

DELIVERABLE

**D18 – Pilot application at TSAY (ETAA) and
evaluation report**



**iWebCare: Integrated Web
Services Platform for the
Facilitation of Fraud Detection in
Health Care**

Project reference number **IST-2005-028055**

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Abstract:

This report describes the pilot procedure at TSAY to validate the services of the integrated iWebCare platform.

***Type: PU-public, PP-Restricted to other programme participants (including Commission Services), RE-restricted to a group specified by the consortium (including Commission Services), CO-confidential, only for members of the consortium (including Commission Services)**

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Executive Summary

The purpose of this deliverable is to describe the main results and conclusions arising from the pilot of the iWebCare platform at TSAY¹.

The pilot activities were important because they provided an opportunity to use the platform with real data in a real environment. In addition, the pilot brought together users and technical partners to work together to solve problems and further develop the platform, as well as identifying useful future developments to improve the functionality, usability, reliability, efficiency and satisfaction with the platform. The pilot was successful overall because it achieved its key objectives to conduct trials in order to validate the iWebCare service from the viewpoint of end-users.

The report begins in Section 1 by summarising the aims and goals of this phase of the project. Section 2 describes the characteristics of the iWebCare platform which were evaluated and validated during the pilot and which fall into two dimensions:

- the technical dimension, which considered performance and quality, including usability, reliability, efficiency, functionality and user satisfaction, and
- the business dimension, which considered the benefits to the organisation of using the iWebCare platform to detect potential fraud

Section 3 describes the activities which users were required to carry out as part of the pilot and the range of evaluation tools used to gather data and triangulate the results: a user diary, critical incident report, statistical data from the platform and a questionnaire survey together with interviews with key stakeholders.

Section 4 describes how the pilot focused on procurement fraud. It outlines the data used for the pilot and the contributions of users at TSAY.

The results of the pilot for each of the research tools used are fully explored in Section 5, followed by a summary of the way in which the pilot deviated from the pilot plan. The report ends with conclusions and recommendations in Section 6.

¹ TSAY and ETAA are abbreviations that are used interchangeably into this document as ETAA is a new formed social security body (as of 1st October 2008) part of which is the former social security body namely: "TSAY"

1 Introduction

The aim of Work Package 7 was to pilot the iWebCare platform and evaluate the results of the project from the user point of view at the two end-user sites – TSAY and NHS. The purpose of this deliverable is to describe the outcomes of the pilot at TSAY.

This deliverable aims to provide information to:

- The EU's team of reviewers which will undertake an overall assessment of the iWebCare project
- The iWebCare consortium members as a whole to ensure that all the partners have an understanding of the activities carried out as a result of the pilot and the overall conclusions reached from piloting the platform
- Members of the technical team to ensure that they have an understanding of any technical issues identified as a result of the pilot and recommendations for improvement
- Those users who participated in the project
- Other parties which might be interested in the results of the project

During the pilot, TSAY users, with the help of the technology integrators and software development team, evaluated the range of services offered by the integrated iWebCare web services platform as well as the functionalities offered by each of the main modules in the context of fraud detection.

The main goals of this phase of the project were to:

- use and validate the web services offered by the integrated iWebCare platform
- test out the methods for user authentication and authorization
- create, update and delete rules stored in the rules repository
- create datasets by converting paper based prescriptions to electronic format
- upload and submit datasets
- apply rules using the validation engine's services
- preview the results of the validation process and create meaningful reports
- assess the effectiveness of the self-learning module
- identify different types of users who would need to access and use the iWebCare platform, e.g. to maintain user accounts and rule profiles, to submit data for validation, to view rules and reports identifying potential fraud or to view rules and fraud cases of other agencies to compare with their own.

A separate report (D17) is available to describe the results of the pilot application at the Royal Brompton & Harefield NHS Trust (RBH) and other National Health Service (NHS) Trusts that agreed to participate, which validated the services of the iWebCare platform in the context of procurement fraud, specifically conflict of interest.

2 Scope and purpose of pilot

2.1 Introduction

The overall aim of the iWebCare project is “to design and develop a flexible fraud detection web services platform, which will be able to serve e-government processes of fraud detection and prevention, in order to ensure quality and accuracy and minimise loss of health care funds” (iWebCare Technical Annex, 2005).

2.2 Evaluation objectives

The pilot evaluated the iWebCare platform in two dimensions: performance and quality (the technical dimension) and the business dimension which focused on the benefits of using the platform for the organization.

2.2.1 Performance and quality (technical dimension)

The following characteristics of the iWebCare platform were evaluated and validated during the pilot:

Usability

This characteristic refers to ease of use and user-friendliness, i.e. how easy it is for users to learn how to use the system and remember how to use it, the ability of the platform to be operated easily, intuitively and consistently, the accuracy and completeness with which users achieve specific goals, ease of producing reports, ability to export information into other formats (e.g. Excel spreadsheets), ease of interpretation of validation results, ability to prioritise results for further investigation (e.g. by being able to identify high, medium and low risk cases or high, medium and low probability cases). This characteristic also considered the ability of users to control access and ensure security and confidentiality of data held on the platform.

Reliability

The user should be able to rely on the way the system works and to count on its timeliness and predictability. This characteristic defines the capability of the platform to maintain its service provision, and covers frequency of failure and ability of system to recover and be brought to full operation in case of failure.

Efficiency

This characteristic is concerned with the system resources used when providing the required functionality, including robustness of the system, response times for a given input and resources used, e.g. time effort and technical resources, and ease of navigation.

Functionality

Functionality is a key quality characteristic of the iWebCare platform and represents the totality of essential functions that the service provides, broken down into the following sub-characteristics:

- Relevance, i.e. validity of the rules used to detect irregularities and errors which may represent fraud, and degree of accuracy of the results obtained
- Suitability, i.e. appropriateness of the platform functions to the specification which was to:
 - detect fraud by validating the contents of e-documents against a predefined set of rules
 - use data mining to discover both unsuspected relations among variables as well as dissimilarities among patterns that cannot be deduced in a straightforward way from any query to databases in order to detect new types and patterns of fraud (iWebCare, D10)
- Interoperability with legacy systems (manual as well as electronic systems), how the platform fits with existing procedures and processes and what adaptations would be required in order to use the iWebCare platform on an ongoing basis.
- Additional features, e.g. on-line and off-line support

Satisfaction

This characteristic is concerned with the user's attitude towards the use of the platform broken down into the following sub-characteristics:

- Overall performance and user satisfaction with overall performance
- Performance of specific functions, i.e. extent of user's satisfaction for all specific functions
- Willingness of users to use the service

2.2.2 Business dimension

This dimension considered the benefits to the organization of using the iWebCare platform to detect potential fraud and looked at how much potential fraud the platform was able to identify, the worth of the potential fraud and the impact of the platform financially, technologically and organizationally. Feedback gathered from users during the pilot included:

- the effectiveness of the platform in identifying potential fraud
- whether users have identified any additional data which might enhance the usefulness of the platform
- whether the platform is able to deliver benefits such as:
 - improved data flow and information exchange between internal departments
 - improved data flow and information exchange with external agencies
 - improved inter-agency co-operation
 - faster and more efficient operations

- reduced administrative costs to support current processes and improved effectiveness by automating tasks to deal with large volumes of data which would be difficult to process without the use of such systems
- potential barriers and critical success factors to implementing the platform on a wider scale
- organisations that might be prepared to pay for access to the platform and pricing models.

