

**DEVELOPMENT OF THE DATAWAREHOUSE
"ACCIDENTS AT WORK"**

PROJECT AG/HH/113

BELGIAN SCIENCE POLICY



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Introduction

With a view to improving information concerning accidents at work and commissioned by the Belgian Science Policy Office (Agora Programme), an 'Accidents at Work' Datawarehouse has been developed within the Fund for Accidents at Work (Fonds des Accidents du Travail- FAT). Good knowledge of problems concerning accidents at work is essential, in particular to the best possible work in this sector, and comes into the framework of the general purpose of the Fund. Thus, good knowledge of how accidents occur and of their causes certainly makes it possible to improve prevention. Good knowledge of accidents at work is also necessary if we want to establish to what extent the application of the law on accidents at work achieves the objectives laid down by the law, in particular: the victim's recovery, return to work and the amount of the compensatory allocation for economic loss. Good information on accidents at work makes it possible to take decisions relating to the necessary adaptation of legislation. The second objective of the project is to provide public institutions, research workers and a large audience with the statistics available to the Fund for Accidents at Work. Statistical tables will be provided via the FAT web site during the first half of 2007.

The project was carried out in two stages. Within the framework of the new communication policy of the Fund for Accidents at Work and in the first stage, we examined how existing statistics could be improved and how they could be presented to quite a large audience. For that purpose, a comparative study was undertaken on good work practice as regards the use of the data concerning accidents at work at European level. In addition, the European data analysis also showed that Belgian data was in agreement with the ESAW norms (European Statistics on Accidents at Work), amongst other things by the use of Eurostat's methodology. In addition to the European comparative study, the research teams also analysed the users' needs and requests. The results of those analyses will be reflected concretely in the provision of a number of statistical tables on the FAT web site (first half of 2007) and in the adaptation of its statistical report (adaptation already carried out in the 2006 report).

The second stage of the project was the setting up of the 'Accidents At Work' Datawarehouse. Starting with data from the various sources of the Fund for Accidents at Work, after analysis, a

series of variables were selected; these were incorporated into the 'Accidents At Work' Datawarehouse. These were described and documented. By combining data from the various sources, new derived variables with added value could be created. These derived variables will help the Fund in the implementation of its missions. The 'Accidents At Work' Datawarehouse could also be supplemented with external data from the 'Labour Market and Social Welfare' Datawarehouse of the Crossroads Bank for Social Security (CBSS). For that purpose, a request was drawn up along those lines. On the basis of this coupling, new statistics could be developed. Moreover, a project of an action plan for the production of statistics (period 2007-2011) was developed in order to mark out the later development of the 'Accidents At Work' Datawarehouse.

1. The new communication policy of the Fund for Accident at Work

1.1. European harmonisation

With the aim of improving knowledge of statistics on accidents at work compiled at European level, a letter was sent to the members of the ESAW network inviting them to contribute to the study. Our study was focused on the "older" fifteen Member States of the EU. They were invited to send to us, inter alias:

- their latest statistical report (s) on accidents at work;
- any information/documentation already available on their databases;
- any analyses, studies, scientific articles, etc. on accidents at work completed in recent years from their databases;
- any information on the way in which the members of the ESAW network make their databases available to the public.

In parallel, information retrieval was undertaken. This research was carried out by consulting the main national web sites relating to accidents at work. The main European authorities' web sites concerning health and safety at work were also consulted: the European Agency for Safety and Health at Work and the European Foundation for the Improvement of Living and Working Conditions.

A systematic analysis of accident declarations and of national statistical reports was carried out. This analysis used the Belgian declaration and the statistical report drawn up by the FAT as work reference. The way in which each country makes statistics on accidents at work available to the public (datawarehouses accessible to the public, easily downloaded statistical reports on their sites, etc.) was also analysed.

In order to identify the original initiatives and practices carried out in other countries, which could be interesting in relation to the work planned for this project (in particular the development of the 'Accidents At Work' datawarehouse), two meetings with international experts were organised:

- a meeting with the person responsible for the EPICEA database (INRS - France);
- a meeting with two experts on accidents at work statistics (ESAW) from Eurostat (Luxembourg).

