

The story continues. The American Bar Association approved a resolution supporting it in February 2012,⁷⁵ as well as the Council of State Governments (CSG) as "Suggested State Legislation in May 2012."⁷⁶ There are already a number of states where legislation was introduced or passed, including Colorado, California, Connecticut, Minnesota, Rhode Island and Tennessee.⁷⁷ Colorado was the first state to enact it in April 2012.⁷⁸ California enacted UELMA in September 2012.⁷⁹

Many, many law librarians are working in the different states to advocate for the implementation of UELMA in their state. AALL, under Emily Feltren's leadership,⁸⁰ coordinates with law librarians and chapters in the states, organizes a successful advocacy training session every year during the annual meeting, and provides many resources on authentication on its Advocacy main page.⁸¹

IX CONCLUSION

Many countries of the world have not yet authenticated their official laws, regulations, court decisions, and other legal materials. Looking toward the future, it seems that there might be a role for IFLA to develop a set of standards to

74 *Id.*

75 Debra Cassens Weiss, *AB Supports Uniform Law for Online Publication of Court Decisions and Laws*, <www.abajournal.com/news/article/aba_supports_uniform_law_for_online_publication_of_court_decisions/>.

76 <www.uniformlaws.org/NewsDetail.aspx?title=CSG%20Approves%20Uniform%20Electronic%20Legal%20Material%20Act%20as%20a%20Suggested%20State%20Legislation%22>.

77 <www.uniformlaws.org/Legislation.aspx?title=Electronic%20Legal%20Material%20Act>.

78 <http://library.kentlaw.iit.edu/blogs/govdocs/>; <www.uniformlaws.org/NewsDetail.aspx?title=Colorado%201st%20State%20to%20Enact%20Uniform%20Electronic%20Legal%20Material%20Act>.

79 <www.ncsl.org/issues-research/telecom/uniform-electronic-legal-material-legislation-2012.aspx. This site gives status updates on legislative action in the various states having introduced bills to implement UELMA>.

80 AALL Director of Government Relations. <www.aallnet.org/top-menu/contact/govrelations.html>.

81 On the National Summit, see <www.aallnet.org/main-menu/Advocacy/aallwash/summit>; generally see <www.aallnet.org/Documents/Government-Relations/UELMA>.

encourage governments worldwide to publish their laws online, in stable and authenticated digital formats. IFLA is a major forum to influence information policy at the international level. There is also a new Standards Committee at IFLA, and it may help as well to come up with a common understanding of what is meant by "stable and authenticated." It is critical to ensure the transmission of the "official word of the law" to future generations, and much can be learned from the experience of countries which have made progress in this area.