Rolling Review

Air Transport Statistics

Final Report

11 September 2009

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Chapter 1 - Executive Summary

1.   Introduction

In 2007 Eurostat set up a Quality Assurance Framework related to streamlining the existing quality activities in Eurostat and to position them in the wider framework of the European Statistics Code of Practice and Total Quality Management. Within this framework several initiatives have been developed to document and measure quality but also to assess the quality of statistical production processes and outputs. Rolling Reviews are one of the tools to carry out a more complex assessment in a wider sense involving not only the assessment of the statistical data produced but also the process to produce them, the working structures, i.e. the interactions with data providers and with users of the data, and the data quality. The aim of such an assessment through rolling reviews is the definition of improvement actions for a better performance of the European Statistical System in a specific statistical domain.

A rolling review is therefore a formative evaluation that assesses how the process of collecting, processing and disseminating statistical data in a specific statistical area can be made more efficient (cost/benefit) and effective. It presents the layer of evaluation in the overall Quality Assurance Framework and, as such, also corresponds to the requirements of the Commissions' Internal Control Standards to undertake evaluations of major activities on a regular basis.

The methodology of the currently implemented Rolling Reviews implies a thorough review of partners' satisfaction, users' satisfaction, the internal organization of the production unit, and resources used by Eurostat and Member States in order to identify strengths and weaknesses in Eurostat's performance. The results of these assessments are hence used to formulate recommendations for improvements and identify ways for implementing these improvements. In this review, no information was collected about partners' satisfaction because of the timing of a separate approach to them in a different context.

The review was implemented during June to December 2008 and conducted in two parts: a user satisfaction survey and the completion of a checklist by the professional staff within Eurostat assessing all major steps within the data production cycle. The review was also given some access to the relevant results of a consultation with partner countries, which took place at the same time but in a different context.

What emerged from the review is the normal tension between the needs of users of the data and those who collect and supply the data. Users want more statistics and more detailed statistics while partners, those collecting it, are concerned to reduce their burdens and the burdens of those supplying the original data. Future developments have to be a compromise between these two world views.

2. Air transport statistics

This rolling review deals with the collection and dissemination of European air transport statistics. Data is collected about the movements of passengers, freight and transport aircraft to and from European airports. The statistics cover the numbers of passengers, the tonnage of freight and the number of flights arriving at and departing from European airports. Some of the data are broken down by type of aircraft and estimates of aircraft passenger capacity are collected. Data are transmitted to Eurostat by the partners in the Member States of the European Union as well as the Candidate Countries, Norway, Iceland and Switzerland. The air transport statistics use data collected at airport level, based on the terms of the Commission Regulation (EC) No 1358/2003 on statistical returns in respect of the carriage of passengers, freight and mail by air, published in the Official Journal of the European Communities on the 31/07/2003, of the Regulation (EC) No 437/2003 of the European Parliament and of the Council of 27 February 2003 on statistical returns in respect of the carriage of passengers, freight and mail by air, as well as the new Commission Regulation No 546/2005 of 8 April 2005 adapting Regulation (EC) No 437/2003 of the European Parliament and of the Council as regards the allocation of reporting-country codes and amending Commission Regulation (EC) No 1358/2003 as regards the updating of the list of Community airports.

Eurostat maintains a list of European airports and their annual movements of passengers and freight. Returns of monthly data are required for large airports, defined as having traffic exceeding 150 thousand passenger units per year. For airports with traffic between 15 thousand and 150 thousand passenger units per year, only aggregate annual airport data are required. Airports with less than 15 thousand passenger units per year have no obligation to report though some partners send details for such airports which are included in the published totals. The list is updated once a year.

No data is collected about the movements of general aviation aircraft engaged in air taxi work, crop spraying, sightseeing trips, instructional flying, private flying, business flying etc.

3. Summary of results

3.1 Users' views

The survey of users of European air transport statistics had an encouraging response, with a broad spread of users in terms of their affiliation, interests, uses of the data and their frequency of access. It revealed general satisfaction with the qualities of the data provided by Eurostat. Users highlighted accuracy as a particular strength. Other qualities in the data much appreciated by users were its accessibility, clarity, comparability and coherence. All of these scored highly with users. All this suggests that European air transport data is a valuable resource to a wide range of customers. Inevitably, there were areas which were less well perceived by users, especially the timeliness of the data. A second issue was the lack of information on major partner countries (e.g. the US and Japan) in Eurostat's output database New Cronos. Users pointed out the global nature of the air transport industry and their need to have simple access to the global picture.

