AdsML® Framework for E-Commerce Business Standards for Advertising

Framework Overview

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The illustrations demonstrating the complexity of the advertising workflow were adapted with permission from a presentation by Katsumi Hayashi of Nippon System Gijutsu Co.

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1 Introducing AdsML

"Building effective standards is fundamental to undertaking any serious attempt at streamlining the supply chain. The absence of a standard governing end-to-end booking, insertion and payment processes for all types of advertising is one reason why communication between agencies, media buyers, pre-press houses and publishers is still so inefficient and costly.

"For suppliers, the big win is that they do not have to build different interfaces every time they tackle an integration project. They can reuse previous work, reduce the number of languages they have to support and shorten the implementation time. Standards provide clarity by removing confusion."
-- David Jones, former General Manager, Vio Worldwide

The AdsML Consortium is an international, member-supported media industry association that was founded in 2003. The primary goal of the Consortium is to develop and maintain The AdsML Framework: a comprehensive suite of standards intended to automate the end-to-end advertising workflow.

The AdsML Framework covers, in principle, the means by which data is exchanged for all kinds of advertising, in all media and through all stages of the lifecycle of an advertisement. Its objective is to create value and reduce costs by providing standardized electronic processes for all sectors of the advertising industry in order to:

- shorten deadlines and time to market
- save time and money
- improve communication
- reduce errors
- enhance business relationships
- create new business opportunities.

1.1 The Vision of AdsML

According to its Charter document, the mission of the AdsML Consortium is 3-fold:

- to create an internationally-adopted set of specifications and associated business processes for the electronic exchange of business information and content for advertising
- to simplify and accelerate business interactions
- to facilitate use across multiple media in both current and future environments.

This dry, somewhat technical statement masks the simplicity and power of what the AdsML Consortium aims to do. Stated informally, AdsML's vision is to tie together all of the parties involved in producing, booking, distributing, publishing and paying for an ad as if they all used the same software system – but without actually requiring everyone to switch to a different software system or vendor.

In order to understand what this would mean in practice, we first need to step back and look at the advertising workflow as a whole.

1.2   The Advertising Workflow

AdsML defines the advertising workflow as all of the activities and organizations involved in planning, purchasing, creating, delivering and publishing/broadcasting an advertisement. In practice, the Consortium has initially chosen to focus on a subset of those activities: the processes involved in buying, selling and paying for a booking, and then creating, delivering and receiving the ad materials used in that booking.

When seen from 30,000 feet, these parts of the advertising workflow look like this:
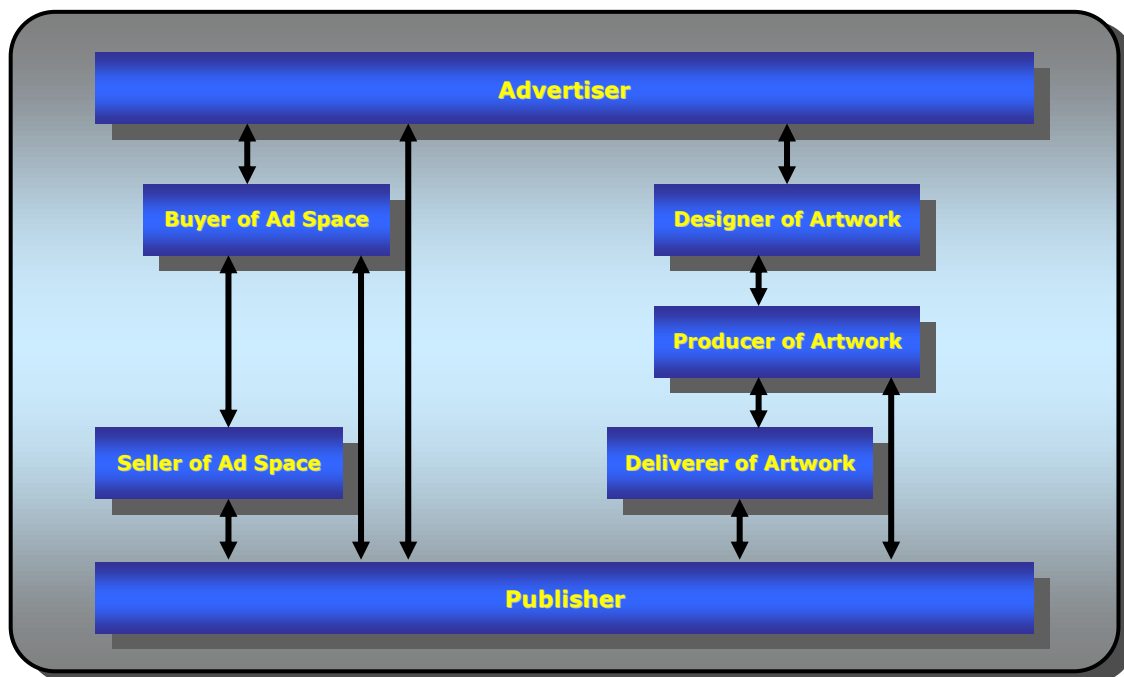
This simple diagram shows an advertiser at the top and a publisher at the bottom. There are two main workflows: on the left side of the diagram, a series of intermediaries (ad buyers and ad sellers) negotiate the booking of an ad and then its eventual invoicing and payment. On the right side, a different set of intermediaries design, produce and deliver the ad to the publisher. The arrows represent various types of communications between them, though the nature of the information (bookings, artwork, proofs, etc.) and the channels through which it moves (phone, fax, email, ftp, etc.) are not indicated.