A workshop was also organized (June 2006) with the aim to have a better knowledge of two interesting european initiatives : on the one hand, the EPICEA database (INRS-France) and on the other hand, the interactive databank ("Banca dati interattiva degli infortuni sul lavoro") from ISPEL-Italy.

Our efforts to improve our knowledge of statistics on accidents at work in other countries were especially centred on Europe ("old fifteen Member States"). However, we consulted the web sites of the institutions producing statistics on accidents at work in Australia, in Canada and also, of course, in EU Member States.

Regarding those countries, we focused on a specific aspect: the basic applications installed on their web sites that respond to the public's requests for statistics.

We examined the European data with the aim of ensuring the harmonisation of Belgian data with the European standard. The Fund for Accidents at Work is responsible for sending Belgian data to Eurostat in accordance with ESAW methodology. On the basis of the latest statistical data sent to that institution, a systematic analysis, variable by variable (on the 23 variables of ESAW methodology), was carried out in order to measure the degree of harmonisation of Belgian data with the European standard. The result of the analysis for the private sector does not

demonstrate individual difficulties; the FAT does not, however, currently communicate the details of accidents at work in the public sector to Eurostat. Work is under way with a view to meeting Eurostat's needs on the matter. Data concerning accidents at work for self-employed workers and for the family workers are not available in Belgium.

1.2. Users requirements and requests

In analysing requirements as regards statistics of accident at work in Belgium, we proceeded in two ways. Initially, we analysed the requests for statistical data received by the FAT. Subsequently, we held discussions with the principal actors in the accidents at work sector.

1.2.1. Analysis of the requests for specific statistical data received by the FAT

We systematically analysed the requests for specific statistical data received by the FAT. We focused on the requests received in the last five years (18/11/1999- 22/05/2005) i.e., 234 requests. The analysis covered mainly each applicant's profile (who required the information : students, employers' associations, ministries, etc.) and the nature of the request.

Was it a request concerning accidents at work in a sector of activity, a province, a specific professional category? Does the request concern where the injuries were situated, the type of the injuries, etc.

Students, firms, ministries, research institutions and employers' associations are among those which submitted the largest number of requests for statistical data. In the case of students, it was mainly persons who wished to receive information on accidents at work as part of work for their final studies to become prevention advisers .

Almost half of requests (47%) covered a sector of specific activity. Those requests covered sometimes a large number of variables or sometimes some specific variables. The requests by sector of activity were followed, far behind, by requests on (we quote only the most important ones) :

- the geographical distribution of accidents at work (by region, by province);
- the distribution of accidents broken down according to a material agent (object, tool, etc., related to the accident);

- the distribution of accidents according to the part of the body affected (where the injury was);
- distribution according to the costs of accidents.

In addition, it seems important to us to point out to two pieces of information. Out of all the requests (all types included):

- 18% covered the various rates : frequency rate, gravity rates and overall gravity rates. The majority of the applicants wished to receive data on these various rates for a sector of activity in particular;
- at least 11% of the requests covered the annual statistical report or one of the sectoral monographs produced by the FAT; applicants wished to receive copies of those reports.

Another observation : there was a considerable number of rather vague requests, which the staff of the FAT had to have specified by exchanging e-mails and/or by telephone. Those requests were vague because of the applicants' ignorance of statistics on accidents at work (variables available, terminology used, etc.). Nevertheless, the requests' vagueness may have been due partly to the lack of clarity in the presentation of the statistical data (definition of the variables, definition of the statistical data sources, definition of certain terms, etc.).

Most of the specific requests sent to the FAT could be reduced by:

- developing the production of statistics on the FAT web site;
- drawing-up a new annual statistical report with a new presentation;
- introducing certain changes on the FAT web site.

1.2.2. Discussions with the main actors interested in accidents at work

We met the principal actors of the accidents at work sector in Belgium: the insurers' prevention services, Prevent, the employers' representatives, the sectoral institutions for the prevention of accidents at work, the representatives of trade-union organisations, the members of the Higher Committee for Prevention and Protection at Work (Conseil Supérieur pour la prevention et la protection du travail), the Federal Public Department for Employment, Labour and Social Co-operation and that for Social Affairs.