Users also expressed support for extension of the data collection to include General Aviation and to provide airline level detail. They would like to see data collected on airline fares and costs as well as airport charges and costs. Financial figures for airlines and airports would also be welcomed. Moreover, users would like any remaining gaps in the collection by partners to be filled as soon as possible. There was also some dissatisfaction about the coherence of the data at the airport to airport

level. In contrast, users were very appreciative of the quality of service they received from Eurostat in its response to queries.

3.2   Checklist results

The checklist prepared by Eurostat staff indicated that the statistical collection process was now well established. This is reflected in the high quality documentation which is kept up to date. The validation processes in partners and in Eurostat work well and are under continuous review as new problems emerge. Contributing to this overall picture is the firm legal base and the active engagement of partners in ensuring the quality in the collection process. Even so, there were a number of areas where improvements could be made. One efficiency improvement already in train is the development of the Transport Information System (TRIS) IT system, where a major objective is to delegate the data validation task to partners in order to reduce the workload at Eurostat. However, there were difficulties in extracting and transferring data from the production database to New Cronos. The lack of any real contact with non-institutional users was evident and their perception of the statistics would benefit if this deficiency could be repaired.

The staff directly involved with air transport statistics had no knowledge of the Eurostat process improvement methodology.

At present, the release of data onto New Cronos is announced in advance on the "Data releases" page of the Eurostat web site. In contrast, published material such as SIFs have no firm, pre-announced timetable. It would be helpful to remedy this situation and bring air transport statistics more into line with the Eurostat recommended practice.

The confidentiality of some countries' data has made access by important users to some information, particularly airline data, very difficult. While this is the result of the drafting of the Regulation under which the data is collected, the time has come to re-examine this question in the Air Transport Statistics Working Group, either on a co-operative basis or by a change in the legal act.

Clearly expressed user needs for data on General Aviation, true origins/destinations and airline data need to be discussed with partners at the next Working Group meeting. However, Eurostat had no regular contact with non-institutional users.

3.3   Partners' views among the relevant National Statistical Authorities in the Member States and EFTA countries

The partner survey among the relevant National Statistical Authorities in the Member States and EFTA countries was conducted as part of a separate exercise initiated by Eurostat, looking at the evolution of air transport statistics. 31 out of 32 partners approached in the survey responded, giving an authority to the results. Partners were asked questions under three categories: additional variables suggested by users, safety related data and other issues, all three related to the modification of the Regulation.

Of the additional variables suggested, only one received majority support from partners. This was the provision of country codes for airlines in one form or another. 23 partners had the data available, 7 more said the change was acceptable while one partner felt that the change would not be acceptable. This seems a clear indication that progress can be made on this front, given user interest

in this area. On the other issues raised, there were strong majorities against adding any further burdens on identifying true origins and destination and airline fares. For aircraft km, passenger km and tonne km in national airspace, the response was more balanced. While 16 partners felt that such a change would not be acceptable, 15 thought that it was or could be made so. Other means of accessing such data need to be explored before turning to collection under the Regulation for these statistics.

The safety related issues again saw 15 and 16 partners feeling that changes to collect information about general aviation and aerial work flights through the Regulation would not be acceptable while the other partners were divided between those with the data already available and those who thought it could be made available relatively easily. What this suggests is that more discussion of what is required within the Task Force is needed before such issues can be taken further. The last question in this area asked for data on hours flown, number of flights and number of aircraft on the national civil register. In this case, 21 partners were opposed, making effective collection unlikely.

On other issues, there was little enthusiasm for altering the thresholds for the reporting of data by airports, suggesting that no action is needed. There was strong support for shortening the deadlines for response by partners from 6 months to 5 months. 22 thought that this might be possible against 9 opposed to such a change. This gives the green light to take steps to shorten the deadline, helping to meet a key user request. Finally, 20 partners agreed that it would be helpful to set up a Task Force against 11 opposed. Given the number of major issues which need to be discussed in advance of any proposals being put to the Air Transport Statistics Working Group, the setting up of a Task Force is strongly recommended here. Outside the review process, it is understood that the establishment of a Task Force has already been agreed.

