**CONFERENCE OF EUROPEAN STATISTICIANS**

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Topic (iv): Users' experience with online modes

## NEW APPROACHES TO DATA EXCHANGE

Submitted by Statistics Norway[1]

**Invited paper**

**ABSTRACT**

In 1999 Statistics Norway received, for the first time, public funding for an R&D project to develop new data exchange routines using electronic data reporting (IDUN). Statistics Norway has for several years used some simple electronic solutions in collecting data from businesses (i.e. predefined Spreadsheets sent by E-mail). The new project was defined and called Data exchange with businesses. We think it is very important to talk about data exchange since the new web-technology gives us a unique opportunity to have a two-way connection between the survey manager and the businesses/respondents.

The main goal is to reduce the response burden for businesses, and as quickly as possible offer good electronic communication solutions. Another goal is to coordinate our efforts with other public institutions in Norway, such as the tax authorities and the public registers system of businesses - the Brønnøysund Registers. We think that it is important that the users recognise themselves in the different public electronic solutions. It should not be necessary for a business to use different systems when a business is in contact with different public authorities.

We have so far developed a web portal with questionnaires. Within the system it is also possible to give the respondent a feedback. In close connection with the businesses we are developing a system which can compare the businesses' own figures with the rest of the units within an industry. We are looking for market information that the businesses need. Within the paper I will present the system by giving an overview of the technological solutions. Furthermore, I am going to focus on the ways in which we receive data and the feed-back system. One of the key issues is that EDR systems must reduce the response burden. Factors that affect the adoption of the EDR systems by respondents and our experiences so far will also be discussed. A lot of data is already stored in the businesses own data-systems. By defining the data needed in the statistics, there are possibilities to extract statistical data from these systems. Within wage statistics we are now receiving wage information directly from the businesses' pay-roll system. These ideas and similar ideas from our data collecting system from municipalities will also be presented (the Kostra project). Large businesses have a great impact on statistics. For these businesses we think it is necessary to find individual solutions.

Finally, the paper tries to place Statistics Norway within a broader context of governmental policy such as e-government and 24-hour access to public offices.

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[1]    Prepared by Yngve Bergstrøm.

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## 1. INTRODUCTION

1.      In the year 2000, Statistics Norway received public funds for a project called IDUN (Information and Data Exchange with businesses). These funds were intended to cover Statistics Norway's part of the cooperation project with The Tax Authorities and the Brønnøysund Registers. This is the Norwegian official register of legal units. The funds were also intended to cover internal projects on electronic data reporting.

2.      The objective with the project is to:
-   reduce the response burden for businesses;
-   as quickly as possible offer good electronic communication solutions;
-   prepare for two-way communication;  and
-   coordinate with other public authorities.

3.      The main project was organised with a small central project group. The extra recourses were allocated to each involved statistical division. The main idea is to integrate the work with ordinary developing work in each division. We have also received support from other projects concerning:
-   strategic work on security problems;
-   questions concerning Statistics Norway's information strategy; and
-   The KOSTRA project.

## II. SOME BASIC PRINCIPLES IN THE DATA COLLECTION POLICY

4.      The Statistics Act of 1989 gives objective, definitions and scope for Statistics Norway. The Act § 3-2 also gives access to all administrative data-processing systems, which state agencies and nationwide municipal organisations collect and store in such a manner that the information may be retrieved for use in connection with the activities of the agency or the organisation. The purpose is to ensure more efficient public use of data collected for administrative purposes. Statistics Norway may forward proposals concerning how an administrative data processing system shall be designed so that it may be used for statistical purposes; this includes proposals concerning:

-   what information it ought to contain;
-   definitions of units, variables, classifications etc.;
-   system structure;
-   data control;
-   what information shall be transmitted to Statistics Norway and the time for transmission.

5.      It is clear that the emphasis of designing or changing an administrative data processing system has to be on the cost aspect.

6.      Written agreements have been made with all the main state agencies and nationwide municipal organisations concerning these mattes. This means that every time there are planned changes in an administrative data system or there are plans to develop a new administrative data system, Statistics Norway shall be informed of such plans.

7.      The Statistical Act §2-2 also states that when administrative agencies are planning to carry out major statistical investigations, they shall on their own initiative inform Statistics Norway.
In order to coordinate official statistics or lighten the response burden for businesses, Statistics Norway then may forward proposals on how and which information should be collected. Information should, as a principal, only be collected once. This gives Statistics Norway the possibility to use the tax return data from the tax authorities, and we can ask them to collect some basic figures on economic statistics. With this in mind it is understandable that Statistics Norway as a principle always first looks at what data are collected by other state agencies or nationwide municipal organisations before we go out and ask the businesses directly.