3 Pilot methodology

3.1 Approach used

In order to meet the objectives of the pilot, users were required to:

- prepare data for inputting onto the platform
- establish links between platform and other data management systems (eg providing information on doctors' specialties and contact details)
- convert data to XML format
- test out the methods for user authentication and authorization
- create, update and delete rules stored in the rules repository and modify rules according to weighting
- upload and submit datasets
- apply rules using the validation engine's services
- preview the results of the validation process and create meaningful reports
- use the self learning engine to generate new rules and then ask experts whether these new rules are useful in identifying potential fraud to assess the effectiveness of the self-learning module
- assess whether or not cases of potential fraud are worth further investigation
- contribute to the evaluation of the pilot by completing diaries and questionnaires and participating in interviews if required

3.2 Key activities

A summary of the key activities is set out in the table below with reasons for changes in the timescale as appropriate.

| Proposed Timescale | Actual Timescale | Task | Description | Reasons for delay (if appropriate) |
|--------------------|------------------|----------------------|--|--|
| M25-28 | M25-28 | Platform integration | Integration of platform components/modules | |
| M26-28 | M26-33 | Testing of platform | Testing and user acceptance test at TSAY site | Bugs and necessary fixes delayed the release of the final prototype |
| M27-33 | M27-35 | Helpdesk | Set up Helpdesk arrangements and provide ongoing Helpdesk support to ensure the pilot is completed effectively | Pilot extended to M35 due to delayed launch as well as not clear value of DM rules |
| M28 | M28 | Access arrangements | Organise access to platform for users involved in pilot | |

| Proposed Timescale | Actual Timescale | Task | Description | Reasons for delay (if appropriate) |
|--------------------|------------------|-----------------------------|---|---|
| M28-29 | M28-35 | Fine tuning | Fine tuning and bug fixes | Fine tuning and bug fixes continued throughout pilot |
| M28-M29 | M28-29 and M35 | Data Preparation | Select an adequate sample of handwritten prescriptions to be digitised and used for the pilot | |
| M28-29 | M28-33 | User manual | Development of user instructions | User manual revised in light of comments received from users and final release of the prototype |
| M29-30 | M32 | Training | Training for pilot users | Training delayed due to extension of testing and bug fixes |
| M29 | M29 | D30 | Finalise and submit final version of D30 | |
| M30 | M32 | Launch pilot | Launch pilot at TSAY | Start of pilot delayed due to extension of testing and bug fixes |
| M30-33 | M32-36 | Pilot | Users pilot the system | A two-phase pilot run took place at TSAY in order to get more useful results and rules from the Data mining module. End of pilot delayed due to late start and introduction of 2 nd pilot phase (data mining rules). |
| M31-33 | M34-36 | Evaluation of pilot results | Collation and analysis of results of pilot | Followed the delay of pilot launch as well as the extended time of the pilot (2-phase) |
| M31-33 | M34-36 | D18 | Preparation and submission of report on pilot application at TSAY (D18) | Followed the delay of pilot launch as well as the extended time of the pilot (2-phase) |
| M35 | M38 | Dissemination | Workshop to share results of pilot with user organisations | Dissemination event delayed until results of pilot available. |

3.3 Evaluation tools

The range of evaluation tools used to gather data during the pilot included a user diary, critical incident report, statistical data from the iWebCare platform itself and a questionnaire survey

together with interviews with key personnel. The user diary and critical incident report were structured in such a way as to provide data on specific areas of the iWebCare platform that needed improvement. These results were immediately/continuously reported back to partners involved in the technical design and implementation, so that the iWebCare platform could be modified and improved on an ongoing basis throughout the pilot.

3.3.1 User diary and critical incident report

A user diary and critical incident report was provided for users (Annex 1). Each user was required to complete an entry every time they accessed the platform in order to provide a record of usage and a record of how well the platform performed and to help users when they completed the end of pilot questionnaire. The user diary included a critical incident report to be filled in every time they encountered a problem or 'technical bug' when accessing and using the platform in order to provide detailed information on what the fault was, who the problem was escalated to for resolution and how the fault was resolved. The data gathered through use of this research instrument provided information for the evaluation of the technical dimensions of the platform.

3.3.2 Critical incident report

A critical incident report was also used by members of TSAY and Agilis who were dealing with technical issues/problems encountered either when setting up access to the platform or those reported by users (Annex 2). This research instrument provided information for the evaluation of the technical dimensions of the platform.

3.3.3 Statistical data

Statistical data from the iWebCare platform was produced by Agilis to provide information on usage levels and platform performance. These results provided data for the evaluation of the technical dimensions of the platform.

3.3.4 Questionnaire survey

Based on the evaluation characteristics defined in Section 2, a pilot questionnaire was prepared to be completed by users to measure the level of the selected evaluation characteristics and to test out some of the business dimensions of the platform and questions raised in the technology implementation plan (iWebCare, D23). A copy of the questionnaire is attached to this report at Annex 3.

In order to test reliability, usability, efficiency and satisfaction, the questionnaire included a section asking respondents to specify their level of agreement to a range of questions using a five-point scale. A range of additional questions were also included to obtain more qualitative information on these characteristics and to explore issues relating to data security and the potential impact of the platform in identifying fraud as well as some of the issues to be covered in the technical implementation plan, such as pricing models.

3.3.5 Interviews

The findings from the pilot were further explored through open interviews with users involved in the pilot activities and a small number of experts in the field of finance, audit and counter fraud. The interviews were designed to explore in depth some of the findings from the questionnaire survey and to provide further validation of the findings from the pilot.

4 Pilot context

4.1 Introduction

The pilot at TSAY user site validated the services of the integrated iWebCare platform in the context of potential fraud in medical prescriptions. This topic was chosen because it is not currently covered by a software fraud detection system in the Greek public sector.

4.2 Data used for pilot

Data used on the iWebCare platform was:

- 60.000 e-prescriptions (including Prescription ID, Insured Person ID, Membership type, Sex, Diagnosis Code, Year of birth, Various Costs, Dates (Issuance, Dispensing), Doctor ID, Pharmacy ID, Drug Details), from years 2005-06
- 700 hand-written prescriptions that were converted to the electronic format (XML language) used by the platform. A converter especially for this purpose was developed by ICCS.

Further information on why this data was chosen for the pilot can be found in iWebCare D01 and a full description of the data set can be found in iWebCare D05.

Anonymity of data was reassured as the iWebCare platform was designed so that only ID's of patients, doctors and pharmacists are used and demographic details were appropriate. No access to the actual names of the patients, doctors or pharmacists was available using the platform. The users who needed to have access to such information had to use TSAY's registry software (or manual) system.

4.3 Description of fraud to be identified by iWebCare platform

Through using the iWebCare platform to identify potential matches between sets of data it was envisaged that two major types of potential fraud could be identified, namely "Auditorial" and "Medical". For each type a set of rules was identified as described in chapters 5.2.1 and 5.2.2 respectively of D06.

Auditorial Rules try to detect incomplete prescriptions and invalid or miscalculated data while Medical Rules try to detect prescriptions in which the data are inconsistent from a medical point of view. It turned out that the medical rules are very difficult to be expressed and validated in a scientifically accepted manner, mainly because of lack of available codifications and taxonomies that should be used in an e-prescription system. As TSAY does not have such a system (work is done with paper based prescriptions) it was almost impossible to validate the use of such rules.

4.4 Scheduling of pilot activities

The pilot was launched with a pilot planning event at TSAY on May 14, 2008. During June and July TSAY users prepared the prescriptions to be digitised (selection according to the criteria defined in D30) and started the digitisation process. Training was delivered to the TSAY users on the last week of August, which was later than planned due to technical problems experienced when testing the platform as well as because of summer holidays during end of July until mid August.

The results from the trials performed in TSAY were not able to provide valuable evaluation of the data-mining module and the self learning engine, due to unforeseen challenges and complexity of the data preparation. Therefore, TSAY experts, together with FhG (data mining experts) collaborated to improve the data mining module's results and assisted by ICCS and the other technical partners, prepared new datasets in order to better demonstrate the platform's operation. A second run of the TSAY trials was done driven by more specific and targeted Data mining procedures as described in D12.