4.   Conclusions and Recommendations for improvement

The report deals in great detail with the rolling review process as it was applied to air transport statistics, the response of users to the statistics which emerge, the opinions of the staff directly involved in operating the collection/dissemination system and the views of the partners supplying the data. It is valuable to step back from this consideration of the detail to assess the system as a whole. The overall impression given is of a stable, well established collection system, which produces statistics of high quality for its main customers and satisfies many of the requirements of its other customers. It manages this without overburdening its partners or the organisations involved in supplying them with the basic data. This is not to say that everything is perfect but to emphasise the merits of the existing collection and to acknowledge the excellent performance of all those involved in the production of the finally disseminated data.

However, improvements are possible. The most striking deficiency that emerged was the lack of any continuing contact with non-institutional users. Indeed, the response to the user survey is the first time that the air transport statistics team had real feedback on their performance from this group, although the response received was not unexpected. This problem is not limited to air transport. The same difficulty emerged in the rail transport statistics rolling review and may also apply in the other transport modes. The outcome of the rail rolling review was a proposal to test the forum facilities in CIRCA to see if some ongoing contact with non-institutional users could be organised. This would act as a pilot study for the other transport modes and no further action for aviation statistics is recommended here until the outcome of the pilot is known.

It was going to be one recommendation here that a Task Force for air transport statistics should be created to consider in more detail how the system should develop. However, it is understood that

such a decision was made while the review was in process and the recommendations here deal with the subjects for the Task Force to tackle. One major subject is improving the timeliness of the dissemination of the data. With this rated as the most important weakness of the current system by users and with a strong majority of partners willing to accept a shortening of the timetable for data delivery, there is a real chance that progress could be made (Recommendation A1). This would either be via a change to the legal act or, in the interim, by a voluntary effort (Gentlemen's Agreement) to reduce the delays in data delivery. The Task Force should take up this subject as a matter of the highest priority. A second set of issues is the user requests for either more detailed data or for an extension of the collection to other subjects (Recommendations B1, B2, and B6). These cover airline information, General Aviation and origins and destinations. Airline data is the one topic where some progress could be hoped for as the majority of partners seem willing to countenance improvements in this area. The others raise larger problems of how the collection would be organised, with strongly differing views among partners. Discussion in the Task Force will be helpful in establishing whether some progress is possible by exploring the systems used by those partners where some data is available. On one issue, origins and destinations, initial thoughts were that this would best be studied in the wider context of collection across all modes. While this is still appropriate for the surface modes, it was realised that, for air transport, some partners were collecting some data of this sort and these systems should be discussed to see whether useful data on a pan European basis could gathered. However, the expert conducting the review had in mind a wider interpretation of origins and destinations, including travel by surface modes to and from airports. Eurostat are currently more concerned with "true" origins destinations, i.e. the airport of the start of a passenger's journey and the airport where the journey ends. The priority given to the needs of institutional users for such data means, that this will supersede any work on the broader origins/destinations topic considered here.

There are other subjects, collection of airline fares and airline/airport financial results, where extensions of the collection have been proposed (B3 and B5). At this stage, discussion in the Task Force is unlikely to be helpful and E6 should investigate whether useful data could be gathered by other units. Until the outcome of these internal discussions becomes known, there is little point in involving the Task Force.

One area where action seems desirable is the elimination of gaps in partner reporting (D4). This emerged in the user survey and Eurostat needs to address such deficiencies. Furthermore, Eurostat should improve the coherence of the data by continuing the enhancement of data checking to detect differences in reporting between partners at a detailed route level (C1).

Dissemination is another major topic (A2, A3, A4 and A5). One problem for users was the limitation of the data in New Cronos to Europe only (A2). In a global industry, any serious study needs access not just to Europe but to the figures for major partners, US, Japan, Middle East etc as well as near neighbours. The ideal for them would be for New Cronos to be expanded to include this other data. This may be too ambitious for Eurostat to achieve but some progress on this front would be welcomed by users. As for New Cronos itself, there was concern that access to the statistics and the metadata about their quality could be improved (A3 and A4). While the review was in progress, some changes have been and some others will soon be made to the user interface with the aim of achieving improvements for both these issues. An assessment of their effectiveness needs to be carried out. One final area is to establish a timetable for the paper (pdf) publications to bring air transport more into line with Eurostat norms (A5).

The development of the IT systems for air transport statistics is of course a key issue for improving the efficiency with which the processing of the data is undertaken. TRIS, the Transport Information

System, is the main plank of the effort to provide a coherent IT architecture for air transport and the other modes. It needs to be provided with the resources necessary to allow a speedy implementation (D1). For air transport, problems have been experienced with the transfer of data from the production database to New Cronos. The solution to this needs to be given a higher priority since it holds back the early dissemination of the data (D2).