8.      Another principle is that data collected by Statistics Norway according to the Statistical Act §2-5 may only be used for the production of official statistics, or for such other use as is approved by the Data Inspectorate and is not detrimental to the security of the realm. Any agency that hands over information to Statistics Norway may stipulate conditions *inter alias* concerning the use of the information and who shall be responsible for the information and have access thereto, concerning the storage and return of borrowed material, the destruction of copies, etc.

## III.      CURRENT WORKING STRATEGIES

9.      Our focus has so far been on the following parts within this subject:

-  joint project with other authorities - SLN[1];
-  development of a Web based data exchange solution;
-  integration of the new data collecting methods with on-going routines within the agency.

### III.1     The SLN -project

10.     A background for the joint project is a governmental program for "A simpler Norway". The Government has said that the public services should be available 24 hours a day. As a part of this programme, the three agencies Statistics Norway, The Tax Authorities and the Brønnøysund Registers started a common project called SLN.   We have developed a system where the respondent can extract data from an existing database within the respondents account system or punch information in to a predefined form that has the same layout as the paper form. There is also format control, signature routines, encryption, sending routines and receiving routines.

11.     The data sources we have used are account data, administrative register data (employment/wages) and production data within the companies.  For the moment we can submit annual tax data with the balance sheet from the internal account data and send e-forms manually filled in at the respondents desktop.

12.     During this year the system has been tested and our experiences are not too good. The system is available on a CD .We have also written an installation guide, established help-desk on both the technical solutions and subject-matter experts. The first and main problem is that installation in the respondents IT-system is too difficult. They experience different problems ranging from elementary understanding of the installation to more complex problem such as own firewalls and security systems. In technically advanced systems like this we must rely on the fact that all parts of the system must work - the problems will occur in all parts of the system. The first lesson we learned is that one must test, test and test again. When the system is installed is it quite simple to use - good functionality. For the time being we think that systems like this should be installed and used by accountant companies etc. which can send information to several respondents, or by large firms that have their own IT-experts. After three years of testing, the system will be one option for businesses to deliver the tax return account electronically in 2002.

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[1] Norwegian acronym meaning" System for electronic tax return account for businesses".

