

Standards Convergence in the eMortgage Industry

Rachael Sokolowski

Magnolia Technologies

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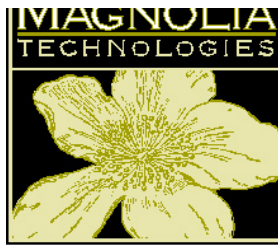
eMortgage: any mortgage document or process in an electronic form.

Standard: an acknowledged basis for comparing or measuring; a criterion.

Convergence: a movement toward a common point or result.

Long ago and in a faraway land before computers, there was one standard and it was simply called "paper". Paper was standardized into shape (letter or legal) and content (letters, memos, preprinted forms). Exciting new technologies such as the fax machine allowed for paper to be transmitted over the telephone line and imaging systems were developed to electronically archive the paper. A new era of computers brought the advent of electronic documents and a variety of technologies to represent electronic documents and the data that they contained. The variety of technologies sometimes worked together but often did not; that is they diverged rather than converged.

Standardization has been around for a long time, simply look around your house for evidence, a flathead and Philips screwdriver are probably amongst the tools. To understand the convergence of standards, think about the power cord for your computer. On one end it has the standardized two or three prong plug for the wall. You know that if you can find a socket, at say an airport in the United States, you will be able to plug your laptop in and charge it. If you travel internationally, you need an adapter for that plug and these adapters have been

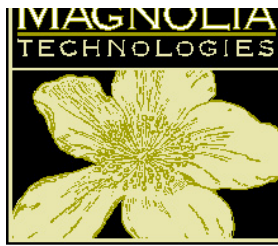


standardized for different types of sockets around the world. On the other end it has a connector standard for all computers that are the same as yours. If I have a different brand (or sometimes even model number), I, most likely, will not be able to use your power cord. However, computer manufacturers are increasingly converging the connectors. This means from end to end and internationally, there are a few combinations to handle charging a wide variety of laptops.

Standards convergence is the laptop power cord. It is an effort to work cooperatively with different standard organizations. Standards convergence is a method to avoid duplicating efforts, representations and content definitions. Standards convergence allows an organization to develop a strategy that leverages the best technologies, suited to the best processes.

What does standards convergence have to do with eMortgages? Paper by far is still the standard in the mortgage industry. For electronic mortgages (eMortgages) to become widely used, it will require the availability and interconnection of common vertical and horizontal business processes, applications, and supporting standards. Standards are available today, and the combination of these standards is an exciting new area of creativity and business opportunity. How do we “charge up” the eMortgage process to realize the full potential of what exists?

Why not just use the Web to realize the full potential? A standard has existed for some time, HyperText Markup Language (HTML). HTML is the most popular language for creating Web sites but it has many limitations. These limitations become obvious when you try to search for information and receive links to irrelevant Web pages and imprecise information. In a way, we can think of the

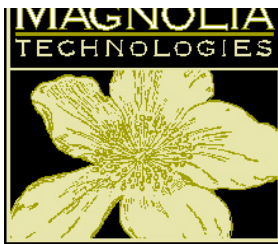


Web as a fancy fax machine that is, something that transmits static pieces of paper from one location to another.

eXtensible Markup Language (XML) is the next generation of Web pages. Just like HTML, XML can define how pages appear in Web browsers. But XML does much more than that--it provides a context for information. While HTML tells the browser what a page should look like, XML defines what the piece of information actually means. Both HTML and XML are markup languages; that is, they insert markup, or additional information, into text. The markup is known as a "tag." For example, HTML marks up text on a page by inserting a `` tag when the text should be bolded. But the HTML tags leave no way to distinguish between a borrower's name and the lender's loan number. Both might be bold on a form and are both tagged with `` for bold. XML, on the other hand, marks each item with more specific tags that enable computers to distinguish them. With XML, humans and computers can tell the difference between a `<BORROWER>` tag and `<LOAN_FEATURES>` or a `<LenderLoanNumber>` from a `<Phone.Number>`.

XML is key in the development of today's eMortgage standards and new XML initiatives and versions are announced on a regular basis. While most of these XML standards are complementary, the number of announcements has led to mass confusion. The confusion fosters an environment of "wait and see". This creates a landscape that is very complex and hard to find answers to the following questions:

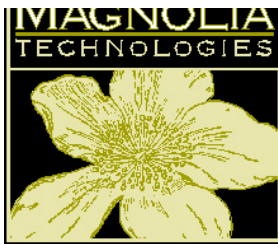
- Who is doing what and why?
- How do the standards "fit" together?
- How to automate/streamline business processes?
- How to make the right choices?



- How to keep up?
- What does it mean for current systems?
- How to plan for the future?

What is the eMortgage landscape and how are current standards converging? There are two categories of converging standards: vertical content standards and horizontal architecture standards. Content standards are industry specific and include the processes, dictionary structures, data elements, and code lists. Architecture Standards are industry agnostic and include standards that define the structure, format and language used to represent and transfer the 'content' information.