Other matters included the use of Eurostat staff resources. Although not part of the checklist itself, there was a considerable discussion at one of the project meetings about the project management burden imposed by the contracts governing the outsourcing of the data processing for air transport statistics (E1). If some way could be found to reduce the burden, it would release significant resources for activities with a higher value added such as additional statistical analysis of the data. It is understood that E6 is already exploring ways to simplify the administration of the contracts, and is well aware that significant resources could be released for activities with a higher value added such as additional statistical analysis of the data. These actions are commended and they should be pursued vigorously. Over and above such work, there would be significant benefits to the analysis and understanding of the trends in the air transport sector if more resources for such work were made available (E3). While the collection of transport data does vary between the modes of transport, there will be commonalities. There may be some benefit in a systematic benchmarking between modes. It is recommended here that E6 examines the scope for doing this (E4). The Eurostat process improvement methodology had made no impact on the air transport statistics team. What is recommended here is that some assessment is made of the prospects for some implementation of the methodology to help decide on its future (E2).

To conclude: the air transport statistics system is stable and efficiently operated. It gathers statistics of recognised good quality, without overburdening partners and their data suppliers. While improvement is always possible, the need for a balance between user needs and partner capabilities must always be kept in mind.

Towards the end of the review, the inclusion of the "Priority" column in the list of improvements actions was requested. As a consequence of the lateness of this request, there is no discussion of the priority column in the body of the report. Comment on it is included in the paragraphs that follow to explain the thinking behind the rankings given.

For air transport statistics, the key issues to emerge were the development of the IT systems, both in the general implementation of TRIS and in the more specific resolution of the problems experienced in the transfer of data from Eurostat's production database to New Cronos. Amending the Regulation to reduce the reporting delay allowed to partners was another high priority issue. Achieving a better identification of airlines is a final key issue, responding as it does to well found user needs and where there is broad support amongst users.

At a slightly lower level of priority are questions about the accessibility of New Cronos and the visibility of the metadata in it. At the same level are the proposals to include a very limited number of non institutional users in the Task Force and a continuation of the effort to improve the route level detail. None of the other recommendations have as high a priority as these.

ID	Direction of improvement/ Recommendation	Priority	Source	Owner	Timing
A) Improving the dissemination of European air transport statistics					
A1	Improvement in timeliness of dissemination: the Task Force should develop a proposal for a change to the Regulation reducing the reporting delay. This should be presented to the Working Group. It should also examine the scope for implementation on a voluntary basis in the interim before the legal act can be changed.	1	USS CL PS	E6	Under way
A2	Easier user access to global data: E6 should consider how to respond to this user demand.	4	USS CL	E6	Medium term
A3	More prominence for the metadata in New Cronos: B6 and D4 should analyse whether the forthcoming redesign of the Eurostat web site will achieve sufficient improvement.	2	USS CL	B6/D4	Short-term
A4	Improve accessibility to New Cronos: D4 should assess whether the forthcoming improvements to the New Cronos interface have resolved this problem.	2	USS	D4	Short-term
A5	Clear timetables for the release of paper publications to be established. For each publication, the month of release should initially be established and announced well in advance. Closer to the time, a firm date should then be decided and announced.	4	CL	E6	Short-term
B) Improving data collection					
B1	Improve the collection of airline information: E6 should develop a proposal for better information about airlines in the collection for discussion in the Working Group.	1	USS PS	E6	Under way
B2	Extend data collection to General Aviation for air safety: discuss air safety needs for General Aviation data in the Task Force.	3	USS PS	E6	Under way
B3	Extending collection to cover airline fares: E6 should explore whether information on air fares could be incorporated in Eurostat's wider collection of price statistics.	4	USS PS	E6	Done (not feasible for the time being)