This 2-phase pilot run together with changes in the legal status of TSAY (which was re-established as ETAA under a government law) delayed the evaluation of the pilot which was finally extended to M36.

5 Results

5.1 Introduction

Five users participated in the pilot activities as follows:

| Number of users | Specialty | Role |
|-----------------|------------------------|--|
| 1 | IT systems | Administer the technical perspective of the pilot and provide help for simple issues to TSAY users |
| 1 | Doctor | Counsel Prescriptions Auditing personnel and evaluate results of data mining |
| 1 | Pharmacist | Counsel Prescriptions Auditing personnel and evaluate results of data mining |
| 2 | Prescriptions Auditing | Select, evaluate and enter data of hand-written prescriptions, evaluate results of data mining |

5.2 Analysis of findings from user diaries and critical incident reports

The data gathered from the user diaries and critical incident reports provided information on the technical dimension only. A summary of usage is set out in Annex 4 and a detailed summary of critical incidents which occurred can be found in Annex 5. It is worthwhile mentioning that, because of the thorough testing of the platform performed by ICCS (detailed reports can be found in D15), only a few minor software problems were reported by TSAY users.

The platform was accessed on 21 occasions between August 29 and December 15, 2008, and 7 critical event logs were submitted. Three of the faults reported related to communication problems (e.g. difficulties in accessing the platform) and minor software problems. One fault related to problems with navigating around the platform.

As already mentioned, during the test phase of the first prototype, ICCS discovered a series of bugs. Following a series of discussions involving ICCS, Agilis and Intrasoft, it was decided that the release of the final prototype should be delayed, in order to reassure that a stable and bug-free platform was delivered to the users. This decision was confirmed by TSAY. Thus, the platform was released on July 26. Because of a few minor problems identified - were solved within a few days - the final version of the platform, was released on August 4.

Several technical meetings took place during October and November focusing on issues relating to the self learning module and the lack of electronic data in terms of relations between drugs, physician's specialties and diagnosis as well as the format of the platform

reports. TSAY experts were not sure whether the results of the first run of the data mining procedure could produce rules that could help in identifying potential fraud. Thus, it was decided to rerun data mining, this time with more specific instructions by TSAY team. The whole procedure is described thoroughly in Section 5.5.

5.3 Analysis of findings from statistical data generated from iWebCare platform

Data on frequency of use, purpose of use and errors which occurred when using the platform was provided by Agilis and is summarized in Annex 6. This information covers usage by both RBH and other NHS Trusts and TSAY. Based on this information, we can see that the server was performing well 80% of the time, with only 14% downtime (from which 6% was scheduled and the remaining 6% of the time facing network and other server problems).

With regards to usage of the platform by TSAY, NHS and the developers, we can observe that NHS used the platform more often and for more hours during the May to December period. The maximum usage for NHS was in November (14 hours) and the minimum in August and September (3 hours). The corresponding figures for TSAY are 8 hours on December and 1 hour in August, while as would be expected, the Developers made the maximum usage of the platform in June and August with 3 hours and the minimum on October, November, December (1 hour).

Finally, the statistical data shows that the platform was idle for 45% of the time, 35% was taken up with Process Time and the remaining 20% was taken up with Web Page Delivery Time.

5.4 Analysis of findings from questionnaire survey

The data gathered from the questionnaire survey provided information on both the technical and business dimensions. The detailed responses to the pilot questionnaires are set out in Annex 7.

5.4.1 Performance and quality (technical dimensions)

When asked to comment on the types of activities which the platform was used for the following responses were received:

- Loading data (2)
- Applying rules profiles (4)
- Validating data (4)
- Examining fraud reports (4)
- Setting up new users (1)

Usability

- 100% of the respondents found it very easy to learn to operate the software and no responses reported any problems in learning the software commands, only 25% had problems in moving around the website, moving from one part of a task to another or remembering where they were on the website.
- 75% of responses reported that tasks were able to be performed in a straightforward manner, that they got what they expected when they clicked on various parts of the website and that the organization of the menus or information lists seemed quite logical
- 75% of responses commented that the website helped them find what they were looking for, that the website seemed logical and that they could quickly find what they wanted on the website
- There were no responses suggesting that there were too many steps required to get something to work or that there was never enough information on the screen when it was needed
- 100% of responses found it easy to apply rules, validate data and produce reports, 75% to manage user accounts and 50% to upload data.

In answer to a question about what they liked most about the platform, all responses were similar: “Could replace the manual procedure for identifying potential fraud”.

However a high proportion of responses (75%) also commented that the web site needed more introductory explanations and that they did not find that the help information given on the platform is very useful. Only 25% of responses confirmed that they found the instructions and prompts helpful, with 25% of responses commenting that they way that system information is presented is clear and understandable and only 25% confirming that they find everyone on the website easy to understand.

No respondents agreed that they could easily contact the people they wanted to on the website.

Users were not asked to manage and modify rules as technical team agreed that a higher level of technical skills were required for this activity than was available amongst the users testing the platform.

In answer to the question “Do you have any comments about the rules repository and use of the rules to validate data?”, users suggested that it would be helpful if they had access to historical data. In the interviews, they clarified that they would like to check a potentially fraud prescription against other prescriptions (e.g. from same doctor or pharmacy), procedure performed only by data mining.

Respondents were satisfied and had no concerns about data protection and data confidentiality issues, since the platform only uses ID's and not the real names of patients, doctors and pharmacies.

In answer to a question about what **other information** users would have liked to have seen on the platform, all users asked for:

- Help in moving around the platform
- More meaningful data mining results
- Data about the specialty of the Physician who wrote the prescription
- Information about the drugs prescribed and how they relate to the prescription's diagnosis

In answer to a question about what **other features** users would have liked the platform to have, the following responses were received:

- 50% (the Prescriptions audit team) asked for an application to digitize and validate single prescriptions
- All users asked for links to external data (drug lists, doctors, pharmacies)
- 50% suggested that it would be useful to have access to previously submitted prescriptions by the same physician/patient/pharmacist.
- 50% asked for a tool to make comparisons between previously submitted prescriptions by the same physician/patient/pharmacist

The following responses were received to a question about what users liked the least about the platform:

- All users responded that they did not like the user interface
- All users responded that they were not satisfied with the data mining results. It was clarified in the interviews, that the users expected more than statistical rules from the data mining procedure.

The answer to the question about what adaptations would be needed if the users were to continue to use the platform, was that the digitization process is very ineffective, and such a system would be of great help provided that it works together with an e-Prescription system. In such a case they could have much more valuable data available in electronic format to be exploited by the system and the self learning module.

Reliability

- There were no responses on the question whether the platform had at some time stopped or crashed unexpectedly. There were some periods when the platform was not available for maintenance reasons but in every case they had a short notice for that.

Efficiency

- In none of the responses the website was characterized as too slow. None of the participants were negative in using this software every day.

Functionality

- 75% of responses confirmed that the rules were helpful in identifying potential fraud
- 50% of responses suggested that use of the platform on a regular basis would reduce administrative costs to support current processes and improved effectiveness by automating tasks to deal with large volumes of data which would be difficult to process without the use of such systems. When asked in the interviews, users underlined that this could be achieved by the platform in cooperation with an e-prescription system.
- All users appeared to be satisfied with the training and Helpdesk support, with no users having to look for assistance most of the time when they used the software. All users commented that whenever they had a problem, the Helpdesk support team dealt with it promptly and efficiently
- The respective answers about the structure of the reports were split: half of the users answered that they were well structured and provided the information they required. Later in the interviews, users suggested the improvement of presentation of the results.
- All users suggested that use of the platform would result in faster and more efficient operations. None of the responses confirmed that the reports were easy to download into other software, e.g. Excel, in order to reformat the reports and add information as required, as this facility was not available when they piloted the platform.