**Figure 1. The SLN-project**
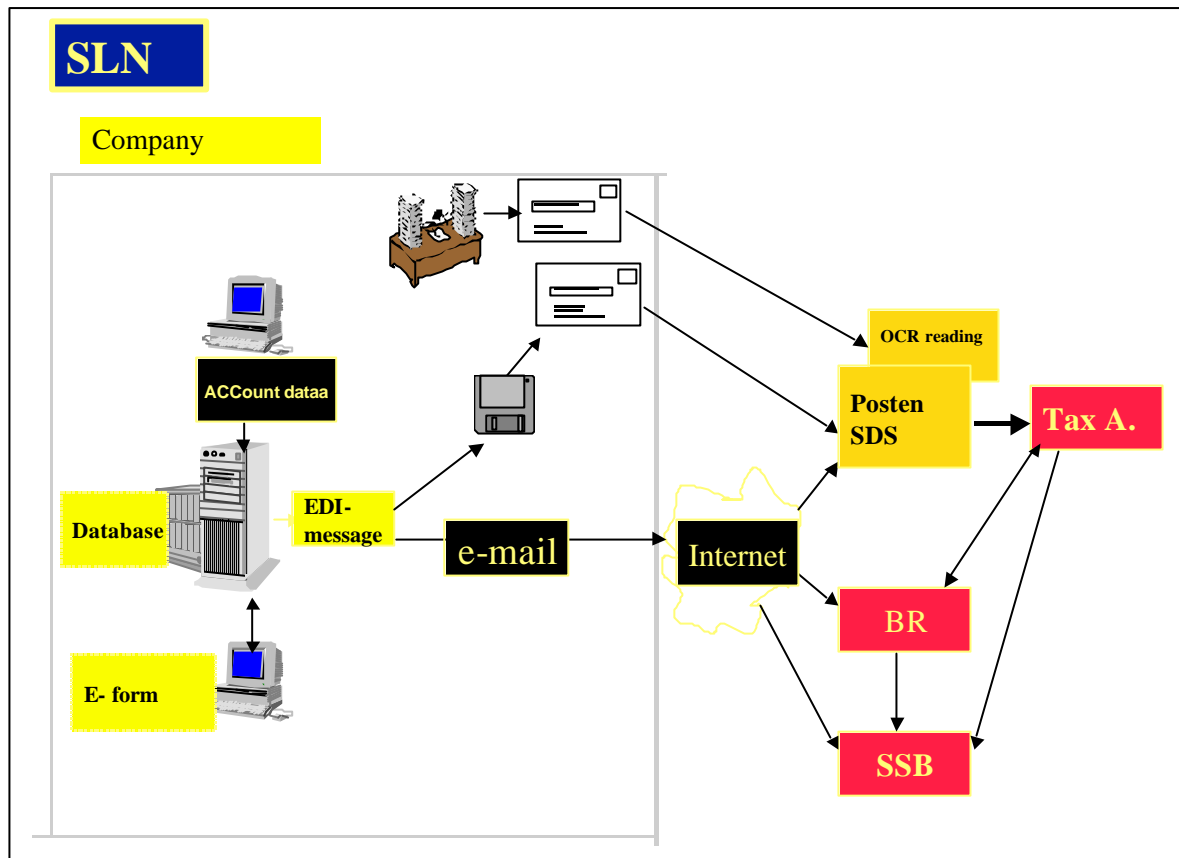


## III.2    A Web based data exchange solution

III.2.1 Basic

13.      One of the objectives is to establish an electronic reporting channel via Internet to Statistics Norway. We started with the assumption that there should not be any need for the respondent to make any investments in extra equipment, software or licences. The respondent shall be a thin client, i.e. only with connection to Internet and a browser. For the time being the system only runs on Internet Explorer, but we will adapt the solution to other browsers. If the respondent has an old version of the browser it is possible to download a newer version from the web site. It should be a general solution and possible to enlarge both the number of users and statistical surveys, so new forms could easily be put into the solution. We have now put two surveys into production, the monthly retail trade index and the quarterly investment statistics.

14.      An important part is that there should be two-way communication between the respondent and Statistics Norway. The response burden is the sum of the costs for the respondent minus the value of what they receive from Statistics Norway. Each respondent receives a report of own reported data and we also plan to develop some analyses where we look at the respondent's data and compare with the figures for the activity group of the respondent. There are also links to relevant statistics.

15.      No respondent data is transferred across Internet while the questionnaire is answered, simply HTML pages containing instructions and questions, and JAVA scripts for editing and navigation. We are now implementing Secure Socket Layer to our server so the information is encrypted on the respondents' workstation and then sent to Statistics Norway or vice versa for control or reports.

III.2.2 User dialogue

16.     The user dialogue can be divided into five different parts:

-       starting page ;
-       respondents homepage/ dialogue page ;
-       profile/Respondent information page - Basic information about the responding unit;
-       the questionnaire;
-       reporting page and a receipt.

*Starting page*

17.     The solution is a relatively simple page with some basic information about the solution, a login function and the possibility to download the newest version of Internet Explorer. We are now planning to develop a Power Point presentation. The respondents will receive in advance a letter with a user ID and password.

18.     The respondent is defined as the local unit. In practice this means that an enterprise that consists of several local units will receive an ID and password for each local unit.

*Home page - dialogue page*

19.     The reason for this page is to give an overview of the dialogue between the respondent and Statistics Norway. It is also important to show which surveys the local unit is a part of. Here you can go to each questionnaire and see the deadline for the survey, if the questionnaire is answered and sent or not, and go to the reports. We are also looking at the possibilities to update basic information in the business register.