ID	Direction of improvement/ Recommendation	Priority	Source	Owner	Timing
B4	Improving collection of passenger and freight origins/destinations: the existing collection of such data in partners should be discussed in the Task Force to see if a pan European system, which meets user needs without overburdening partners, could be developed.	2	USS PS	E6	Long-term superseded by work on "True" origins/ destinations
B5	Extending collection to cover airline costs, airport/airline financial performance: E6 should explore with other units in Eurostat whether such collection is feasible in other contexts.	4	USS	E6	Long- term
B6	Elimination of gaps in partners' air transport data: in cooperation with partners, develop a road map to achieve this.	1	USS CL	E6	Medium-term
C) Improving data quality					
C1	Improving quality of route level detail: E6 to continue the enhancement of data checking to detect differences in reporting between partners at a detailed route level.	2	USS CL	E6	Medium-term
D) Improvement to IT systems					
D1	Improved IT processing of the air transport data. The planned implementation of TRIS is important and should be pursued vigorously.	1	CL	E6	Under way
D2	Improved IT processing of the air transport data. In addition to TRIS, a key issue for air transport is the arrangements for the extraction and transfer of data from the production database to New Cronos. A higher priority should be given to this specific area.	1	CL	E6	Under way
E) Other matters					
E1	Better use of Eurostat staff resources: the outsourcing of data processing imposes a project management burden on Eurostat staff. E6 should continue their approaches to the appropriate central team to establish a contract structure to allow the release of Eurostat senior staff time for more productive work.	4	CL	E6/ESTAT	Long- term

ID	Direction of improvement/ Recommendation	Priority	Source	Owner	Timing
E2	Assessment of the value of the Eurostat process improvement methodology. B1 need to assess the current situation with this methodology and decide on its future.	5	CL	B1	Long- term
E3	Better data analysis and the comparisons with other countries: provide more internal staff resource to enable this	3	CL	E6	Long- term
E4	Wider adoption of best practice within E6: E6 should examine what scope there is for benchmarking between modes to ensure the adoption of best practice in the collection and processing of European transport statistics.	5	CL	E6	Short- term Under way

Priority: 1 is highest priority, 5 lowest

Source: CL (checklist); USS (Users' survey); PS (Partners' survey)

Owner: unit E6 Transport Statistics, unit B1 Quality; Classifications, unit D4 Dissemination, etc.

Timing: short-term (within the next 6 months), mid-term (within the next 2 years), long-term (needs more than 2 years for implementation

Chapter 2 - Scope of the evaluation and approach followed in the Rolling Review

Rolling Reviews are systematic reviews of Eurostat's statistical work looked involving the main users and partners in other services of the Commission and the Member States. Their foundation is questionnaire based covering items such as:

- Are the requirements of Eurostat's statistical programme met?
- Do the users get adequate and satisfactory information and service
- What are the resources used in Eurostat and the Member States?
- Could the work be done more efficiently?
- Are the resources used for the correct priorities?

Rolling Reviews are conducted for the most important statistical areas on a regular basis. In 2000, following the formation of an evaluation function, Eurostat began a broad programme of internal evaluation of all its data-producing activities based on Rolling Reviews. They are formative evaluations (i.e. an evaluation concerned with examining ways of improving and enhancing the implementation and management of interventions). Their main purpose is the improvement of Eurostat's performance.

Each Rolling Review implies a thorough review of: users' satisfaction, partners' satisfaction, the process and outputs of the statistical area, resources for Eurostat and for Member States. The focus of the Rolling Reviews exercise is on finding possible ways to improve the functioning of each statistical area. Through satisfaction surveys of and possible some interviews with partners and users, weaknesses are identified and means of improvement identified. However, in this case, no review of partners' satisfaction was undertaken.

Rolling Reviews are a form of in-house evaluation that helps to integrate fully recommendations coming from evaluation into the decision-making process, in line with binding Commission evaluation standards. Rolling Reviews are a core element of Eurostat's evaluation approach.

At the level of an individual statistical domain, each review consists of a number of parts, not all of which will be used in each case. These parts are:

- A survey of users of the published data in the specific domain asking about its qualities,

- A survey of collection partners about the qualities of the data and the resources used for providing it and

- The completion of a checklist by the professional staff within Eurostat to establish internal views on quality and efficiency and explore the mechanics of the data production process.

In 2008, European air transport statistics was selected to be the subject of one of these rolling reviews, alongside a parallel review of rail transport statistics. Eurostat collects data on air transport under Regulation (EC) no 437/2003 of the European Parliament and of the Council of 27 February 2003 on statistical returns in respect of the carriage of passengers, freight and mail by air, to and from European airports. In summary, this covers the collection of annual and monthly statistics for goods transported in tonnes. Statistics are also collected for passengers transported by numbers both by flight stage and on flight origin/destinations. Data is also gathered about transport aircraft movements by type and capacity. While the data required is clearly defined in the legal acts and

supporting documents, the detailed arrangements for its collection are left to partner countries to decide. A variety of processes is used by partners to provide the data for supply to Eurostat.