In those discussions, a series of needs and requests on data on the accidents at work were referred to us. Some of those needs had already been identified by the analysis of the specific requests sent to the FAT ; we will deal with them systematically.

- General requests:

- classification of data by sector of activity;
- development of statistics for the public sector;
- availability of statistics at greater frequency;
- publication of the different rates earlier in the year;
- improved reflection of the changes which have occurred in industry and society;
- development of statistics on accidents on the way to work;
- development of statistics on accidents at work in traffic;
- use of qualitative data;
- development of statistics on the settlements of accident claims;
- development of statistics on refused claims;
- development of statistics on the costs of accidents;
- preparation of sectoral monographs on an annual basis;
- comparison of the data on accidents at work with bench-mark data;
- correlation of the data on the accidents at work;
- more detailed studies;
- constant improvement of the quality of the data;
- improving general knowledge on beneficiaries' allowances and more concretely their social situations;
- development of data concerning some actuarial aspects (reserves);
- development of data on the payment of pensions and allowances (Social Security);
- improved knowledge and information on the return to work.

- More specific requests:

These requests cover the more systematic use of a variable or the combination of one (or of several specific variables) with others. We mention the requests or the requirements for which there is a certain consensus and which recur:

- use of the "professional activity" variable
- use of the "nationality" variable
- greater use of the "professional category" variable

- greater use of the "material agent" variable
- greater use of the "location of injuries" variable
- greater use of the "size of the firm" variable
- further development of information on the basis of the percentage of incapacity.

1.3. Analysis of the statistical report by the Fund for Accidents At Work

The analysis of the FAT statistical report covered five dimensions.

1.3.1. Contents

An exhaustive examination of the statistical data available in the FAT's various databases was carried out with the aim of measuring the extent to which that data is exploited in the report produced by the FAT.

1.3.2. The requirements for statistical data on accidents at work

At the start of the analysis of the requests for statistical data sent to the FAT and of the information collected, in particular during our discussions with the main actors of the accidents at work sector, we identified a series of needs (requests) for statistical data.

1.3.3. The other national statistical reports

On the basis of a comparison of the FAT's statistical report and those produced in the other Member States, proposals for modifications and improvement were made to increase the use of certain variables and/or to present the statistical data differently.

1.3.4. Visibility

The visibility of the various statistical reports produced by the FAT (statistical report on accidents at work, monographs by sector of activity, statistical report according to gender, etc.) was also analysed. This analysis was carried out on the basis of :

- information collected during our meetings;
- analysis of the specific statistical requests received by the FAT;
- analysis of how data on accidents at work is available to the public in other European countries;
- analysis of the FAT's web site.

1.3.5. Legibility

The legibility of the statistical report of the FAT was analysed on the basis of:

- information collected during our meetings;
- the analysis of the specific requests received by the FAT;
- the analysis of the statistical reports produced by the FAT in terms of the content (tables, comments) and of the presentation.

1.4. The result

The result is a new annual statistical report and the provision of statistics on the FAT web site (during the first six-month period of 2007). The FAT Web site will constitute the main tool/means of communication of this new policy of the FAT's on the communication of the data on accidents at work.

This production of statistics (tables, graphs, etc.) will aim to answer, as much as possible, the most current statistics requests concerning accidents at work. To obtain specific data which is not to be found on the FAT web site, a pre-established application procedure will be developed in order to give the public the opportunity of submitting to the FAT requests for "made-to-measure" data.

The statistical data will be submitted, inter alia, by sector of activity using a form. This form will show a whole series of variables (the victim's sex and age, nationality, professional qualification, the place of the accident, nature and location of the injuries and the material element). In addition, this form will show (for each sector of activity) the number of employees, the number of accidents resulting in temporary disability, the number of accidents resulting in permanent disability, the number of deaths, the frequency rate, the gravity rate, etc.