In response to the question about how useful the platform was, the answers were split: half of the users answered "Very", one user suggested that "it would be better if the platform had priorities and sorting capabilities in the reports", and one user answered that she was "not sure".

In answer to a question about how often they would use this service if it was available to them in the future, two respondents (from the Prescriptions Audit Department) answered "Whenever I have to check prescriptions for fraud".

In answer to a question about potential barriers and critical success factors to support implementation of the platform, three respondents answered "Civil service bureaucracy" and all suggested "Certain improvements on the platform". When asked in the interviews, they referred to the answers previously given in the questionnaire. They all agreed that the digitization process is very ineffective, and such a system would benefit by the integration with an e-Prescription system. In such a case they could have much more valuable data available in electronic format to be exploited by

the system and the self learning module and they could investigate more cases of potential fraud.

Satisfaction

- No respondents felt that using the website was a waste of time and 75% of responses commented that the website had much that was of interest to them. No responses suggested that it was difficult to tell if the website had what they wanted and that the website had some annoying features.
- 50% of responses appeared to enjoy using the website and felt efficient when using the website. Only 25% found the pages of the website very attractive.
- All respondents confirmed that they would recommend the platform to their colleagues in the Counter fraud team.
- All the respondents found the information provided by the platform 'useful' or 'very useful'.

Business dimension

Reports produced from the iWebCare identified the following cases of potential fraud:

| Rule | No of Cases |
|--|--------------------|
| Violation of the 5-day execution period | 48 |
| Prescription issuance date should not overlap execution date | 35 |
| The prescribed drugs are overpriced | 126 |
| Too high treatment cost | 95 |
| Total | 304 |

100% of respondents confirmed that the platform had helped identify potential fraud, especially in prescriptions with inaccurate drug prices and too high treatment cost.

75% of responses felt that use of the platform would result in improved data flow and information exchange between internal departments, improved data flow and information exchange with external agencies and improved inter-agency co-operation.

In answer to a question about how the platform fitted with other business processes (e.g. with the data you have available or with how to put the outputs into practice), the two respondents from the Counter fraud team answered that "Unfortunately we lack an e-Prescription system which would be of great help and could feed this engine with valuable data"

As well as the obstacles to using the platform during everyday work, all respondents answered “No obstacles, can reduce my work load”. Later in the interviews, they repeated that it could be of great help if they did not have to digitize the prescriptions.

Responses given to a question about how much their service might be willing to pay for the service were as follows:

- Up to 20.000€ if certain improvements were made (50%)
- Up to 25.000€ if certain improvements were made (25%)
- Up to 30.000€ if certain improvements were made (25%)

5.5 Deviations from planned and actual pilot

The pilot did not require users to test out the facility to modify rules or develop new rules as it was agreed that users did not have the technical knowledge and skills to be able to write the appropriate script language.

The pilot did not require users to operate the self learning engine due to the complexity and length of time. Instead, users/experts were asked whether the results produced by the self learning module were useful in generating potential fraud.

The platform did not offer the facility to download reports into other software, e.g. Excel, in order to reformat the reports and add information as required

Although the pilot activities started later than planned, the pilot would have finished by the end of October (M34). Nevertheless, changes of TSAY’s legal status as of 1st October 2008 introduced delays to the pilot procedure. In addition the rules produced by the data mining module, did not prove to contain useful cases in identifying potential fraud. This led us to inject a new phase of pilot tests while fine tuning the data mining module. After several technical meetings and discussions between TSAY’s experts and the technical partners (especially with the data mining team), this second run of the data mining procedure was done with the provision of more precise information on the resulting fraud rules that TSAY experts expected.

On the first run of the data mining procedure, the list of Subgroup Discovery experiments in the iWebCare platform were:

1. Searches for the best 100 subgroup with depth at most 3. Only the most important nine attributes are considered.
2. Searches for the best 100 subgroup with depth at most 3. Nineteen attributes are considered.
3. Searches for the best 100 subgroup with depth at most 3. All 24 attributes are considered (resulting in slower execution).
4. Searches for the doctors who prescribe expensive drugs.
5. Searches for the doctors who prescribe many expensive drugs to young insured persons.

6. Searches for the doctors who prescribe a lot of expensive drugs bought in a certain pharmacy.
7. Searches for pharmacies that expensive drugs are usually bought from.
8. Searches for the best 100 Benford-Subgroups. Only the most important nine attributes are considered.

On the second run of the procedure, FhG added more targeted and specific queries (as resulted from discussions with TSAY experts), adding the following experiments:

1. Searches for doctors who prescribe expensive drugs for a specific diagnosis
2. Searches for the doctors who make lots of expensive prescriptions bought in a certain pharmacy.
3. Searches for elderly people with a high number of different diagnosis
4. Searches for combinations of diagnosis and age having a high total cost
5. Searches for combinations of diagnosis and sex having a high total cost

6 Conclusions and Recommendations

The pilot activities were important because they provided an opportunity to use the platform with real data in a real environment. In addition, the pilot brought together users and technical partners to work together to solve problems and further develop the platform, as well as identify useful future developments to improve its functionality, usability, reliability, efficiency and satisfaction.

The pilot was successful overall because it achieved its key objectives to conduct trials in order to validate the iWebCare service from the viewpoint of end-users. Users did not find severe difficulties in using the platform and could identify cases of potential fraud. In all interviews, users were certain about the platform's huge potential to pick up such cases, but stretched out that:

- Such a system should cooperate with an e-prescription application that would solve many problems regarding data availability.
- The encapsulation of more medical rules into the platform would be achieved if data regarding diagnoses, doctor specialties and drugs would be available (e.g. ATC coding)
- Interoperability with TSAY's existing applications would provide great help. For example, users suggested that the platform should have access to TSAY's registry data, with information about doctors and pharmacists.

As mentioned in all interviews, all users suggested that the platform should have a better user interface, clarifying the functions of the platform, and providing help whenever needed. Inaccurate judgement by the developers about the user friendliness of the platform has also been proved by:

- The underestimation of complexity in asking users to edit or construct new rules.
- Not presenting the results of the data mining procedure in a language that can be interpreted without help from expert personnel.

As expected, only *potential* fraud can be identified through use of the iWebCare platform. Further investigation by fraud experts is required before fraud can be confirmed.

It seemed that the expectations of TSAY experts from the data mining procedure were higher than could be achieved. TSAY experts were not sure that the outcome of the first run of the data mining procedure would help in identifying potential fraud. Thus, as described above, a second run of the procedure was decided, where the data mining was driven by TSAY's targeted questions to the data, which had a more positive outcome in terms of useful rules produced by the system.

ANNEXES



**iWebCare : Integrated Web
Services Platform for the
Facilitation of Fraud Detection in
Health Care**

**User Diary and
User Critical Incident Report**

Name

Organisation

Email address

Telephone number

INSTRUCTIONS:***Who is this diary and critical incident report for?***

NHS Trust and TSAY users who are piloting the iWebCare platform between June and September

When should diary be completed?

An entry should be completed every time you access the platform. A critical incident report should be filled in every time you encounter a problem when using the platform. You should try to complete the diary as soon as possible after you have accessed the platform (preferably at the same time as using or trying to access the platform). Your contributions in the diary will help us with the report on the pilot we have to submit to the European Commission later in the year and it will also help you when it comes to completing the questionnaire which we will ask you to complete at the end of the pilot.

Where should the diary be sent to:

When you have completed your contribution to the pilot please send an electronic copy to either:

- carol@jollie.fsworld.co.uk and George.Karagiannis@rbht.nhs.uk if you are piloting the iWebCare platform in the UK. Alternatively you can send a paper copy to Carol Jollie, c/o George Karagiannis, European Projects Office, Research Department, Royal Brompton & Harefield NHS Trust, Research & Development Office, Chelsea Wing, Level 2, Sydney Street, London SW3 6NP
- Stathis Marinos (smarin@tsay.gr) if you are piloting the iWebCare platform for TSAY in Greece.

