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**EUROPEAN COMMISSION
STATISTICAL OFFICE OF THE
EUROPEAN COMMUNITIES (EUROSTAT)**

**ORGANISATION FOR ECONOMIC
COOPERATION AND DEVELOPMENT (OECD)
STATISTICS DIRECTORATE**

Joint ECE/Eurostat/OECD meeting on the management of statistical information systems
(Geneva, 17-19 February 2003)

Topic I: Measures for the improvement of quality at the IT management level

**WEB SERVICES – AN INTEGRAL ELEMENT OF OECD’S dot.STAT TECHNOLOGY
FRAMEWORK FOR STATISTICAL APPLICATIONS**

Invited paper

Submitted by OECD¹

Summary

Overview

1. This paper describes the role and use of web services in the context of recent developments at the OECD to improve the accessibility of statistical information. It follows up on a paper presented at the 2002 ISIS meeting about “Improving Access to Statistical Information at OECD in Response to Users’ Requirements”. A technology framework – called “dot.STAT” – has been devised for the implementation of applications to enable easy access to certain OECD reference data. This framework incorporates a central data warehouse and is part of a broader statistical strategy, which depends on a glossary of statistical terms and a corporate metadata repository.
2. The objectives of the dot.STAT framework are threefold. The first aim is to offer a single platform/repository for multiple data/meta-data sets with different characteristics. Secondly it comprises a complete set of information broker tools to make replication from working/production databases as transparent and simple as possible. Thirdly, the architecture aims to offer basic building blocks for the (re)development of statistical production systems as part of an OECD-wide Quality Framework initiative.
3. The application of the “web services” paradigm has its roots in the combination of three factors. First of all, both internal and external users of OECD statistical information typically have their preferred (or standard) data manipulation tools. Secondly, the development of a user interface, which meets “all” potential requirements is virtually impossible and would likely be very costly. And thirdly, there are

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emerging standards, in particular XML, SOAP, and WSDL which have good potential for the access to and interchanging of data in the Internet space.

4. From the more general business perspective this approach is expected to increase the coherence of ICT solutions for statistical applications in line with recommendation of the OECD Statistics Quality Framework. It should also allow further streamlining application support and maintenance activities.

Background

5. The OECD has been providing online access to selected data collections via the Internet since the mid-90s. Related developments dovetailed to a large extent with the migration of production systems from a mainframe-dominated environment to client-server architectures with browser-based interfaces for internal and external use. In addition, efforts were undertaken to develop statistical publications with easy-to-use and interfaces providing yet a complete range of functionality (including data search, selection, navigation, and export). Though these developments helped to significantly increase the accessibility of OECD statistical information they also illustrated that there is no “one-fits-all” solution in this field. The design of statistical systems is typically driven by production needs and often results in very effective applications that, however, do not really reflect end-users or “consumer” requirements. In this context and taking into account past experience gathered with Internet based statistical applications led to reviewing alternatives to classical web interface developments.

6. The web service based approach appeared to be particularly promising for the reasons mentioned at the outset, but also because of the speed with which the development work could be carried out for both, internal and external usage. It also appeared very compatible with the rest of the dot.STAT development framework, as it allows to develop functional components that can be reused in different applications. Another important aspect is the openness of this solution from a technical perspective due to the availability of standards that seem to be rather widely adhered to by the ICT market allowing for a certain degree of vendor independence.

Current Status

7. The project that spawned the establishment of the dot.STAT development framework – i.e. making OECD Reference Series accessible – has progressed well. A structured design and development environment using dot.NET technology is in place. Specific focus has been put on ensuring increased development and maintenance efficiency. In particular, a tool allowing the establishment of unit tests at development time has been integrated into the environment for this purpose. The design and installation of a central data-warehouse based on SQL/OLAP technology has been completed. XML based data loading routines are available for different types of production systems (SQL, Fame, ORACLE Express).

8. On the end user application side, a first simple web service has been developed under VB and C# and prototyped with Excel, Access, and VB front-ends. First user/client feedback has been very encouraging particularly with regard to an Excel based interactive wizard which offer an environment with which many users are familiar. This development was also used as proof of concept for integrating a web service into the IMF Intranet portal. The same web service example is also being assessed as a potential delivery mechanism in the context of the Statistical Data and Metadata Exchange initiative (SDMX) task force initiated by several international Organisations².

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² SDMX sponsors include the BIS, ECB, Eurostat, IMF, OECD, and the UN – www.sdmx.org.