This presentation by form (independently of the variables exploited) is important because:

- it makes it possible to describe an accident in relation to a sector of activity;
- it allows a company to try to place itself in relation to its sector of activity;
- it allows easy analysis of trends (over several years) of accidents in relation to a sector of activity.

Users will be able to obtain the form for the sector which interests them from the NACE code (2, 3 and 4 positions). This production of statistics will make it possible to meet the first requirement for statistics on accidents at work: the sectorialisation of the data.

In addition, FAT data will also be integrated into the 'Labour Market and Social Protection' Datawarehouse of the Social Security Banque Carrefour. The data will be adapted to the new 'Accidents at Work' Datawarehouse. The 'Labour Market and Social Protection' Datawarehouse is available to a large audience of research workers and of users.

2. The 'Accidents at Work' Datawarehouse

2.1. The various databases of the Fund for Accidents at Work

	ATAO		PIA	EVA-LEA	
Stages	Settlement	Payments	Payments	Settlement	Payments
Declaration of accidents ---- Period temporary disability				Facts of the declaration and settlement by the insurance company	Data payments
Strengthening	Table« Ratification » : elements of the settlement who are suggest to ratification				
Settlement Allowances / annuities	Table « Finan » : elements of the settlement (by ratification, or by sentence) Data Payments				

Databases of the Fund for Accidents at Work :

ATAO, PIA: administrative databases (management, payments)

EVA-LEA: The insurance companies supply this database. The table shows the present statement. The database EVA-LEA will grow in the future and will concern the other stages of the settlement of the accidents at work.

2.1.1. Description of the 'Settlement' data source

The 'Settlement' data source is based on the data and the information which results from the settlement of the "serious" accidents at work which have occurred since 2000. More precisely, it covers the fatal accidents and the accidents involving permanent incapacity for work and/or the wearing of prostheses.

When the state of the victim's injuries stabilises and has stopped developing, the insurer's medical officer draws up a 'consolidation' report. On the basis of that report, the insurer makes the victim a settlement proposal (for the accident at work). That proposal takes the form of an allowance agreement (or a decrease agreement, or a revision agreement...) the form and the contents of which are defined by law. The most important elements of the settlement are: the description of the permanent injuries, the degree of permanent disability, the consolidation date, the basic wage and the need for any prostheses or orthopaedic appliances.

If the parties (victim/dependants and insurer) agree on all the elements of the agreement proposal, they sign it. The agreement, and certain document from the file, have to be sent by the insurer to the FAT. The FAT examines the case to establish whether the provisions of the law on accidents at work have been applied. If it is the case that they have, the FAT ratifies the agreement. The accident is thus "settled" by ratification.

The ratification procedure applies not only to allowance agreements (permanent disability and/or prostheses), but also to agreements on fatal accidents, to revision agreements and to agreements in the event of aggravation after the revision period, for accidents which have occurred after 1988.

If the parties cannot reach agreement, or in the event of a refusal of ratification by the FAT, the parties have to bring the case before the Labour Court. In such cases, the consequences of the accident are settled by judgement or, possibly, a court decision.

The data and the information collected either from the agreements ratified by the FAT, or from the judgements and the decisions pronounced by the Labour Courts and Tribunals, are used by the 'Settlement' database. ¹.

¹ For more information concerning the settlement of claims arising out of accidents at work, see: *Vos droits en matière d'accidents du travail dans le secteur privée (Loi du 10 Avril 1971)*, FAT, Juillet 2005, pp. 11-13 (link)

Van Gossum L., *Les accidents du travail*, 5^e édition, Bruxelles, De Boeck & Larcier, 2000, p. 124 et pp. 158-162.

2.1.2. Description of the 'Payments' data source

The 'Payments' data source is based on the data and the information resulting from compensation for accidents at work.

This data source gives an account of the payment of allowances and pensions on account of accidents (that occurred from the year 2000 onwards) involving permanent disability made by the Fund for Accidents at Work (FAT) and by insurers. It also gives other information linked to accident compensation: starting date of the entitlement, degree of permanent disability, etc.

The principles of compensation are laid down in the Act of 10 April 1971, a public order statute. Its provisions cover both temporary and permanent incapacity, medical, surgical, pharmaceutical, hospital, funeral expenses, transport, transfer and prostheses.