*Respondent information page (profile)*

20.     Here the respondent has the possibility to control and update the information usually pre-printed in paper form. The information is also essential for the business register up-dating routines. Everyone has to pass this page before they can enter the questionnaire.
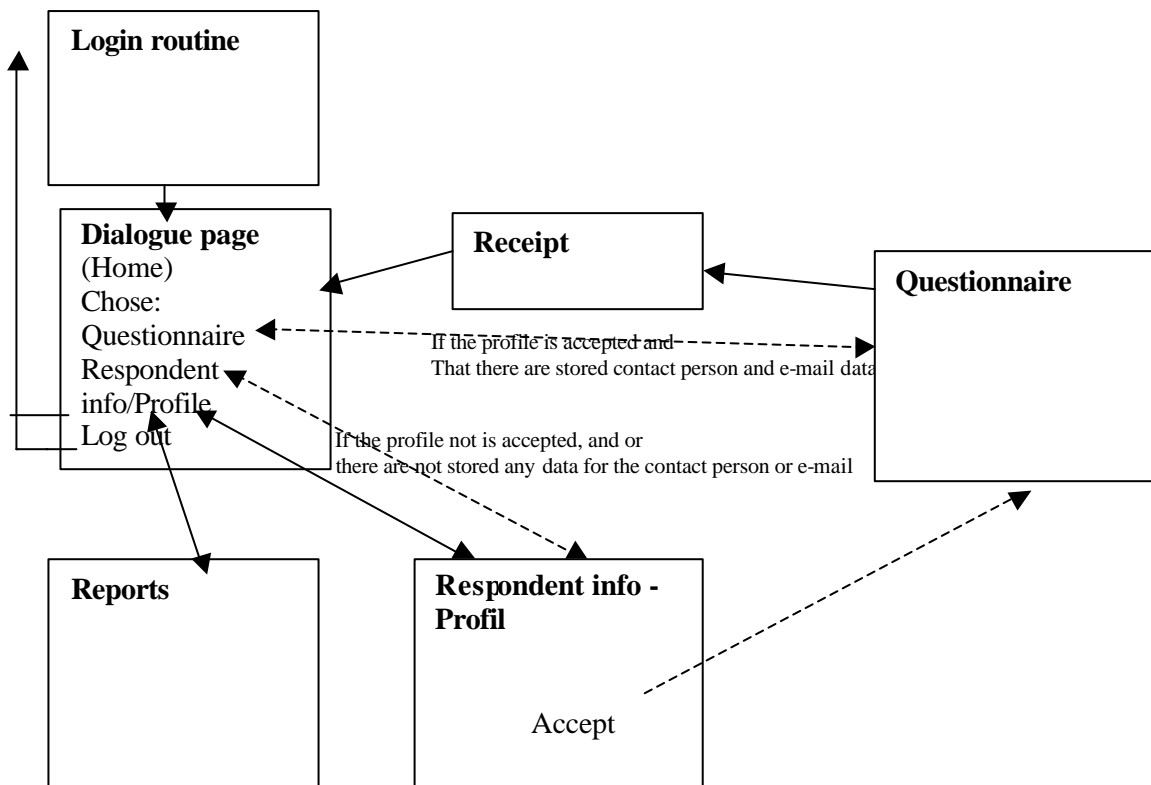
*The questionnaire*

21.     The electronic form is not a copy of the paper version. In the work with the questionnaire, it is said that it should be recognizable compared with the paper version, i.e. we try to use some of the advantages in the electronic world. Some basic controls have been developed with a  comparison between previously stored data and reported data. There are two kinds of errors, absolute error and possible error. The absolute errors must be corrected before it is possible to send the data, while the data could be sent with possible errors since we do not know if this an error or not. The main challenge with an electronic questionnaire compared with a paper version is to recognize the extent of the form. Here there is a need to develop new solutions and to learn from other agencies.

*Reporting page and a receipt*

22.     For the respondent this is a completely new part. First, a receipt is always produced. The respondent is presented with information that shows which data is delivered and received by Statistics Norway. The report gives a short analysis of the delivered data in comparison with earlier delivered data and the whole activity group (see Figure 3).  Each statistical division has to develop the reports according to the requirements within the different industries. The challenge is to implement such a good security system that only the respondent and no one else has access to the data.

**Figure 2.  User dialogue in the web solution**

| Login routine |
| --- |

| Dialogue page (Home) Chose: Questionnaire Respondent info/Profile Log out | | Receipt | | Questionnaire |
| --- | --- | --- | --- | --- |

If the profile is accepted and
That there are stored contact person and e-mail data

If the profile not is accepted, and or
there are not stored any data for the contact person or e-mail

| Reports | | Respondent info - Profil |
| --- | --- | --- |

Accept

III.2.3  Retail trade index. Example of a report

23.      The turnover for the business is in August 2 012 000 NOK. This is 6.1 % higher then last month, and 2.3 % higher than the same month last year. If you compare the turnover for each month and the sum for the last 12 months period you can have an indicator if the real turnover followed the planned activities in the budget.

24.      The turnover for the whole activity group 52.42 Wholesale of clothing is 3.1 % higher than the same month last year. In the same period the turnover for your business changed 2.3%. There has not been the same positive development as for the whole activity group.