From 30,000 feet we don't see any of the complexity or details, just two sets of arrows that represent two parallel yet disconnected flows of information between the various parties. Yet even from this height we can see that each of those arrows provides an opportunity for AdsML-based e-commerce, because whenever people from different companies exchange advertising information, it is likely that they are using mechanisms that could be improved by the use of AdsML messages.

Most of us have a hard time recognizing our world in terms of boxes and arrows. It is perhaps more appropriate to think of the advertising workflow as looking something like this:
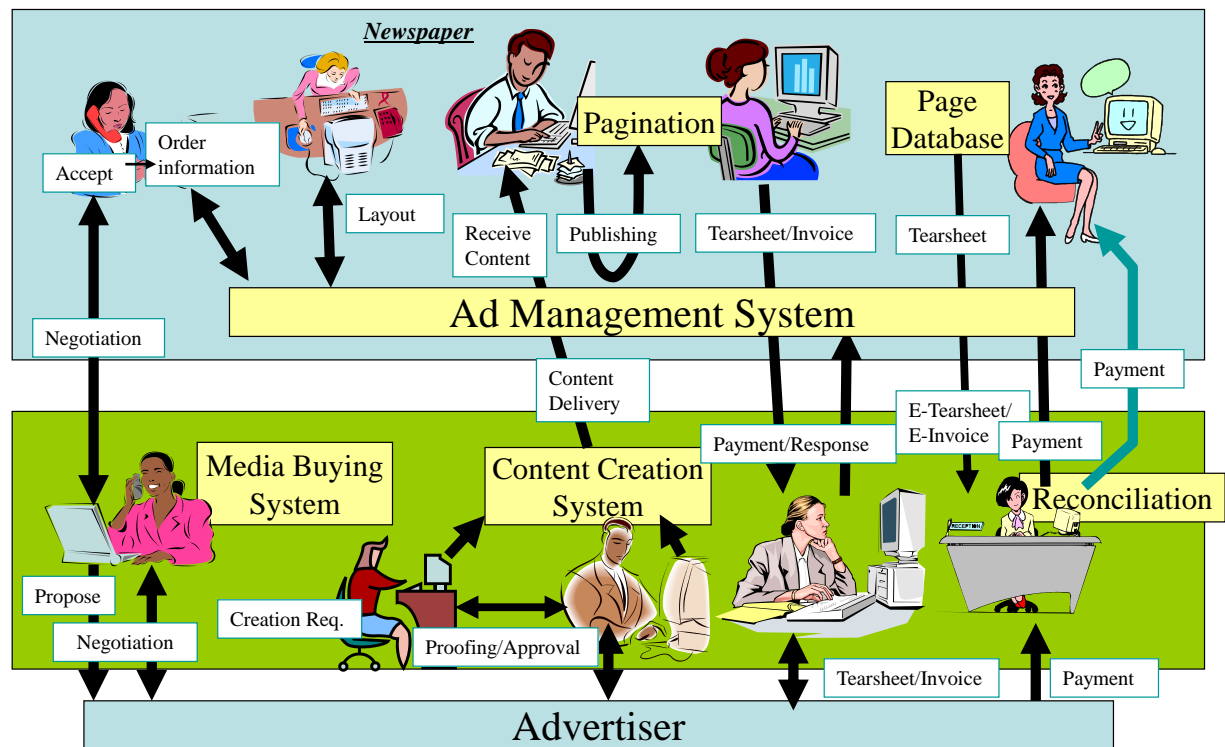
This illustration was adapted from a presentation about a particular regional market, and does not claim to accurately depict all of the parties and information flows. However, it does a much better job than our 30,000 foot view of showing the wide variety of people and systems involved in the placement and delivery of a single advertisement.