It is recommended that you also keep a copy for yourself to help you complete a questionnaire which we will send you after you have finished piloting the platform.

| | | |
|--|---|--|
| Date on which you accessed the platform | | |
| Length of time | | |
| What were you using the platform for? | <input type="checkbox"/> Managing user accounts (eg arranging access for users) <input type="checkbox"/> Managing/modifying rules <input type="checkbox"/> Uploading data <input type="checkbox"/> Validating data and producing reports | <input type="checkbox"/> Looking at reports and identifying cases for investigation <input type="checkbox"/> Other: please specify below: |
| Did you use any rules and if so, how useful were they? | | |
| Comments on how well the platform fits with other processes used by user (eg producing and inputting data, using the data to identify fraud etc) | | |
| Comments on performance of platform | | |
| Comments on whether you identified potential improvements (eg in functionality or useful additional data) | | |
| Other notes | | |

USER CRITICAL INCIDENT REPORT

| | | |
|--|---|---|
| Date on which fault occurred: | | |
| Type of fault: | <input type="checkbox"/> Navigation (moving around platform between modules) <input type="checkbox"/> Software (eg problems uploading or extracting data) <input type="checkbox"/> System performance (eg very slow or platform crashing) <input type="checkbox"/> Communication (eg problems with accessing platform) | <input type="checkbox"/> Unintelligible output (eg user is able to use platform and view output but does not understand meaning of results) <input type="checkbox"/> Do not know |
| Name of person to whom fault was reported (if appropriate): | <input type="checkbox"/> Carol Jollie, RBHT <input type="checkbox"/> George Karagiannis, RBHT <input type="checkbox"/> Stathis Marin, TSAY <input type="checkbox"/> Other – please specify and include job title and organisation | |
| Date on which fault reported (if appropriate): | | |
| Date on which fault resolved: | | |
| Input source (what were you trying to do?): | | |
| Description of expected output (what were you expecting to happen?): | | |
| System function output (what problems did you encounter?): [It would be useful to copy a screenshot of the error message here (if applicable).] | | |
| Other comments: | | |



**iWebCare : Integrated Web
Services Platform for the
Facilitation of Fraud Detection in
Health Care**

User Critical Incident Report

INSTRUCTIONS:***Who is this report for?***

For those members of the team from RBH, TSAY and Agilis who will be dealing with technical issues/problems ('critical events') encountered either when setting up access to the iWebCare platform at pilot sites or those reported by users when they are piloting the iWebCare platform which have prevented them from using the platform, ie when users not been able to resolve the issue locally. [Note: A similar pro forma report will be included in the Diary to be kept by users in the pilot sites. This will be filled in for critical events encountered by users which do not have to be escalated to one of the project team for resolution.]

When should report be completed?

An individual report should be filled in for every event (preferably at the time when the event is dealt with).

Who should complete the form?

The first part of the form will be completed by the person to whom the critical event is reported. The rest of the form will be completed either by the same person or by the member of the team who resolves the issue if the event has to be escalated to another member of the team.

Where should the report be sent to:

carol@jollie.fsworld.co.uk and George.Karagiannis@rbht.nhs.uk (for events relating to pilot activities at RBH) or smarin@tsay.gr (for events relating to pilot activities at TSAY) who will then try to resolve the issue locally and complete the report.

If the event/problem cannot be dealt with locally, the report will be sent on to Thomas.Dimakopoulos@agilis-sa.gr for completion and return to the local site (Carol and George at RBH or Stathis at TSAY) so that they can be incorporated into the reports describing the outcome of the pilot.

| | | |
|---|---|---|
| Name of person who identified critical event | | |
| Name of organisation | | |
| Date on which fault occurred | | |
| Type of fault | <input type="checkbox"/> Navigation (moving around platform between modules) <input type="checkbox"/> Software (eg problems uploading or extracting data) <input type="checkbox"/> System performance (eg very slow or platform crashing) <input type="checkbox"/> Communication (eg problems with accessing platform) | <input type="checkbox"/> Unintelligible output (eg user is able to use platform and view output but does not understand meaning of results) <input type="checkbox"/> Do not know |
| Name of person to whom fault was reported | | |
| Date on which fault reported | | |
| Name of person who has resolved issue | | |
| Date on which fault resolved | | |
| Input source (what was person reporting the problem trying to do?) | | |
| Description of expected output/outcome of the person reporting the critical event | | |
| Time taken to resolve issue | <input type="checkbox"/> Up to one hour <input type="checkbox"/> 2-4 hours <input type="checkbox"/> 5-7 hours | <input type="checkbox"/> Longer - please specify length of time below: |
| System function output (what were the problems encountered) | | |
| Please enter details on how problem was resolved: [It may be useful to copy a screenshot of the error message here (if applicable).] | | |
| Other comments (eg if person resolving issue was not the person to whom the event was originally reported, why did the problem have to be escalated and what skills were needed?) | | |



**iWebCare : Integrated Web
Services Platform for the
Facilitation of Fraud Detection in
Health Care**

iWebCare Pilot Questionnaire

General information on person completing questionnaire

| | |
|---|--|
| Organization Name: | |
| Department: | |
| Describe your role: | |
| Are you involved in fraud detection/prevention and if so, describe your role: | |
| Do you use other on-line services? If yes, please name the most important. | |

Who is this questionnaire for?

For those who will be piloting the iWebCare platform on behalf of RBH and TSAY and other interested parties who are able to make a useful contribution to the overall evaluation of the iWebCare platform

When should questionnaire be completed?

At the end of the pilot and no later than September 2008

Who should complete the questionnaire?

A circulation list will be drawn up by RBH and TSAY

Where should the report be sent to:

Copies of all completed reports should be sent to carol@jollie.fsworld.co.uk, George.Karagiannis@rbht.nhs.uk for RBH and smarinos@tsay.gr for TSAY so that they can be incorporated into the reports describing the outcome of the pilot.

Please note: This questionnaire incorporates some of the questions used in the WAMMI questionnaire used to capture users' personal views on a website's ease of use.

1. General feedback on using platform

| Statement | Strongly Agree | | | | Strongly Disagree |
|--|----------------|---|---|---|-------------------|
| | 1 | 2 | 3 | 4 | 5 |
| Overall comments | | | | | |
| The iWebCare platform has much that is of interest to me | | | | | |
| I like using this web site | | | | | |
| I feel efficient when I'm using this web site | | | | | |
| It is difficult to tell if this web site has what I want | | | | | |
| Using this web site is a waste of time | | | | | |
| Navigation | | | | | |
| Learning to find my way around this web site is a problem | | | | | |
| It is relatively easy to move from one part of a task to another | | | | | |
| I can quickly find what I want on this web site | | | | | |
| This web site seems logical to me | | | | | |
| I get what I expect when I click on things on this web site | | | | | |
| There are too many steps required to get something to work | | | | | |
| Ease of use | | | | | |
| This web site needs more introductory explanations | | | | | |
| This web site helps me find what I am looking for | | | | | |
| I can easily contact the people I want to on this web site | | | | | |
| Remembering where I am on this web site is difficult | | | | | |

