

## Use of the ebXML Framework in eGovernment and eHealth

Pim van der Eijk

Sonnenglanz Consulting BV  
Bakkersweg 7  
3951 CS Maarn  
pvde@sonnenglanz.net

**Abstract:** The Criminal Justice system in the Netherlands has adopted ebXML Messaging for inter-agency communication and is probably unique in also using ebXML concepts for its business process and content specification part. It uses the UBL Naming and Design rules for XML schema generation and the ebXML BPSS model complex business partner interactions. We discuss motivation for ebMS and alternatives encountered in similar contexts.

The main driver for many eGovernment initiatives worldwide is to improve efficiency and quality of services delivered to citizens and businesses. This includes enabling self-service using Web portals and gateways to government services. Less visible to citizens and businesses, eGovernment initiatives are set up to increase operational efficiency of government agencies and to make better information available to enable better services.

An eGovernment initiative called *Electronische Berichtenuitwisseling in de Strafrechtsketen*, or EPV (URL <http://www.e-pv.nl/>) was set up in the Netherlands to deploy electronic messaging between the various organizations in the Criminal Justice System. It facilitates collaboration and participates in (some key) projects of partners, but does not develop any systems itself. The programme currently covers both communication between police organizations and prosecution (where the system is to replace paper-based communication) communication between Police and a collection agency (where an existing EDI system is due to be replaced), and is ultimately expected to cover the vast majority of police cases.

The deliverables of these activities are analyses and standardized descriptions of electronic interactions between business partners. At the time of writing, there are 23 XML business document schemas, derived from a set of 583 data elements. The XML schemas are generated from business document and data element specifications in an automated way, using the OASIS Universal Business Language (UBL) XML Naming and Design Rules (NDRs) supporting the ebXML Core Components concept. The process descriptions are similarly but more informally based on another part of ebXML, the Business Process Specification Schema.

To complement the analysis and design work, a reliable and capable transport mechanism was needed. An evaluation resulted in a recommendation to use the ebXML Messaging service (ISO 15000-2) as messaging infrastructure in the Criminal Justice system. The main reasons are that it combines features from message-oriented middleware (such as scalability, reliability, security and asynchronous processing) and modern service-oriented architecture (open standards, XML, interoperability, Internet technology). It also combines the benefits of a *de jure* and an *industry* standard and has numerous interoperable implementations. Furthermore, it is payload-neutral, thus supporting transport of XML and other (legacy and multimedia) payloads, and even combinations of them. The recommendation was also supported by various external recommendations, such as the OASIS eGovernment TC's "Verification of ebXML Messaging for Use within eGovernment" and the European Commission IDA study on B2B frameworks which states that "[the] general recommendation is to follow ebXML as much as possible" Finally and importantly, there are an increasing number of large ebXML deployments in the public sector in Europe, such as the UK National Health Service network, which is the world's largest civil IT project.

This work on ebXML Messaging generated a strong interest within the Justice Community, which is much broader than just the Criminal Justice. At the request of the Standards Board of the Ministry of Justice, a profile of ebXML Messaging was developed as a "Justice Standard Asynchronous Messaging". The profile uses the "deployment template" for ebXML specified by the OASIS IIC TC. At the time of writing (June 2005), various organizations in the Justice system are implementing ebXML Messaging, and there is also work ongoing on ebXML Messaging gateways between various network domains and bridges to external partners that do not support ebXML Messaging themselves, thus requiring protocol conversion.

There are clearly many potential "competitors" for a standard like ebXML Messaging. In practice, the main competitors are existing interfaces, which business partners are not willing or able to replace. Secondly, there is a surprising amount of home-grown protocols, often SOAP or plain XML/HTTP based, with ad hoc protocol extensions. Some of these extensions achieve a status of "standard" in a particular sector, where an open horizontal messaging standard like ebXML messaging would greatly simplify future cross-sectoral integration.<sup>1</sup> For the community in the (criminal) justice community referenced in the case study, the profile of ebXML messaging adopted as a standard offers a very capable messaging standard that meets their current requirements and has sufficient features not yet used for future extension over the coming years. By selecting a cross-sectoral international standard like ebXML messaging as messaging standard, this community is likely to interface more easily to other sectors in the public or private sector.<sup>2</sup>

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<sup>1</sup> An example of this is the OSCI specification, surprisingly promoted as transport standard superior to ebXML for the German Gesundheitskarte, despite citing academic work indicating flaws in OSCI, despite OSCI not having the status of international standard, despite the large number of interoperable implementations of ebXML and despite strong international references.

<sup>2</sup> Additional material is available from <http://www.sonnenglanz.net/>.