Just as with the 30,000 foot view, each arrow represents a point of communication between people using different software applications and often working for different organizations. These arrows indicate opportunities for inefficiency, errors and misunderstandings. And also, they indicate opportunities to use AdsML-based messaging to tie all these applications together as if they were part of a single, unified system.

1.3   Example: Ordering an Ad

For example, consider what happens on the far left side of the illustration, where a media buyer places an order with a publisher's sales representative. Right now, because the buyer and seller work for companies that use different, independent software systems, the process is often manual and error prone. Typically, after the negotiations have been completed, the ad buyer types the details of the booking into her system, and then sends a fax or email containing the order to the seller. Often this step is automated, in that the buyer only needs to press a button to send the fax or email. But when the seller receives the order, she still has to re-type the same information into her system.

This duplication of data entry not only wastes effort, because both parties have typed the same information, but also creates an opportunity for error. A simple typo can have major consequences: the wrong ad, the wrong date, the wrong publication. And the problem is compounded if either party later needs to change or cancel part of the order. Each change triggers another round of phone calls, faxes or emails, which lead to duplicate data entry by both the buyer and the seller, and more chances for error.

The AdsML approach to situations like these is to design, or "standardize", a set of electronic messages that can be sent automatically between the two software

systems. These messages – which have names like "Ad Order", "Response to Ad Order", "Ad Order Change" and "Ad Order Cancellation" -- mimic many (but not all) of the interactions that occur between the buyer and seller. In particular, AdsML messages are intended to replace the repetitive, error-prone parts of the transaction, freeing up the participants for what they do best: in this case, negotiate the best match between the buyer's requirements with the seller's offerings, and then if necessary, decide how to deal with any changes that may arise later.

With AdsML messaging in place, the ad order workflow improves in several important ways:

1. As before, the buyer and seller agree on the details governing the purchase of the ad. This step remains unchanged. For expensive display ads this may require an active negotiation, while high-volume classified ads are often treated as "routine" orders based on previously agreed rates.

2. The buyer enters the details of the order into her media buying system.

3. Instead of a fax or email, the buyer's system sends an AdsML "Ad Order" message to the seller's system. This message contains exactly the same information that would have been in the fax or email, but uses the AdsML format so that both systems can understand it.

4. The seller's system receives the ad order, performs initial validations, and alerts the sales representative that a new order has arrived.

5. The sales representative reviews the order in detail. She can either accept it as-is, make necessary adjustments, or (if necessary) reject it. All of these actions are done in her current system using familiar screens and functionality. The main difference is that the order is pre-loaded into her system so she does not have to enter it from scratch.

6. When the sales representative saves the order, her system sends an AdsML "Ad Order Response" message back to the buyer's system which conveys the nature of the response (accepted, changed, rejected) and any related details. This is loaded automatically into the buyer's system, where if necessary, the buyer can review any changes made by the publisher's sales representative.
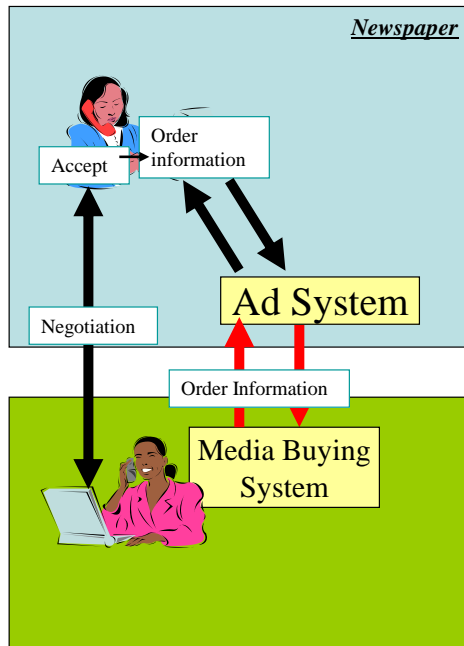
1. Buyer keys insertion order into her media system
2. Media system sends AdsML "booking request" message to publisher's system
3. Publisher's system displays the pending order
4. Sales rep reviews and approves it
5. Publisher's system sends "order confirmed" message back to the buyer's system

1.4   Business Benefits

As can be seen even in this small example, AdsML based e-commerce offers several important improvements over the current, manual approach:

- First, the order is keyed just once. This reduces the likelihood of errors and frees up time that the buyer and seller can spend on more valuable activities.