The Fund is a body for the payment of allowances and pensions for accidents involving permanent incapacity of up to 19%. In addition it manages combined allowances and pensions, and retirement and surviving spouse pensions in the framework of measures limiting accumulation. Finally, the Fund acts as an insurer for seamen and guarantee fund for victims whose employers are not insured.

Within the framework of its supervisory role, the FAT also has information on the payments made by insurers to victims (incapacities over 19%, various allowances, etc)².

2.1.3. Description of the 'Insurers' data source

The 'Insurers' data source is based on the data and the information included in the declarations of accidents at work³ and those which arise from the settlement of accidents by insurers. The transmission of that data and information by the insurers to the Fund for Accidents at Work (FAT) forms the 'Insurers' data source. In the 'Accidents At Work' Datawarehouse, data are

² See footnote 1.

³ It is important to note that not all the data included in claims concerning accidents at work are used for statistical purposes.

available for the accidents which have occurred from 2000 onwards.

- Declaration of accidents

An accident declaration must be made in writing using a standard form, the model of which is published by the board of management of the FAT⁴. The employer can send the declaration (paper or electronic format) to his insurer. An employer who has access to the electronic Social Security portal www.socialsecurity.be can choose the electronic declaration. For accidents involving less than a four-day temporary incapacity (not counting the day of the accident), it is possible to make a simplified declaration, an option only possible for on-line declaration.

The accident declaration is organised under eight main headings: employer, victim, accident, injury, care, consequences, prevention and compensation..

For more information on the accident declaration see :

http://socialsecurity.fgov.be/faofat/adg_declarations/fr/frm_declaration.htm

- The settlement of accident claims by the insurers

Today, this data source gives an account of the compensation paid by the insurer's during the temporary incapacity of the victim. The nature of the compensation paid by insurers may vary: compensation for wage loss on the day of the accident; daily allowance for the days not worked, etc. Insurers also cover medical, surgical, pharmaceutical and hospital expenses as well as prostheses and travel expenses. Those data and that information given by insurers to the FAT feed the 'Insurers' data source.

- Transmission of insurers' information to the FAT

Between the FAT and the insurers, there are numerous flows of information concerning the

⁴ Royal Decree (RD) of 28 December 1971 laying down the form of and that time limits for making declarations of accidents at work, as amended by the RD of 4 January 1977, the RD. of 23 February 1981, the RD. of 16 January 1990, the RD of 17 December 1992, the RD of 4 December 1998 and the RD of 22 March 1999.

settlement of accident claims and the policies.

At the end of 1999, the FAT and insurers met in order to solve the automation of the information exchange within the accident-at-work sector, and between that sector and the Social Security network. The transmission of data is effected to and from legal insurers via the FAT (as the institution responsible for the secondary network) and via the Crossroads Bank for social security, and to/from the other Social Security sectors (please see annex).

Since 2002, the architecture underlying the information flows named 'Accidents at Work Electronic Link' (LEA) and which connect the insurers to the FAT has been developed and refined.

The introduction of the new system named LEA involved important changes not only at the level of the information transmission system (in real time), but also at the level of the transmitted information content. The extent of the changes introduced justifies speaking of the "new system" and the "old system". 2005 was, broadly, the switchover point between the two systems.

2.2. Selection of variables

From these various databases, a series of variables was selected and documented. That involved making an inventory of the variables which would form the Datawarehouse, while specifying:

- the variables/data to be kept as important for better knowledge of prevention, compensation and victims' reintegration;
- the variables/data to be discarded such as administrative data and internal management data of no interest to the project and data of no statistical use.

The list of variables and the documentation are available from the FAT.