For the rolling review for European air transport, only two of the elements of the review process outlined above were employed. A questionnaire to be addressed to users of air data accessing the Eurostat web-site was designed and made available to users for completion during July – September 2008. At the same time, the checklist for air transport statistics was completed by the statistician in charge of the air dataset, Mr Luis De La Fuente Layos in June / July 2008. While a partner survey was conducted, this was included in a separate Eurostat initiative in relation to a questionnaire addressed to the members of the Air Transport Statistics Working Group at the end of 2008. The rolling review project made some input to its design and some access has been allowed to the responses to questions directly relevant to the rolling review. However, partners were not asked their views on the quality of Eurostat statistics in this domain.

This report describes the outcome of these various exercises. From the evidence produced, it makes recommendations about the future organisation of air transport statistics. As always in such exercises, there is a creative tension between users needs for more statistics and more detailed statistics against the concerns of partners about the burdens imposed on them and their data suppliers.

Chapter 3 -   User survey

Within the context of the rolling review, the role of the user survey is to provide an external view of the perceived quality of Eurostat statistics and its services. The user survey tool for this rolling review consisted of three parts
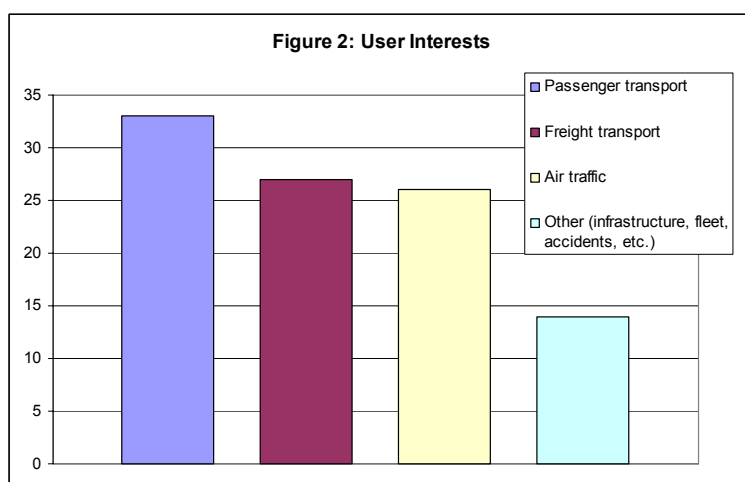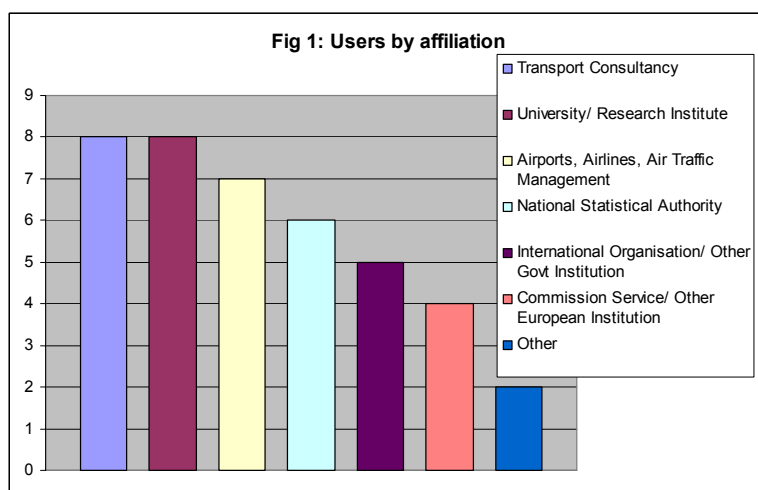
1. Information about the user,

2. User assessment of Eurostat data and service quality and

3. User needs not met by the Eurostat statistics, the response to some proposed developments/extensions and other matters.

The survey form, which formed the basis of the on line survey, is attached at Annex 3.4. The survey was undertaken in July to September 2008. A summary analysis of the response to the user survey is shown in Annex 2.4.

1.   Analysis of respondents

The value and importance of the survey crucially depends on the make up of the users who respond to the survey, their interests, how important the data is to them and their frequency of access. For the air transport statistics survey, 40 users responded. *Figure 1* shows their affiliation. 8 were consultants, 8 were from universities or research institutions, 7 were involved in the industry as airlines, airports or air traffic management. There were 6 National Statistical Authorities and 5 from international or other government institutions, 4 from the Commission

Fig 1: Users by affiliation

Services or other European institutions and 2 other. This represents a well balanced spread of users, representing a wide range of interests.