- Second, at the end of the exchange both systems hold identical copies of the order. This reduces misunderstandings between the parties which might otherwise lead to claims and make-goods later.

- Third, once all of the systems "understand" AdsML messages, relevant sections of the order can be fed into other parts of the workflow. This leads to quality improvements and cost savings for the publisher in subsequent activities such as copy chasing and matching arriving artwork with the correct booking, and for the media buyer, in reconciling invoices with tearsheets and orders so that payments can be made more efficiently.

In short, just from these changes to the ad sales process, an AdsML user can expect to see:

- Improvements in data quality

- Fewer queries and resulting make-goods

- Less time spent re-keying incoming orders.

And these benefits expand significantly if AdsML is implemented across the entire advertising workflow.

2 How AdsML fits into the business

The AdsML Consortium is chartered to improve all aspects of the advertising workflow, in any medium, in all regions of the world, including (but not limited to):

- Initial activities such as campaign planning, media pack exchange, and determination of inventory availability

- The production of a given advertisement or series of ads, from commissioning to approval

- The entire booking process, including reservations, orders and cancellations

- Delivery of the advertising content

- Publication, "flighting" or broadcasting

- Advertisement performance reporting

- Invoicing, payments, claims processing and account reconciliation.

In practice, the Consortium has chosen to narrow its initial focus to a few key business challenges, types of media, and categories of advertisements. This work is intended to lay the groundwork for addressing other media and other business challenges in future years.

2.1   Business goals and media types

Out of the full matrix of possible activities, AdsML has chosen to narrow its initial activities in two dimensions: the business goals being addressed, and the types of media being served. In terms of business goals, the Consortium has chosen four targets for immediate improvement:

E-commerce "round-trip" from order to payment: enable a completely digital workflow for the scheduling, booking, invoicing, and payment of an ad. This thread links together all of the transaction-related communications between a buyer of advertising and a seller of advertising.

> The relevant AdsML standards are *AdsML Media Pack*, *AdsML Bookings*, *AdsML Proof of Publication* and *AdsML Financials*.

Automated delivery and receipt of ad materials: ensure that the artwork for each ad is delivered on time and to the right location, and then efficiently placed into the publisher's workflow.

> The relevant AdsML standards are *AdsML Materials* and *AdsML Ad Ticket*.

Processing and syndicating classified ads: reduce the complexities involved in publishing a classified ad in multiple products or media (e.g. both print and online versions of the same ad), while making it easier for publishers to offer interactive capabilities such as searching and filtering of published ads based on their content.

> The relevant AdsML standards are *Structured Descriptions of Advertisement Objects*, *AdsML Bookings* and *AdsML Materials*.

Technical integration: provide guidelines, best practices and a technical framework to help developers add digital message exchange capabilities to their systems.

> The relevant AdsML standards are the *Advertisement Component Interactions Analysis*, the *AdsML Envelope* and the *AdsML E-Commerce Usage Rules and Guidelines*.

Within the limits of these business goals, AdsML has further narrowed its scope by focusing initially on "traditional" print and print-related media and websites rather than the other possible types. The types of media for which AdsML provides extensive, media-specific support are:

- Print (especially newspapers and magazines)
- Print inserts
- Digital publishing environments, such as web sites associated with newspapers or magazines, or a digital signage network

AdsML also provides extensive generic capabilities for booking, processing and paying for ads in other media, but these are not directly targeted by the Consortium nor as extensively supported as the media mentioned above.

2.2   AdsML is business-to-business

It's important to understand that AdsML's goal is primarily to streamline *business-to-business* transactions, as opposed to transactions directly between a publisher and individual consumers. In the case where an individual consumer orders an ad directly from a publisher, for example a website, we would not expect AdsML to play a role, because the consumer will interact directly with the publisher's systems through its website or telesales representatives. However, when the individual consumer orders an ad from an intermediary – which might be a web site operated by another company on behalf of the publisher – it would be possible for the intermediary which takes the booking to send it to the publisher using AdsML messaging.

3 The AdsML Framework

The *AdsML Framework of E-commerce Business Standards* is a group of standards that are designed to work together to solve specific business problems in the advertising workflow. These standards exist at three levels:

- a set of e-commerce standards define business level XML message formats for specific types of information or transactions, for example, orders, invoices or artwork delivery

- the *AdsML Envelope* standard defines an XML delivery envelope that can convey any number of business messages between two trading partners

- a set of supportive standards provide rules and guidance that apply to all of the other AdsML standards, in effect providing the glue which holds them all together.