**Figure: "Name of the business" turnover during the last 12 months**

| Month | Reported turnover 1000 NOK | Change since last month. Per cent. | Change since the same month last year. Per cent |
|---|---|---|---|
| 1. January 2001 | | | |
| 2. December 2000 | | | |
| 3. November 2000 | | | |
| 4. October 2000 | | | |
| 5. September 2000 | | | |
| 6. August 2000 | | | |
| 7. July 2000 | | | |
| 8. June 2000 | | | |
| 9. Mai 2000 | | | |
| 10. April 2000 | | | |
| 11. Mars 2000 | | | |
| 12. February 2000 | | | |
| 13. January 2000 | | | |
| 14. Total turnover 12 months | | | |
| | | | |
| Industry 52.42 January 2001 | | | |

### III.3 Testing and some results form the use of web-based questionnaires

25.     The strategy that has been followed during the development of the solution was first to develop a prototype, then testing and use the experiences from the testing to change the prototype and test again. The fourth versions are now in use. A lot of resources have been used in the testing phase. We visited the respondent and videotaped the whole testing process.  This provides very good material and understanding among the IT-developers when they try to find better solutions to the problems that were registered during the testing.

26.     One of the first things that we found during testing is that there should be few links or hyperlinks in the first parts of the questionnaire. Therefore all links to other statistics, Statistics Norway's homepage etc. are first found in the receipt. There is a help function linked to each page.

27.     Several test persons also have problems understanding conceptions/IT-words etc. The language has been simplified. When one is using the web-medium, several different languages are in use, i.e. the written word, the layout, the colours used, the logic in the dialogue and how the page is logically built up.

28.     When a paper questionnaire is transferred to a screen, it is not possible to show the whole paper page. We have seen that it is it easier to move down on the screen than to move horizontally. The respondents generally start to read from the upper left corner, so everything one wants the respondent to read first must be written here, and all the text elements must be placed in a logical ordered way: the introduction, questions, help and answering field. When a page is trimmed with a browser menu on top, a web menu on the left side and/or a help menu on the right side, there is little space left for the questions. The lesson learned is that one must always clearly tell the respondent what he/she is expected to do in the next step.

29.     In appendix 1 there is an overview of some of the results, and the comments from the respondents have so far been very positive. On the other hand we must be aware of the fact that the users so far have been people eager to use new media and to experiment with new solutions

30.     Traditionally, the statistical office has measured the response burden by measuring the time used to complete the questionnaire.  The test persons used a longer time to answer the web-questionnaire than to answer a similar paper form, but they all said that they would prefer to use the electronic version. The reasons for this are that, at first, it is exciting to use the web-media. But the test persons also gave other explanations. It is more professional to use the PC, and paper work seems to be more burdensome than PC-work. The response burden is the difference between the costs they have minus what they receive back. All the test persons said that it was positive to have a receipt and know that Statistics Norway had received their answer. Several of the test units used consultant help to find the figures they know are received directly from Statistics Norway. Their advantage was greater than the costs involved in answering the questionnaire. It is essential to develop two-way communication between the statistical bureau and the respondent.  Furthermore, it looks like the response burden not only can be measured by the time used to fill in a questionnaire, but should be changed to an evaluation question. Recent research also shows that the respondent answers a questionnaire differently in different media, i.e. telephone-, mail-, IVR- or web-technique[1].

### III.4     Data collection from retail/wholesale chains

31.     During the last 10 years there has been a strong concentration of retail shops. This has built up several new business organisations. We call them chains. This means that the independent shops are working closely together within the same business concept. They could be linked together juridically in different ways such as franchise operations, joint ventures, partnerships and so on. Statistics Norway contacted some of the main chain offices and, after some discussions, we had an agreement concerning data delivery to the monthly retail trade index statistics.

32.     It is the monthly turnover that is the basis for the statistics. These offices also collect turnover from all the shops that are a part of a chain. Spreadsheets are commonly used in private business, and Statistics Norway developed an Excel spreadsheet. Each chain office links its own data for the shops/local unit's turnover into the spreadsheet and sends it to Statistics Norway by e-mail or diskette. We are now offering an encryption solution, but no chain office has so far used this solution. In total we now receive monthly figures from 67 chain offices, covering over 6000 local shops.  Some years ago Statistics Norway collected figures from a sample. The sample size was then about 3000 shops. For Statistics Norway this approach has both lightened the response burden for the local shops and improved the quality of the statistics.  Other chains hear about the fact that we centralize the data collection in the chain offices, and then want to do the same, and therefore the number of chains covered by the solution is increasing every month.