It will henceforth be possible to create new derived variables and to define new units (for instance : the company, the victim) by combining the various databases,

2.3. Outcome : 'Accidents At Work' Datawarehouse

The outcome of the project is the 'Accidents At Work' Datawarehouse which creates a link between the various FAT databases. Today, therefore, it is possible to generate statistics from the various databases, but it must be noted that the Datawarehouse is still being tested within the FAT. For example:

- A first application shows how accidents which occurred in January 2000 were settled. From the 'Accidents At Work' database, we know that 17000 accidents were accepted. By combining these elements with the 'Settlements' database, we learn that of those 570 were ratified or were the subject of a judgement. The majority (478) were ratified.
- A second possible application with the 'Accidents At Work' Datawarehouse is to make a comparison between the percentage of the initial incapacity for work with that of the final one. In approximately 50% of the cases, the rate of final incapacity for work is lower than the initial provisional.

3. Later development of the 'Accidents At Work' Datawarehouse

3.1. Extension using external data

By supplementing the data of the Fund for Accidents At Work by means of data from the 'Labour Market and Social Security' Datawarehouse of the Social Security Banque Carrefour, we can – by means of an analysis of the socio-economic positions of the victims of accidents at work – consider to what extent the objective of the law on the accidents at work is being achieved.

The policy applied with view to facilitating the resumption of work by victims is easier to evaluate when the data concerning accidents at work are supplemented by data on the socio-economic position in the 'Labour Market and Social Security' Datawarehouse.

To that end, a request to the Social Security Banque Carrefour has been prepared. That request relates to personal data such as the place within the household, nationality and the socio-economic position as well as data concerning the labour market such as the victim's employment status, whether he/she works part-time or not, his/her average daily wages, NACE code, status with respect to the Onem (Employment Office), etc.

3.2. Action plan

In order to make the further development of the 'Accidents At Work' Datawarehouse possible, an action plan was drawn up for the period 2007-2011. That 2007-2011 action plan takes into account the elements that the research teams have been able to ascertain, on the one hand, by comparing the international data available on accidents at work and, on the other, by identifying the needs of the users of statistics on accidents at work.

Under this action plan, we propose the production of various statistics. It is hardly possible to avoid interference between the proposals. Indeed, as regards health at work and, more precisely, accidents at work, everything is in everything else. In addition, the action plan does not set out to

be exhaustive, new statistical needs being likely to develop according to circumstances and events.

Eighteen potential statistics productions, according to topics, are proposed under this action plan:

- Production of statistics 1: Sectorialising the data in order to direct preventive action, public awareness campaigns and to improve knowledge of the accident rate by sector of activity.
- Production of statistics 2: Identifying collectives/types of accidents which show the highest frequency/the greatest gravity in order to direct specific preventive action.
- Production of statistics 3: Establishing comparisons, evaluating temporary trends regarding the occurrence of accidents at work.
- Production of statistics 4: Assessing the scale of the health, professional, economic and social problem caused by accidents at work.
- Production of statistics 5: Developing statistics on the costs of accidents.
- Production of statistics 6: Developing information on compensated victims with the aim of providing more detailed (and specific) knowledge on the workers with an incapacity for work.
- Production of statistics 7: Improving information and knowledge on the return to work by victims.
- Production of statistics 8: Reflecting the changes which have occurred in industry and society.
- Production of statistics 9: Analysing accidents at work taking gender into account in order to direct specific preventive action and public awareness campaigns.
- Production of statistics 10: Statistics on accidents on the way to and from work.
- Production of statistics 11: Statistics on accidents at work in traffic.
- Production of statistics 12: Developing statistics for the public sector .
- Production of statistics 13: Size indicators - Absolute frequency of accidents with incapacity (+ fatal accidents)
- Production of statistics 14: Size indicators - Distribution of accidents with incapacity according to the characteristics of injuries .

- Production of statistics 15: Comparison and trends indicators.
- Production of statistics 16: Improving knowledge of the settlement of claims concerning accidents at work .
- Production of statistics 17: Improving knowledge of accidents reported which were not accepted and undeclared accidents to the insurance company.
- Production of statistics 18: Taking account of accidents at work in the standardisation/design of equipment (machines, mobile machinery, etc.)

Of course, this action plan is highly theoretical in that we have no knowledge of the means (human resources, financial costs, etc.) which could be made available within the FAT/FAO for this statistical work. In addition, for each statistics production, its significance and on what it can really bring as added value to the FAT/FAOs functions will have to be considered.

Annex