These standards are part of the AdsML Framework. In practice this means that they share many of the same design principles, they use common element and attribute names and technical components, they support a common message choreography and they share a common approach to advertising e-commerce that makes them "AdsML".

3.1 Relationships between the AdsML e-commerce specifications

While each of the AdsML E-commerce specifications can be used on its own, they are designed to support additional functionality when used together.

- Ad content can be embedded in or transmitted with an Ad Bookings message, in order to support delivery of ad content at the same time as the booking.

- The Structured Descriptions format can be embedded in an Ad Bookings or Ad Materials delivery message, in order to support transmission of the metadata about an ad in the same package as the ad itself

- At a technical level, the schemas (data definitions) of these formats use shared structures to represent common components.

3.2 Implement only what you need

While use of the complete AdsML Framework is encouraged, user organizations are free to pick any subset and/or combination of AdsML standards based on business requirements. Trading partners and their vendors are expected to review the AdsML Framework and decide which parts of it they will implement in order to solve their particular business problems. AdsML provides many tools to support this process. Further information about this process can be found in the *AdsML Quick Start Guide*.

4 Achieving Interoperability

One of the primary aims of the AdsML Framework is to achieve interoperability between users of AdsML-enabled business systems.

When two organizations are able to connect their systems so that they can transfer information between themselves seamlessly and automatically, with all the necessary information showing up in the right places and having the right meanings, then those systems are successfully "interoperating". It is, in short, a technical term for what most people would think of as successful communications between systems.

4.1 Business processes and terminology

The first step towards achieving interoperability is to ensure that all parties exchanging messages speak the same language. For this purpose, AdsML defines a set of high-level business processes and system messages, as well as a glossary of terms. These are documented in the *Advertisement Components Interactions Analysis* and *AdsML Glossary*.

Any set of trading partners who are setting up electronic communications are encouraged to read these documents and use them as a basis for the discussions about which messages to exchange and what their information content should be. By referencing these AdsML-defined message names and glossary terms, rather than whatever terminology is used within their own organizations, trading partners will reduce misunderstandings and ensure that when they reach agreement about a message or process, they are speaking the same language.

4.2 Formats

When two trading partners decide to exchange advertising information electronically, they must agree at least on the types of information they will exchange, and on the standards or formats that they will use to represent that information. This information is recorded in a Process Partnership Agreement (PPA) between the two trading partners, which in turn is part of their overall Trading Partner Agreement (TPA).

The *Advertising Component Interactions Analysis* provides a reference context that enables trading partners to agree on the types of information – the business messages – that their business processes and systems will exchange, and the standards and formats they will use when doing so.

The AdsML Framework does not restrict the formats that trading partners can use when exchanging information. Instead, it provides an inclusive packaging mechanism (the AdsML Envelope) that can accommodate any format that can be safely placed inside an XML document, and a set of item-level standards to communicate specific types of information (e.g. AdsMLBookings and AdsMLMaterials).

4.3 Glossary

A glossary of terminology provides a set of standard advertising language by defining the meaning of specific words or 'terms' used in the AdsML Framework, fostering understanding and co-operation between trading partners by defining what is effectively a 'common language'. Each term has an accompanying definition and, where appropriate, synonym(s).

4.4 Message choreography

In order to ensure interoperability, it is essential that systems exchanging AdsML messages have the same view on which messages to send, and which to expect to receive.

The *Advertising Component Interactions Analysis* provides a common model of the business processes involved in the lifecycle of an advertisement, and defines the types of business messages that are exchanged between advertising system components at each stage of the lifecycle.

In addition, the *Advertising Components Interactions Analysis* provides names and codes that uniquely identify each type of business message that is included within the scope of the AdsML Framework. These codes are used within AdsML messages to identify the type(s) of advertising information included in each message, and therefore to support the automatic verification and routing of that information.

4.5 Reusable components, the AdsML Type Library

All specifications in the AdsML Framework are built using the same basic components as defined in the AdsML Type Library. This means that AdsML standards are similar in that they are based on the same core structures. For instance, the XML structure used to represent companies, the `PartyType`, is used across all business level specifications in the AdsML Framework including AdsMLBookings, AdsMLMaterials and AdsMLFinancials.

From a software development point view, this model has definitive advantages in that developers gets familiar with components that are then used again and again across the AdsML Framework, further enabling reuse of the actual software modules creating and using these components.