Figure 2 shows the interests reported by users. As multiple answers were allowed, the total recorded exceeds the number of respondents. Passenger transport was the most popular interest with 33 reports. Freight transport and air traffic came next with 27 and 26 respectively. Other uses, including infrastructure, fleet and accidents had 14 expressions of interests. Also mentioned were fares, competition, inter-modality, environmental impacts, transit, luggage and General Aviation. The survey

Figure 2: User Interests

respondents' interests therefore covered the main range of data collected in European air transport statistics.

Figure 3: Importance of statistics for users' work

- Essential for my work
- Important for my work
- Of value as background information
- Of value as supportive/supplementary information
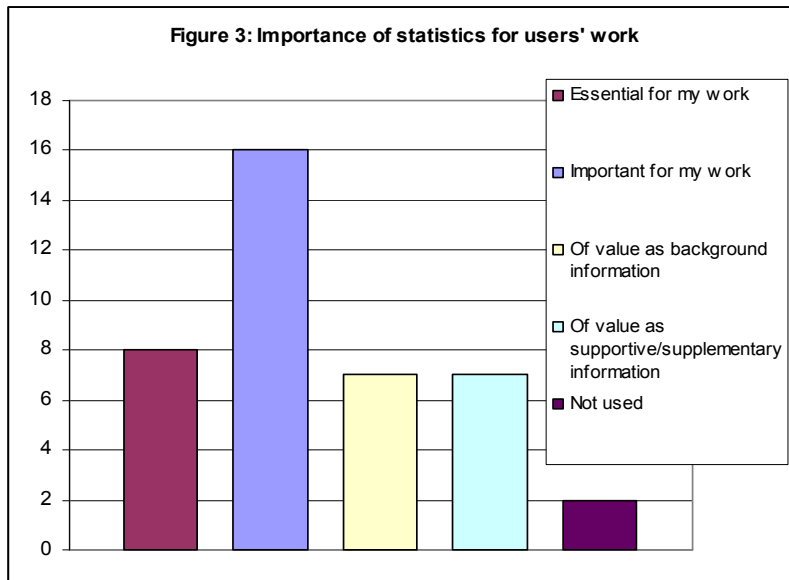- Not used

Figure 3 shows how important the statistics were for respondents. 24 out of the 40 respondents said that the statistics were either "Essential" or "Important". The data was as value as background for 7 respondents and the same number reported that it was of value as supportive/supplementary information. 2 respondents made no use of the data. Clearly, the majority of the respondents are serious users of the data with a real concern about its quality.

Another aspect of the survey which is equally interesting is the uses to which the statistics are put. This is illustrated in *Figure 4*. One major area of use is forecasting/modelling, with 29 mentions in the survey. A second area is market and other research, mentioned 28 times while trend analysis received 25 mentions. Comparison with other data sources is also an important area with 22 mentions, followed by policy purposes including negotiations and preparing legislation. Among the other uses were project purposes (8 mentions) and media use and other (5

Figure 4: Use of data

- Forecasting/ Modelling
- Market and other research
- Trend analysis
- Comparison with other sources
- Policy, legislation, negotiation
- Project purposes
- Media use and other