| Statement | Strongly Agree | | | | Strongly Disagree |
|---|----------------|---|---|---|-------------------|
| | 1 | 2 | 3 | 4 | 5 |
| Everything on this web site is easy to understand | | | | | |
| The instructions and prompts are helpful | | | | | |
| Learning to operate this software initially is full of problems | | | | | |
| It takes too long to learn the software commands | | | | | |
| Tasks can be performed in a straightforward manner using this software | | | | | |
| Functionality | | | | | |
| I found it easy to upload data | | | | | |
| I found it easy to apply rules | | | | | |
| I found it easy to manage and modify rules | | | | | |
| The rules were helpful in helping to identify potential fraud | | | | | |
| I found it easy to manage user accounts | | | | | |
| It found it easy to validate data and produce reports | | | | | |
| The reports were well structured and provided the information I required | | | | | |
| The reports were easy to download into other software, eg Excel, in order to reformat the reports and add information as required | | | | | |
| Use of the platform will result in improved data flow and information exchange between internal departments | | | | | |
| Use of the platform will result in improved data flow and information exchange with external agencies | | | | | |
| Use of the platform will result in improved inter-agency co-operation | | | | | |
| Use of the platform will result in faster and more efficient operations | | | | | |
| Use of the platform on a regular basis would reduce administrative costs to support current processes and improved effectiveness by automating tasks to deal with large volumes of data which would be difficult to process without the use of such systems | | | | | |
| Presentation | | | | | |
| The pages on this web site are very attractive | | | | | |
| This web site has some annoying features | | | | | |
| The way that system information is presented is clear and understandable | | | | | |
| There is never enough information on the screen when it's needed | | | | | |
| The organisation of the menus or information lists seems quite logical | | | | | |

| Statement | Strongly Agree | | | | Strongly Disagree | | | | | | | | | | |
|---|---|---|---|----|-------------------|-------------|--|--------|--|----------|--|-------------------|--|---------|--|
| | 1 | 2 | 3 | 4 | 5 | | | | | | | | | | |
| Reliability | | | | | | | | | | | | | | | |
| The platform has at some time stopped or crashed unexpectedly | | | | | | | | | | | | | | | |
| If this software stops, it is not easy to restart it | | | | | | | | | | | | | | | |
| Performance | | | | | | | | | | | | | | | |
| This web site is too slow | | | | | | | | | | | | | | | |
| I would not like to use this software every day | | | | | | | | | | | | | | | |
| Training and Helpdesk Support | | | | | | | | | | | | | | | |
| I do not find that the help information given on the platform is very useful | | | | | | | | | | | | | | | |
| I have to look for assistance most times when I use this software | | | | | | | | | | | | | | | |
| If I had a problem, the Helpdesk support team dealt with it promptly and efficiently | | | | | | | | | | | | | | | |
| Describe the types of activities which you used the platform for | | | | | | | | | | | | | | | |
| How useful was the platform for the purpose you used it for? | | | | | | | | | | | | | | | |
| How often would you use this service if it was available to you in the future? | | | | | | | | | | | | | | | |
| How much would your service be willing to pay for this service if it was available to you right now? | | | | | | | | | | | | | | | |
| Would you recommend this platform to your colleagues? If so, which colleagues? | YES | | | NO | | | | | | | | | | | |
| What obstacles do you see in using the platform during your everyday work? | | | | | | | | | | | | | | | |
| What did you like the most about the platform? | | | | | | | | | | | | | | | |
| What did you like the least about the platform? | | | | | | | | | | | | | | | |
| What other features would you have liked the platform to have? | | | | | | | | | | | | | | | |
| Was the information provided by the platform: | <table border="1"> <tr> <td>Very Useful</td> <td></td> </tr> <tr> <td>Useful</td> <td></td> </tr> <tr> <td>Relevant</td> <td></td> </tr> <tr> <td>Somewhat relevant</td> <td></td> </tr> <tr> <td>Useless</td> <td></td> </tr> </table> | | | | | Very Useful | | Useful | | Relevant | | Somewhat relevant | | Useless | |
| Very Useful | | | | | | | | | | | | | | | |
| Useful | | | | | | | | | | | | | | | |
| Relevant | | | | | | | | | | | | | | | |
| Somewhat relevant | | | | | | | | | | | | | | | |
| Useless | | | | | | | | | | | | | | | |
| Do you have any comments about the rules repository and use of the rules to validate data? | | | | | | | | | | | | | | | |
| Did you encounter any issues relating to access and/or security and if so, what were they and how were they resolved? | | | | | | | | | | | | | | | |

| | | | | |
|--|-----|----------------------|----|----------------------|
| What other information would you have liked to see on the platform? | | | | |
| How does the platform fit with your other business processes (eg with the data you have available or with how to put the outputs into practice)? | | | | |
| Please tell us anything we can do to improve the platform | | | | |
| What adaptations would be needed if you were to continue to use the platform? | | | | |
| What additional data would have improved the outputs? | | | | |
| Did the platform help identify potential fraud and if so: a) what is its estimated value b) do you plan to investigate further | YES | <input type="text"/> | NO | <input type="text"/> |
| Did the platform help you prioritise potential fraud cases for further investigation? If so, please give further information | YES | <input type="text"/> | NO | <input type="text"/> |
| What do you see as the potential barriers to implementing the platform on a wider scale and what are the critical success factors? | | | | |
| Any other comments | | | | |

Annex 4

Summary of User Diary Responses

The platform was accessed on 21 occasions between June 29 and December 15, 2008. 7 critical event logs were submitted. The nature of the faults reported are set out in full in Annex 5 and summarised below.

| Type of fault | | Number of times fault reported | % of total |
|---------------|---|--------------------------------|------------|
| 1 | Navigation (moving around platform between modules) | 1 | 14% |
| 2 | Software (eg problems uploading or extracting data) | 3 | 43% |
| 3 | System performance (eg very slow or platform crashing) | 0 | 0% |
| 4 | Communication (eg problems with accessing platform) | 3 | 43% |
| 5 | Unintelligible output (eg user is able to use platform and view output but does not understand meaning of results, eg complex rules in rule language or with additional output from self learning engine) | 0 | 0% |
| 6 | Other/Not sure | 0 | 0% |
| TOTAL | | 7 | 100% |

Annex 5

Summary of Critical Incident Reports

| Date | Type of fault ² | Description of fault | Details on how problem was resolved |
|---------|----------------------------|---|--|
| 29 Aug | 1 | When users tried to click on either 'Login' or 'Apply for Account' no action was taken by the platform | Agilis immediately informed and solved the problem within hours. |
| 4 Sep | 2 | The date fields displayed wrong data in the fraud report | The format of dates in the data entry form was modified by ICCS. |
| 11 Sep | 2 | Same data produced in all fraud reports | User was not clicking on the right button next to each report. |
| 10 Oct | 4 | Network error. Operation timed out. Web server may be down, too busy or experiencing other problems ...when trying to use platform. | Problems in server. Solved within hours |
| 1/2 Nov | 4 | Unable to access the platform. | Platform taken offline for short period to upload some data onto platform. |
| 3 Nov | 2 | Some rules not available | Problem with reloading data into the platform. Problem solved within hours by Agilis |
| 8/9 Nov | 4 | Unable to access the platform. | Platform went offline due to problems with electricity in Athens. |

¹ Navigation (moving around platform between modules)

² Software (eg problems uploading or extracting data)

³ System performance (eg very slow or platform crashing)

⁴ Communication (eg problems with accessing platform)

⁵ Unintelligible output (eg user is able to use platform and view output but does not understand meaning of results, eg complex rules in rule language or with additional output from self learning engine)

⁶ Other/Not sure

Summary of Statistical Data Generated by iWebCare Platform

In this section we provide statistical information for the iwebcare platform.

Figure 1 presents the total uptime and the down time which is split into Schedule down time, unscheduled down time, network problems and server problems. By the term 'Schedule down time' we mean schedule maintenance and backup procedures.

Figure 2, presents the total duration of usage per month per domain (the measurement unit used is hours). We have three domains: NHS, TSAY and Developers (ie users from the technical team testing the platform and users from the testing team performing the testing of the platform). The data was collected using the server and platform log and covers the period from May 2008 until December 2008.

Figure 3 presents a more technical diagram which shows the idle time of the platform with user login, the process time, and the web page delivery time.