5 Regional customization of the AdsML formats

Part of the philosophy of the AdsML Framework is that all of the AdsML specifications must be global in scope, and should be as interoperable as possible both within and across regional boundaries. In practice, this means that each AdsML specification defines an interoperable structure that can be further customized by appropriate regional groups (whether formal industry associations or groups of trading partners that constitute de-facto regional associations), in order to ensure that the specification as implemented in a given region supports local vocabularies and business practices.

The AdsML Framework provides three important tools to help users manage and create regional customizations: Configuration Checklists, Controlled Vocabularies, and Profiles. These can then be used as building blocks when assembling a formal Trading Partner Agreement.

A non-technical introduction to controlled vocabularies is provided below. Further information about all aspects of customizing AdsML to meet regional or domain-specific requirements can be found in *E-Commerce Usage Rules & Guidelines*.

5.1 Controlled Vocabularies

The approach taken to enable regional customization is primarily through the use of controlled vocabularies, commonly called code fields. While the message structure of each specification is tightly fixed, flexibility has been provided to allow regional groups to extend or replace many of the AdsML controlled vocabularies.

For example, one of the rules of the AdsML Envelope is that the party sending an AdsML Item must specify the Type of business message contained in that Item (e.g. an "Order" or an "Invoice"), and the message format that has been used for it (e.g. "AdsMLBookings" or "AdsMLFinancials"). The specific text strings that can be used to convey this information are tightly controlled: they have to appear in a list of values that the sender and recipient of the message have agreed to use. By restricting the allowed values to terms from an agreed-upon list, the recipient's systems can automatically verify that the codes contained in the message can be processed successfully.

AdsML defines specific 'AdsML' controlled vocabularies for use in AdsML messages, and provides a mechanism to validate that the values in a given message come from the appropriate controlled vocabularies.

In addition to using the default AdsML controlled vocabularies, AdsML implementers are also able to define their own controlled vocabulary values, in order to accommodate situations when trading partners have specific terms that they want to use as controlled vocabulary values in their AdsML messages. In particular, it is anticipated that regional groups will define controlled vocabularies that trading partners doing business in their region will be required to use when exchanging AdsML messages

Making such additions is called "extending" the controlled vocabulary. AdsML provides a mechanism for extending each of the controlled vocabularies that govern the information in an AdsML message, although whenever AdsML has supplied a default controlled vocabulary, we strongly caution against extending a given vocabulary and urge all users to use the default supplied terms. (The details of the extension mechanism are described in *E-commerce Usage Rules and Guidelines*.)

6 Why XML?

AdsML uses XML for three main reasons – *extensibility*, *self-definition*, and *application independence*.

As an XML format, AdsML is inherently *extensible.* Message formats defined in XML can be added to or changed without breaking backwards compatibility, and so will be able to evolve as the AdsML initiative grows and the scope of its coverage broadens.

XML is also *self-defining*. It can be used to describe the structure and meaning of the data content that it carries, and it enables that structure and meaning to be enforced in an XML document by validating the document against a 'schema' defining the allowed structure and meaning of that document.

The structure and meaning of AdsML is defined in a supplied "AdsML schema" that forms a core part of the AdsML standard. The AdsML schema defines the allowed data content, structure, and meaning of the information that is carried by an AdsML document. AdsML documents can be validated against the AdsML schema during routine XML processing of the document to make sure that the right data is present and in the right place. XML validation ensures that the constraints imposed on an XML document by its defining schema are enforced, the validation failing those documents whose structure or content fails to meet that specified by the schema. For example, if the schema says that element 'A' must be of data type 'x', but in a particular AdsML document element 'A' contains data of data type 'y', then that document will fail validation because the incorrect data type is present. Accordingly, AdsML documents can be validated against the AdsML Schema, thereby enabling document content to be tested by using standard XML tools to check that the correct data is present before the data even enters the workflow. This checking creates much more reliable workflows and systems; as an XML document can be reliably interpreted against its schema it is easier to identify problems before they become critical.

Being *application independent* means that XML can be used to exchange data between computer systems irrespective of the platforms those systems are running on. Consequently, XML acts as 'glue' that enables systems based on different computer code to exchange data.

7 Where do I go from here?

Managers seeking an overview of a typical AdsML project, including suggestions for how to get started, are encouraged to read the *AdsML Quick Start Guide*.

Engineers wishing to implement a particular AdsML standard should consult the documentation for the standard in question.