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Topic (i): Changes in statistical processes

**APPLYING WEB SERVICES TO GOVERNMENTAL ORGANISATIONS;
THE CASE OF THE NATIONAL STATISTICAL SERVICE OF GREECE**

**Supporting Paper prepared by the National Statistical Service of Greece and
the Research Academic Computer Technology Institute, Greece**

Summary

I. INTRODUCTION

1. The aim of this paper is to present the development of a prototype module for the National Statistical Service of Greece (NSSG), which is based on Web Services technology and is used for direct data collection from enterprises. This module enables enterprises to use and integrate it with their commercial and accounting systems.
2. The prototype module has been implemented as a Web Service API, since Web Services allow different applications from different sources to exchange data without the need of implementing custom codes for this purpose. As all communication uses XML, the Web Service is not tied to any operating system or programming language. Additionally, Web services are being adopted in the marketplace as a mechanism for efficient process integration in the organizations within and across organizational boundaries.
3. The NSSG Web Service is built around a collection of features that include a framework for composing services for online submitting and managing INTRASTAT declarations, optimized querying services, and preserving privacy.

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II. MOTIVATION

4. During the last few years NSSG has undertaken a number of initiatives towards the implementation of an e-Government strategy, aiming at improving the services offered to its clients (both survey respondents and users of statistical data).
5. This project has been implemented as an extension of a previously developed web-based application for the monthly collection Intrastat declarations. The first project focused only on the development of a web-based questionnaire. However, the enthusiastic approval of the initiative by the enterprises indicated that the market is mature enough for more advanced actions.
6. More specifically, NSSG offers to enterprises the ability to declare their products (imports, exports) via an over-web electronic system namely, the electronic system of Intrastat statements' declaration. This electronic system operates successfully since January 2003 and it serves 32,398 registered enterprises and 3,356 accountants/accountant offices that have declared in total 366,017 statements.
7. The most important characteristics of the system are following: (a) Use of SSL protocol for all tasks that concern control or treatment of personal elements; (b) Suppression of popup windows in all the levels of application; (c) Increment of records' limit for manual input up to 1.000 records per statement; (d) Increment of records' limit for file upload up to 50.000 records per statement; (e) Projection of statements' content up to 1.000 records with printing facility; (f) Simplification of customers' management for the accountants with global login; (g) Incorporation of confirmation processes in order to avoid common users mistakes. A company or its accountant has the ability to declare products, to modify declarations of products, to delete declarations of products.
8. As a further improvement to this application, NSSG wanted to offer a new intelligent way of electronic declarations and decided to use web services (the Intrastat web service) for this implementation. This web service consists of several methods, which have the same functionalities as the electronic system of Intrastat statements' declaration.
9. The main goal of this implementation has been (a) Improvement of the system and reduction of the burden of the respondents, especially for those with large amounts of declarations; (b) Reduction of the time interval needed for the production of final statistical results (i.e. time between data collection and dissemination); (c) Minimisation of errors from the transfer of data that might be caused from the human intervention (e.g. typing errors during data entry, logical errors, etc); and (d) Overall improvement of data quality.
10. The first step in the project development included the implementation of a feasibility study, consisting of a market research to track down the most commonly used packages, the possibilities for system integration and the potential reaction of the beneficiaries (enterprises submitting Intrastat declarations).
11. The feasibility study demonstrated the benefit of using web services as entry point for data upload and the need of companies to perform this task in the easiest possible way.

III. TECHNOLOGICAL BACKGROUND

12. The module has been implemented as a Web Service for data interchange between two applications. This provides several advantages to the whole process, like: (a) interoperability between various software applications running on disparate platforms; (b) use of open standards and protocols; (c) work, by utilizing HTTP, through many common firewall security measures without requiring changes to the firewall filtering rules; (d) allow software and services from different companies and locations to be combined easily thus providing an integrated service; (e) allow the reuse of services and components within an infrastructure; (f) work through firewalls while other forms of Remote Procedure Calls may more often be blocked.

13. The prototype has been implemented using the .NET v.1.1 framework technology and C# language in particular. Generality is not lost as other Web Service supporting development platform may be utilised. The prototype is hosted on a MS Windows 2000 (Service Pack 4) Xeon at 3,2GHz using 2GB RAM. Quality database is designed and runs on an MS SQL Server 2000 sp4 instance. For the UDDI registry connection the MS online UDDI catalogue available for testing purposes has been utilised.

14. Companies have to follow the following steps in order to make a declaration that inserts a product using Intrastat web service: (a) The Company requests for authentication using LoginUser web method; (b) The response authenticates Company from the Intrastat web service (if the username and the password are right); (c) The Company uses Retrieve web method in order to take some details (like year, month, period, status) of the declaration that is going to submit; (d) The Company requests for using InsertAProduct web method; (e) The response gives an answer “true” or “false”, if the procedure of this declaration completed successfully.