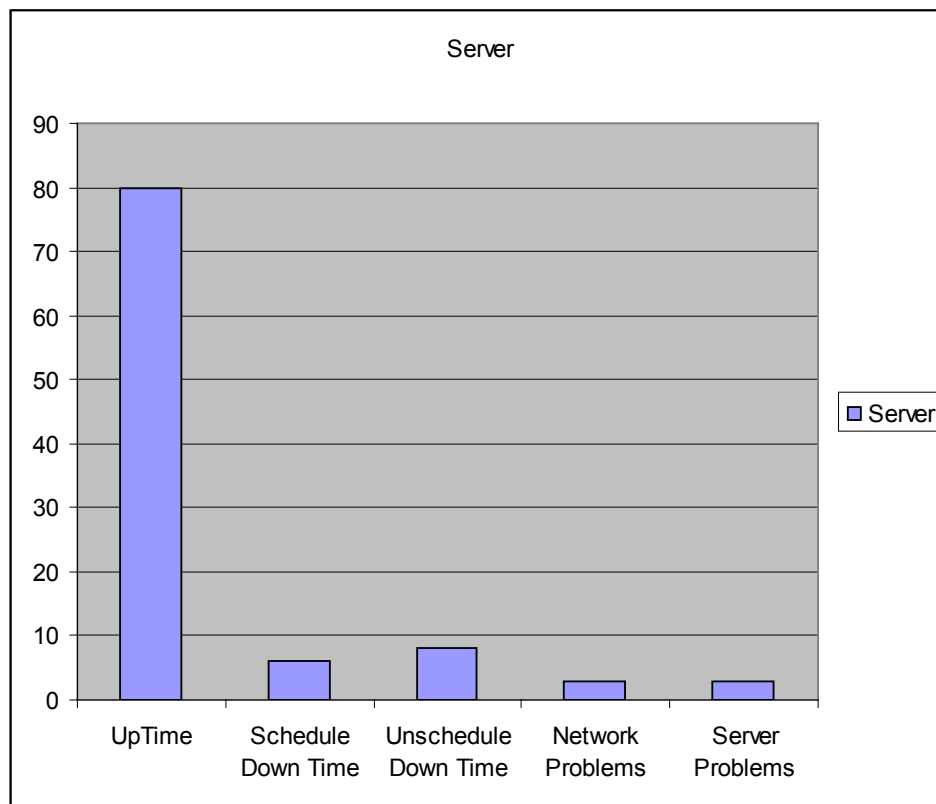


Figure 1 (Total Down and Up Times, Units are %).

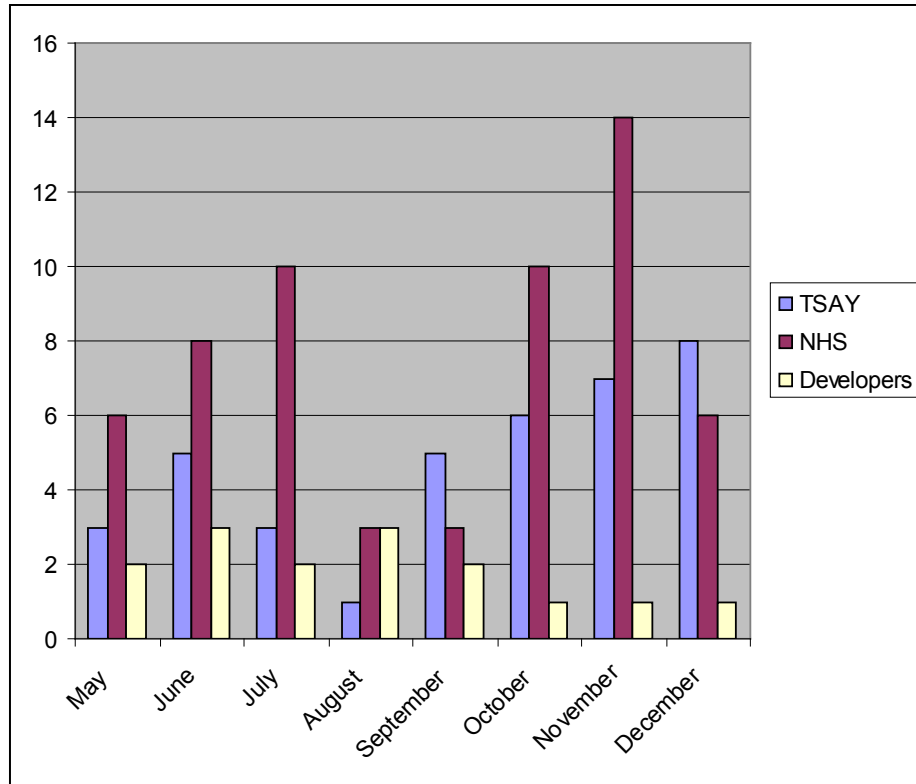


Figure 2 (Usage Per month per domain, Units are hours)

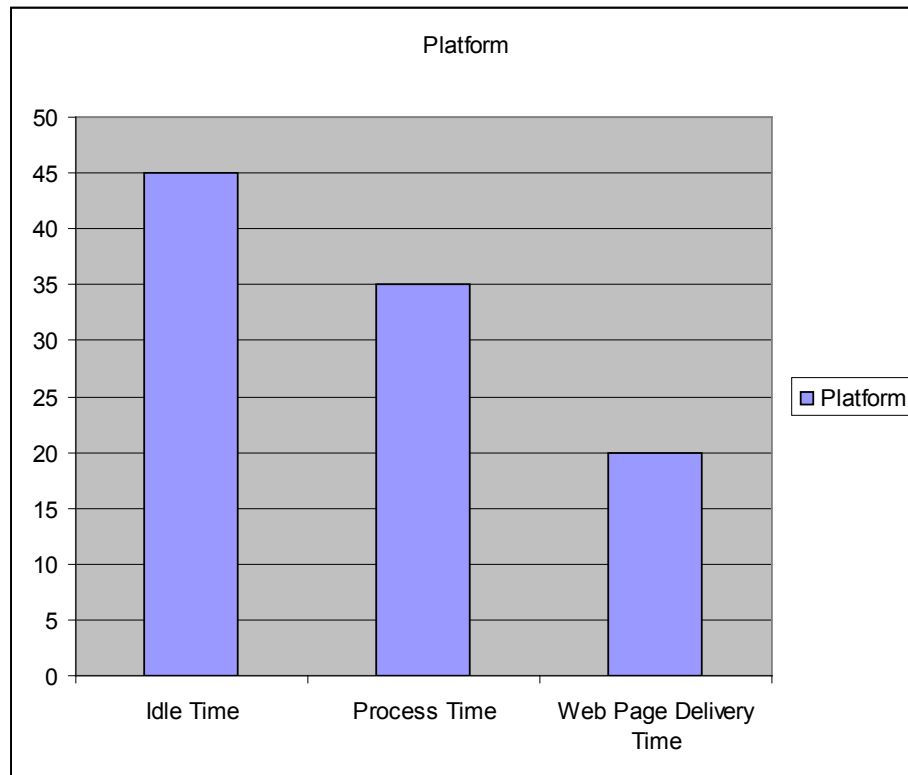


Figure 3 (Platform statistical information, Unit are % of total user)