### III.5     Integration of EDR with on-going routines in Statistics Norway

33.     The integration of these new routines into the statistical subject-matter routines has cost a lot more than we calculated in the beginning.  There are thousands of arguments related to the adoption of EDR - not only among the respondents, but also within Statistics Norway. This is in many ways understandable. Data is now collected many ways, traditional questionnaires, telephone or CATI-solutions, diskettes, e-mail and web. One must not underestimate the work that is needed to organise good data collection routines and to develop new production routines for the different statistics.  The integration of data and management information from EDR with other collecting methods is very important. We have also experienced that one respondent can for one month use the web solution and for the next month send the traditional paper form. Coordination between the different collecting methods is

[1] Prof Don Dillman, Response Rate and Measurement difference in mixed mode surveys, 2001

essential to the subject-matter statisticians and before there is a full integration between the different methods they are sceptical regarding the benefits of the new options.

## III.6    Metadata and The Register of Reporting Obligations of Enterprises

III.6.1 The Register of Reporting Obligations of Enterprises

34.    The act concerning the register of reporting Obligations of Enterprises passed Stortinget - The Norwegian Parliament - in June 1997.

35.    The main task of the Register is to maintain a constantly updated overview of the reporting obligations business and industry have, and to find ways to coordinate and simplify these obligations. The aim is to prevent the unnecessary compilation and registration of information, particularly for small- and medium-sized companies. The Register of the Reporting Obligations of Enterprises maintains an overview of the information the various registers and agencies require from business and industry. The information supplied by each business enterprise is not registered by the Register of the Reporting Obligations of Enterprises, but by the authorities in question, as has been the case up to now.

36.    The Register of the Reporting Obligations of Enterprises compares forms from various public authorities. If two or more public authorities ask the same questions of the same type of company, these authorities shall then collaborate so that the question is asked only once. Under the Act relating to the Reporting Obligations of Enterprises, the public authorities must coordinate their reporting activities. The Register of the Reporting Obligations of Enterprises also maintains an overview of the permits that are required to operate within various businesses and industries, and provides information on how to obtain such permits.

37.    Currently the register is restricted to business and industry's reporting obligations to the central authorities. Gradually reporting obligations required by county and municipal authorities will also be included.

38.    In order to protect privacy, not all information can be exchanged between the various government agencies. Only agencies allowed to request similar information directly from the business enterprise may have access to the data from another agency.

39.    A business enterprise may obtain answers to a number of questions regarding its own reporting obligations from the Register of the Reporting Obligations of Enterprises:

-       Which reporting obligations apply to me?

-       Where can I obtain a particular form and instructions?

-       Which public agencies will be allowed to see the information I submit?

III.6.2   Metadata

40.    In both the SLN- project and the web-project we have started to define the elements in the questionnaire according to the registration in The Register of the Reporting Obligations of Enterprises. This is a public register and the aim in doing this is to:

-   start to develop common definitions of data elements among different public agencies;
-   give an exact definition of the data elements to private software developing companies so these
        definitions can be used in defining extracts of data from existing data systems within the
        respondents account system, production system etc.;
-   distribute these definitions through a public channel.

41.     The register does not, for the moment, fulfil these requirements, but planning and work to develop the register to a common metadata base has started.

## IV.     THE NORWEGIAN KOSTRA PROJECT[1]

42.     The Kostra[2] project was launched in 1994, as a response to a Parliament Report discussing the relationship between the local and central government administrations.  In 1995 a project group led by Statistics Norway was established to carry out the first pilot project within the framework of Kostra. Statistics Norway has since then had the leading role of the project, which is sponsored by the Ministry of Local Government and Regional Development.

43.     The project objectives are:

-       to enhance the quality and consistency of data and statistics on the use of resources in the local government administrations (i.e. the municipalities) in Norway, and to ensure better comparability between information from different local administrations;
-       to collect, compile and disseminate statistical information in this field with less resource consumption in terms of money and manpower.

44.     To achieve this, the following activities are carried out through a comprehensive development project involving all municipalities and several governmental administrations. The work within some of the activities has been redefined due to the experiences gained over the past years.  The listing below is intended as a summary of ongoing and finished activities within the project.

