An Information Feedback Service to Enhance Data Interconnection Process

ChulSu Lim*, Wongoo Lee*, Seungwu Han*, Kang-Ryul Shon*
*Korean Institute of Science and Technology Information
E-mail : {cslim, wglee, swhan, krshon}@kisti.re.kr

1. Introduction

NTIS (National Science and Technology Information Service) provides overall Korean national R&D information [1, 2]. This service provides more than 107 million information items related to national program information gathered from 17 ministries and offices. Each organization manages the information to support their business needs. It is gathered to NTIS with a national R&D information standard. The data from each ministry should be checked for the validity with constraint rules (business rules) [3]. The data manager of the origin database checks feedback from the rules and modify the data items in order to meet the constraints. The feedback information could be regarded as user level acknowledgement among OSI 7 layers. The BRs range from simple format check to a complicated validity check using other verification databases. So, the feedback information varies with the kind of BRs applied to 17 autonomous and independent ministries.

For this kind of feedback environment, we design an elaborate feedback model to support efficient feedback information handling.

2. Data Interconnection with feedbacks

Figure 1 shows feedback procedures for a data interconnection system. When a system 'A' transmits data to another system, the data should be checked for validity. The validity checking rules could be database constraints or business rules. These business rules are applied not just one time, but each processing steps have their own rules.

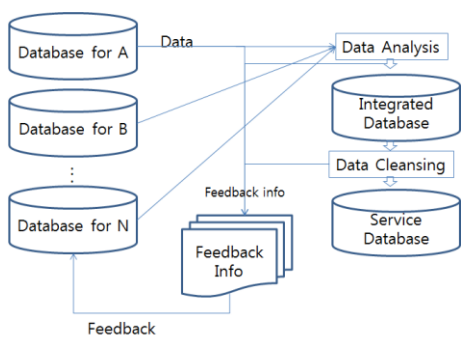

Figure 1. Database Interconnection with Feedbacks

3. An integrated information feedback model

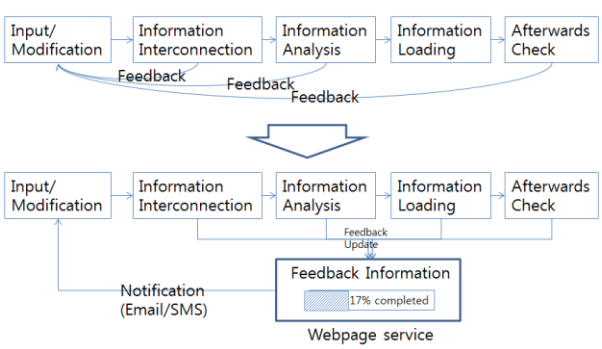

Figure 2. An enhanced feedback service

Figure 2 shows that there are many feedbacks for each processing task. In the previous model, the sender of the data receives feedback information multiple times. The role of the sender is to correct the data and resend it. So, the sender has to wait for the information after the transmission. In some cases, the waiting time is long and not easy to guess. That waiting time loss and lack of information about expected finishing time could be solved with an integrated information handling. In this enhanced model, all the feedback information is gathered into a system and after finishing all the processes an email or SMS could be sent to the sender of the data. The sender could also check current processing stages and they also could estimate task finish time.

4. Information feedback service

The implemented information feedback service has a web user interface shown in Figure 3. The status of the recent task provoked by the data could be checked with time stamps for each stage. With a click on the list, users could get detail information about the data. In the screen, user could check original data and analyzed messages and furthermore FAQ and Q&A information are linked to help solving the problem.

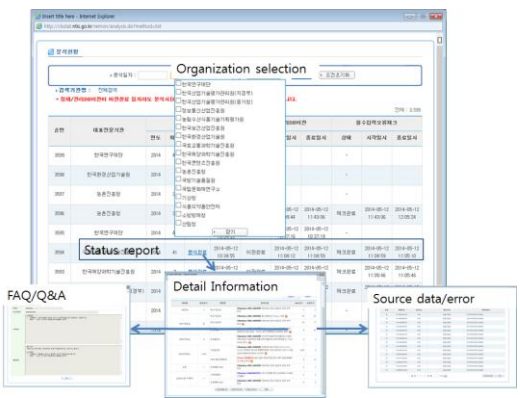

Figure 3. An information feedback service webpage

5. Conclusions and Future research

We investigate information feedback process to enhance data quality to the sender of the data. The feedback of the data could arise in different processing steps with various formats. The sender of the data received many files with separated time period. So, they have to wait for all the processes are finished. To solve these problem, we reengineered related processes and designed an service in which all needed information could be provided and the information is connected each other. This service supports many steps of processing for the data based on Business Rules revealing result of the data availability and status of each processing steps.

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6. References

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