Annex 7

Summary of Responses to iWebCare Pilot Questionnaire

| Statement | % of responses which strongly agreed or agreed with statement (ie 1 or 2 on Likert scale) |
|---|---|
| Overall comments | |
| The iWebCare platform has much that is of interest to me | 75% |
| I like using this web site | 50% |
| I feel efficient when I'm using this web site | 50% |
| It is difficult to tell if this web site has what I want | 50% |
| Using this web site is a waste of time | 0% |
| Navigation | |
| Learning to find my way around this web site is a problem | 25% |
| It is relatively easy to move from one part of a task to another | 75% |
| I can quickly find what I want on this web site | 75% |
| This web site seems logical to me | 75% |
| I get what I expect when I click on things on this web site | 75% |
| There are too many steps required to get something to work | 0% |
| Ease of use | |
| This web site needs more introductory explanations | 75% |
| This web site helps me find what I am looking for | 75% |
| I can easily contact the people I want to on this web site | 0% |
| Remembering where I am on this web site is difficult | 25% |
| Everything on this web site is easy to understand | 25% |
| The instructions and prompts are helpful | 25% |
| Learning to operate this software initially is full of problems | 0% |
| It takes too long to learn the software commands | 0% |
| Tasks can be performed in a straightforward manner using this software | 75% |
| Functionality | |
| I found it easy to upload data | 50% |
| I found it easy to apply rules | 100% |
| I found it easy to manage and modify rules | N/A |
| The rules were helpful in helping to identify potential fraud | 75% |
| I found it easy to manage user accounts | 75% |
| It found it easy to validate data and produce reports | 100% |
| The reports were well structured and provided the information I required | 50% |
| The reports were easy to download into other software, eg Excel, in order to reformat the reports and add information as required | N/A |
| Use of the platform will result in improved data flow and information exchange between internal departments | 75% |
| Use of the platform will result in improved data flow and information exchange with external agencies | 75% |
| Use of the platform will result in improved inter-agency co-operation | 75% |
| Use of the platform will result in faster and more efficient operations | 100% |
| Use of the platform on a regular basis would reduce administrative costs to support current processes and improved effectiveness by automating tasks to deal with large volumes of data which would be difficult to process without the use of such systems | 50% |

| | |
|--|------|
| Presentation | |
| The pages on this web site are very attractive | 25% |
| This web site has some annoying features | 0% |
| The way that system information is presented is clear and understandable | 25% |
| There is never enough information on the screen when it's needed | 0% |
| The organization of the menus or information lists seems quite logical | 75% |
| Reliability | |
| The platform has at some time stopped or crashed unexpectedly | 0% |
| If this software stops, it is not easy to restart it | N/A |
| Performance | |
| This web site is too slow | 0% |
| I would not like to use this software every day | 0% |
| Training and Helpdesk Support | |
| I do not find that the help information given on the platform is very useful | 75% |
| I have to look for assistance most times when I use this software | 0% |
| If I had a problem, the Helpdesk support team dealt with it promptly and efficiently | 100% |

| Questions | Responses received | | | | | | |
|--|--|----------|-----------|----------|---------|----|---------|
| Describe the types of activities which you used the platform for | Loading data (2) Applying rules profiles (4) Validating data (4) Examining fraud reports (4) Setting up new users (1) | | | | | | |
| How useful was the platform for the purpose you used it for? | Very (2) Would be better, if it had priorities and sorting capabilities in the reports (1) Not sure (1) | | | | | | |
| How often would you use this service if it was available to you in the future? | Whenever I have to check prescriptions for fraud (2) | | | | | | |
| How much would your service be willing to pay for this service if it was available to you right now? | Up to 20.000€ if certain improvements were made (2) Up to 25.000€ if certain improvements were made (1) Up to 30.000€ if certain improvements were made (1) | | | | | | |
| Would you recommend this platform to your colleagues? If so, which colleagues? | <table border="1"> <tr> <td>YES</td> <td>2 100%</td> <td>NOT SURE</td> <td>3 0%</td> <td>NO</td> <td>2 0%</td> </tr> </table> Counter fraud team (4) | YES | 2 100% | NOT SURE | 3 0% | NO | 2 0% |
| YES | 2 100% | NOT SURE | 3 0% | NO | 2 0% | | |
| What obstacles do you see in using the platform during your everyday work? | No obstacles, can reduce my work load (2) | | | | | | |
| What did you like the most about the platform? | Could replace the manual procedure for identifying potential fraud (4) | | | | | | |
| What did you like the least about the platform? | User interface (4) Data mining results (4) | | | | | | |
| What other features would you have liked the platform to have? | Application to digitize and validate single prescriptions (2) Links to external data (drug lists, doctors, pharmacies) (4) Access to previously submitted prescriptions by the same physician/patient/pharmacist (2) Tool to make comparisons between previously submitted prescriptions by the same physician/patient/pharmacist (2) | | | | | | |

| | | | | | | | | | | | | | |
|--|--|-------------|------|----------|---|----------|--|---|--|---------|--|--|--|
| Was the information provided by the platform: | <table border="1"> <tr> <td>Very Useful</td> <td>2</td> </tr> <tr> <td>Useful</td> <td>2</td> </tr> <tr> <td>Relevant</td> <td></td> </tr> <tr> <td>Somewhat relevant</td> <td></td> </tr> <tr> <td>Useless</td> <td></td> </tr> </table> | Very Useful | 2 | Useful | 2 | Relevant | | Somewhat relevant | | Useless | | | |
| Very Useful | 2 | | | | | | | | | | | | |
| Useful | 2 | | | | | | | | | | | | |
| Relevant | | | | | | | | | | | | | |
| Somewhat relevant | | | | | | | | | | | | | |
| Useless | | | | | | | | | | | | | |
| Do you have any comments about the rules repository and use of the rules to validate data? | Access to historical data would provide great help (2) | | | | | | | | | | | | |
| Did you encounter any issues relating to access and/or security and if so, what were they are how were they resolved? | No comments | | | | | | | | | | | | |
| What other information would you have liked to see on the platform? | Help in moving around the platform (4) More meaningful data mining results (4) Data about the specialty of the Physician who wrote the prescription (2) Information about the drugs prescribed and how they relate to the prescription's diagnosis (2) | | | | | | | | | | | | |
| How does the platform fit with your other business processes (eg with the data you have available or with how to put the outputs into practice)? | Unfortunately we lack an e-Prescription system which would be of great help and could feed this engine with valuable data (2) | | | | | | | | | | | | |
| Please tell us anything we can do to improve the platform | Better user interface (4) Improve data mining procedure (4) | | | | | | | | | | | | |
| What adaptations would be needed if you were to continue to use the platform? | An effective digitization process (2) | | | | | | | | | | | | |
| What additional data would have improved the outputs? | No responses | | | | | | | | | | | | |
| Did the platform help identify potential fraud and if so: a) what is its estimated value b) do you plan to investigate further | <table border="1"> <tr> <td>YES</td> <td>100%</td> <td>NOT SURE</td> <td></td> <td>NO</td> <td></td> </tr> <tr> <td colspan="6"> a) no responses b) 100% responded yes </td> </tr> </table> | YES | 100% | NOT SURE | | NO | | a) no responses b) 100% responded yes | | | | | |
| YES | 100% | NOT SURE | | NO | | | | | | | | | |
| a) no responses b) 100% responded yes | | | | | | | | | | | | | |
| Did the platform help you prioritize potential fraud cases for further investigation? If so, please give further information | <table border="1"> <tr> <td>YES</td> <td>100%</td> <td>NOT SURE</td> <td></td> <td>NO</td> <td></td> </tr> <tr> <td colspan="6">Prescriptions with inaccurate drug prices and too high treatment cost</td> </tr> </table> | YES | 100% | NOT SURE | | NO | | Prescriptions with inaccurate drug prices and too high treatment cost | | | | | |
| YES | 100% | NOT SURE | | NO | | | | | | | | | |
| Prescriptions with inaccurate drug prices and too high treatment cost | | | | | | | | | | | | | |
| What do you see as the potential barriers to implementing the platform on a wider scale and what are the critical success factors? | Civil service bureaucracy (3) Certain improvements on the platform (4) | | | | | | | | | | | | |
| Any other comments | None (4) | | | | | | | | | | | | |