-       To redefine the structure of the accounting system in the municipalities, including classifications and coding, in order to develop a better relationship between the accounts and the services performed by the municipalities.
-       To provide an IT network defining rules and formats for the collection of data, supported by third party software to be installed in the municipalities.
-       To derive accounting data directly from the different accounting systems.
-       To develop and distribute electronic questionnaires to be filled in for collection of data on services.
-       To develop a database to store and administer the data received, acting also as the master file for all data during decentralised data editing within Statistics Norway.
-       To establish methods and procedures for data editing both horizontally and longitudinally, across different sectors or statistical domains and between different subject-matter units.
-       To disseminate key figures once the data are received, and to disseminate final results not longer than five and a half months after the end of the reporting year.

## IV.1    Publishing

45.     All Kostra publishing is done by the website. The data ready for dissemination are loaded into the Central Distribution Server (CDS). Via a web interface data are published directly after some automatic error and consistency controls as key figures (for the moment only in Norwegian).  The consequences of this publishing policy have led to higher quality of the data that Statistics Norway receives from the local administrations.

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[1] Prepared by Rune Gløersen and Tore Eig, Statistics Norway
[2] KOSTRA is a Norwegian acronym meaning "Direct reporting of data from Local to Central Government Administrations"

46.	The web site offers functionality for comparing municipalities, groups of municipalities and average for the county or for the whole country. Via Px-Web (a light web-client of PC-Axis[1]) users can also make their own tables from the collected data (http://www.ssb.no/kostra).

47.	All tables may be downloaded in Excel-format or PC-Axis format for further local processing. PC-Axis can be downloaded from our web site http://www.ssb.no/kommuner/programvare.

**IV.2	The 2001 reporting - Kostra goes XML**

48.	During the project we discovered that any system requiring installation of software at the respondents' end caused problems. Willingness to pay is also rather slow. Furthermore, if the software requires IT personnel to be installed or operated, such expertise cannot always be expected to be present. The EDIFACT solution, which is based on widely accepted standards regarding format and concepts, is not supported by widely known or commonly used software. Much effort has been spent on installation, training and support of the technology. Moreover, since the reporting is done only once a year, quite naturally problems seem to reoccur because of loss of memory.

49.	The maintenance cost of questionnaires is too high. When questionnaires are changed, the content and layout is changed using Form Flow. Then the questionnaires have to be tested, and the flow of questionnaire data through each component of the system must be tested if variables have been added or deleted.

50.	New technology based on XML seems to be able to solve some of the problems we are currently facing. The objectives for our XML initiative are that:

-	installation of third party software should not be necessary or at least be kept to a minimum;
-	installation and use of electronic questionnaires must not require any kind of IT expertise, just the skills of an average user of IT equipment and software;
-	conversion of data is cause for mistakes and should be kept to a minimum;
-	the software needed at respondents' end should be offered free of charge;
-	the cost of software distribution should not be subject to third party license fees for the collector;
-	questionnaires should be generated from a meta database, to ease the process of creation or modification.

51.	The software mentioned in this description are developed under the framework of IQML (Intelligent Questionnaire Mark-Up Language) project. This is a project co-financed from the 5th Framework for Research and Development in the EU. Statistics Norway is one of the participants.

52.	Kostra 2001 reporting will be carried out using both the old EDIFACT solution and the new XML solution. 22 municipalities will perform a complete XML based reporting. In addition all reporting within one area - family care - will be done using XML. The reporting area for family care involves 63 offices for family care, which will report one form for the whole office and one form for each client receiving service from the office. It also involves two forms for each of the 19 counties. We expect more than 10.000 forms to be transferred in total using our XML based reporting this year. 5 municipalities tested this XML reporting last spring for a few forms - all with positive results.

**V.	FUTURE DEVELOPMENT**

53.	Since the IDUN project has started up, Statistics Norway, together with the Tax Authorities and the Brønnøysund Registers, has gained a lot of experiences in the use of EDR. We have seen that the respondents should have one official web destination with a common security system. If not, a single

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[1] PX-Axis is at tool for statistical analysis and tables originally developed by Statistics Sweden. Other products in this family have been developed in cooperation with Statistics Denmark and Statistics Norway.

enterprise must learn to use several different solutions. These agencies have decided to develop a common web-reporting channel - Altinn. The project will begin next year and the object is that the common solution should replace the systems that have been developed within each institution.