MISMO defines content standards. A logical data dictionary has been defined. When I say Loan Amount how do you know that I am talking about the base loan amount, not the original amount requested by the borrower? You will know if you use MISMO standards. Individual data points are defined for both loan amounts. The BaseLoanAmount is defined as "The base loan amount to be loaned to the borrower not including PMI, MIP, or Funding Fee. Collected on the URLA in Section VII line M." The OriginalLoanAmount is defined as "Amount of the Mortgage as stated on the original note." "And the BorrowerRequestedLoanAmount is defined as "the total dollar amount of the mortgage note being originated that is being requested by the borrower. This amount may include financed PMI, MIP and Funding Fees. It is collected on the URLA in Section I (Amount) and in Section VII line O." With a MISMO dictionary, we are able to communicate and understand how to define the data we are exchanging. This data is specific to the mortgage banking industry; differences

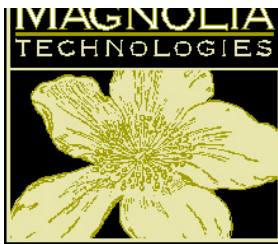


between these loan amounts would have no significance for trading partners in the healthcare industry.

Horizontal architecture standards span multiple industries and have subcategories. The first subcategory is for electronic document representation. There are many standards to represent electronic documents for presentation on computer screens and/or printed-paper. Electronic Document standards are developed to be industry/content agnostic. Some examples of electronic document standards include:

- Web pages: XHTML, HTML, XML+XSL
- Images: JPEG, GIF, TIFF, Bitmaps
- Print: PCL, Postscript
- Portable Documents: PDF
- MISMO SMART Documents

Electronic Documents allow rapid, easy information access reduce cost and improve efficiency but do not have the same characteristics as paper. There is no concept of the original document and copies of the document. And electronic documents require additional functionality prevent compromises in integrity and appropriate usage of sensitive information. Document privacy, security, and integrity are another category of horizontal architecture standards. Digital signatures provide a means for identification and authentication. With digital signatures, the identity of the signers known, the identity can be proven to a third party and the signature may be linked to a person or a computer system. Digital signatures also help with integrity issues in the electronic world. With digital signatures, if the contents change, the signature is invalid.

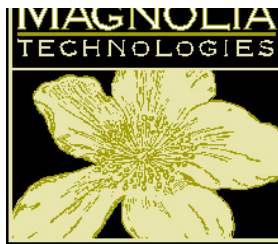


Electronic documents need to have the equivalent for the fax machine and this is where the third sub category of horizontal architecture standards comes in. Standard Messages and envelopes have been defined to move the documents and data around. SOAP and MIME are examples of horizontal enveloping standards. Industry specific messaging also exists and MISMO has defined a set Request and Response envelopes.

A really fancy type of fax machine called Web services is yet another type of horizontal architecture standards. Concisely, web services allow for the discovery of possible trading partners, a standard interfaces for the exchange of data and a Common Registry so that your service may be located by trading partners. Web services use SOAP as the envelope messaging format.

How do all these standards converge? In the eMortgage process there are many “charged up” connections between trading partners. Before closing, there are a series of processes from loan application and origination that are required to get to closing. Although many of these processes still use paper, each of these can be viewed, along with the closing document set, as electronic documents. And post-closing, electronic documents can be used for recording, servicing and secondary investor delivery.

But electronic documents are not sufficient by themselves. A common dictionary is needed as well as a method for securing the documents and moving them around. The MISMO SMART Document specification meets many of these needs and merges several standards into one representation for electronic documents. SMART documents are XML electronic documents that include information about the document as a whole (for instance is the document an



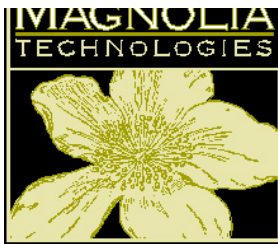
Appraisal or a Deed of Trust?), a data section (so that the Base Loan Amount can be easily determined) and a view of document which may be in a variety of representations for electronic documents as described above. Additionally, SMART Documents include the capability to include a digital signature. The digital signature provides the ability to investigate whether the document has been tampered with in anyway, and in some cases, information about the signer.

SMART Documents use a variety of standards. First SMART Documents make use of XML. Second, the data dictionary in a SMART document is defined by MISMO. The SMART Document has been designed so that any data definition may be placed within it. Third, the view of the document may be any type of electronic document representation; it may be a PDF or a web page in XHTML. And lastly, SMART documents make use of the W3C recommendation for XML Digital Signatures. SMART documents are the convergence of vertical and horizontal as well as multiple categories of standards.

Exchanging SMART documents may be done with MISMO ePackaging and Enveloping or with SOAP. And web services to originate, populate, sign and maintain SMART document are all possible convergences.

What is the best way to manage this heterogeneity? There are no cut and dried answers. Some best practices include

- Developing a comprehensive convergence strategy to ensure effective decision making.
- Leveraging existing or developing standards that meet your organization's needs.
- Forging the correct alliances with standards organizations.



- Communicating convergence activities and plans with related standards organizations.
- Embracing horizontal XML initiatives as they become proven and universally accepted.

Take another look at the power cord on you laptop. One day there might only be one (with adapters). And one day, eMortgages will be a reality, there's just some work to do before then.