54.     One of the challenges will be to cover the different needs of the institutions. One example is that we do not have the same reporting units. A tax unit is not always the same as the statistical unit enterprise or local unit/local kind of activity unit. A tender has just been published and the project is defined to cover these objects:

- Web reporting channel with a common user interface;
- standardised interface against electronic subject-matter systems, i.e. account systems, production systems etc.;
- development of a common data return facility;
- further development of a security solution based on standards with a better possibility to implement different security levels;
- transmission of a solution for reception, storage and delivery of data to and from the involved agencies and to and from the respondents;
- administration of metadata, users and roles/profiles;
- capacity and knowledge to deliver these services.

55.     In the coming period, Statistics Norway will put more focus on data extraction from different electronic systems used by the respondents. Methods have already been developed to extract wage data from wage systems. I think that a main challenge will be to define the different interfaces between the different electronic systems. Metadata and the development of good routines to update metadata will be essential in this work.

56.     Our experience also shows that we have very limited success with an option that requires down-loading of software to the respondent. This means that we have to use thin clients. Another critical factor is to have a good and secure electronic contact with the respondent through e-mail. There is a need for good and up-dated e-mail addresses. This will be a challenge for the business registers. In the Norwegian Business Register we have decided to operate with two e-mail addresses, an official e-mail address to the company/respondent and an e-mail address to the contact person. E-mail addresses change often. A test showed that approximately 10-20% of all e-mail addresses are changed in one or another way during a year. To find changes and update the business register will be important if the EDR option is going to be a success.

57.     The technology is changing rapidly. A good example is the movement that has taken place between EDIFACT and XML specified documents. 5 years ago when the SLN-project started, EDIFACT was the leading standard. Now we are only talking about XML. What will the situation be like in 5 years?

58.     KIS - keep it simple, statisticians are very good at defining questions and different problems that have to be measured, but we must always think of the respondent. The respondent must understand what we mean and see the purpose with the survey. Therefore, it is a need to test, test and test the solutions again and again to be sure that everything is understood. Statistics Norway has, together with the employers' organisation in Norway, worked out some rules for official forms. These rules are also valid for electronic forms/reporting systems:

- the questionnaire must consist of a manageable number of relevant questions;
- the form must be understandable for everyone in the sample;
- the form must require a specified level of details;
- the information asked for must be available to the respondent;
- always show the usefulness of the statistics for the enterprise;
- always show the usefulness of the statistics for the public;
- always coordinate the data collection with other official data;

- use a pleasant and active language and attractive design;
- there must be sensible time-limits;  and
- reasonable notice in the questionnaires.

## Appendix 1

| Question | Yes | No | Comments |
|---|---|---|---|
| **Did you have problems to find the page??** | 0 | 11 | |
| **Was it OK to log in to the system?** | 10 | 1 | Had some problems to log in the first time, afterwards no problem. |
| **Did you use the help-function?** | 1 | 10 | |
| - Were the explanations good? | 1 | | The help text was precise and good. |
| **Did you use the reports to watch earlier reported figures?** | 6 | 5 | Printed out old figures and used them as a control<br>It was very useful to look at the old figures before the new figures were registered. |
| - Would it be interesting with a graphic presentation? | 5 | 1 | Have not thought about it, but it could be useful.<br>We would like to have a graphic presentation. Everything is of interest. It would be very interesting.<br>Everything is interesting when we talk about reported figures.<br>The figures have little use for us. |
| - Other reports that could be of interest? | 1 | 5 | Statistics within our business/activity, and links to other statist within our activity group. I would like to compare the figures wi my own budget. |
| **Could you easily register the information about your business?** | 11 | 0 | Received an error message and understood it. |
| **Was it difficult to find the investment questionnaires?** | 1 | 10 | Had some problems, but found them. |
| **Was it evident how to complete the form?** | 11 | 0 | I am not used to use the arrow key when I am moving in a scre |
| **Did you receive any messages when you sent the answers to Statistics Norway?** | 5 | 6 | |
| - Did you understand the messages? | 4 | 1 | It was a little bit confusing, but I managed to send the figures.<br>Several different send buttons are confusing.<br>Did nor understand the error message. Phoned the support fo<br>I had to control the old figures, found that they were wrong<br>Had a "warning", but it was easy to understand. I was not frightened. Had a message about deviation, and understood directly what to do. |
| **Comments on the receipt?** | 1 | 10 | Very smart! |
| **Would you like to use the solution to answer another questionnaire?** | 11 | 0 | I would be pleased!<br>Yes, it was good!<br>Of course I could, but it does not mean so much for me |