mentions). The message for the review is that users are relying on the data for undertaking significant tasks, either official or industrial, and this involves a great deal of trust about the data quality.
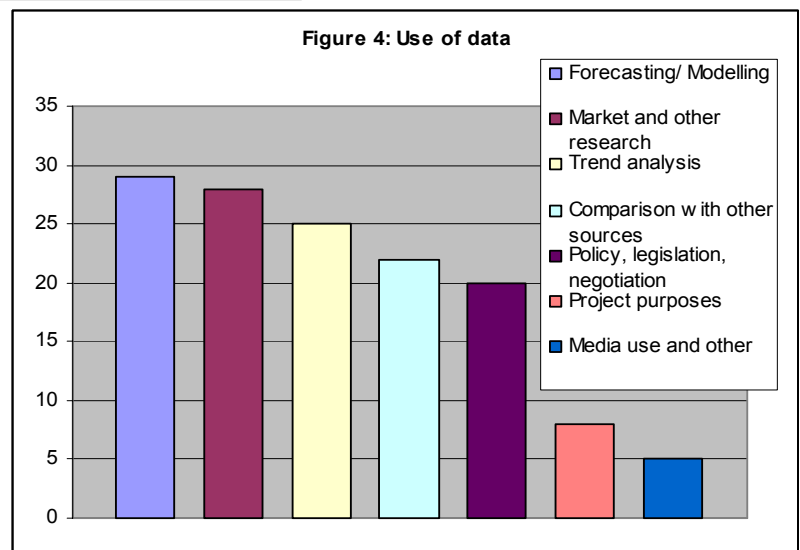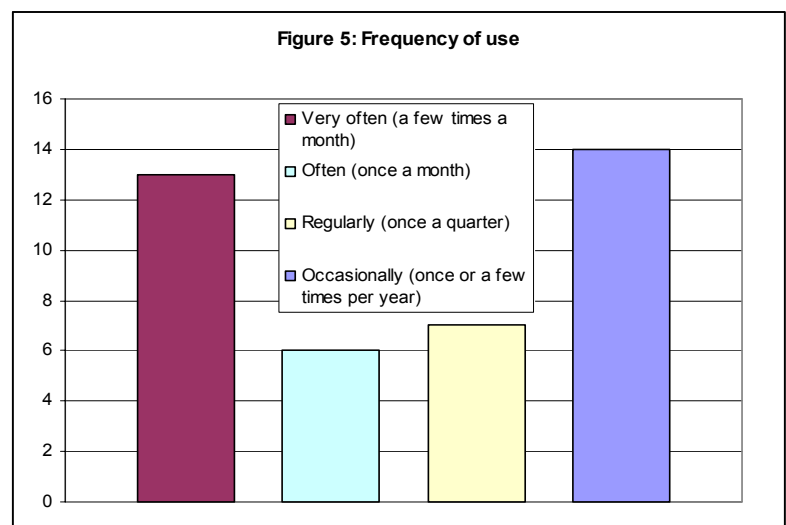
Figure 5 illustrates how frequently users accessed the data. As the figure shows, users were largely split between a large group (13) who accessed the data a number of times a month and a second large group (14) who accessed it occasionally. In between a group of 13 accessed the data monthly or quarterly. All this is yet another clear indication of user interest in the data.

The importance of this analysis is that it shows that the respondents to the

Figure 5: Frequency of use

- Very often (a few times a month)
- Often (once a month)
- Regularly (once a quarter)
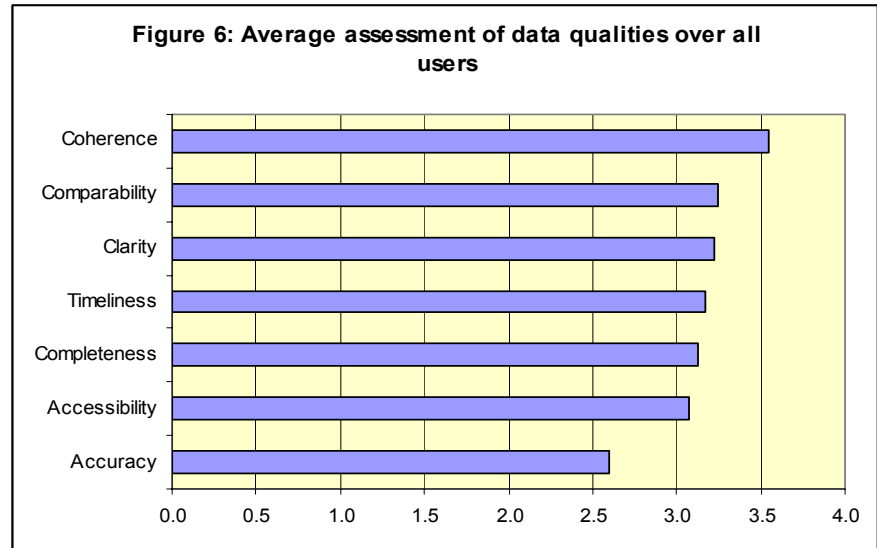- Occasionally (once or a few times per year)

survey were representative of a wide range of users and uses of European air transport data. This means that the results of the survey must be taken seriously. The only element missing, which may be of importance, is any indication of the country from which the respondent came. While there is no sign that this applies in this case, a danger exists of the problems of one country dominating the response.

2. Assessment of data quality

A key part of the survey is asking the respondents to assess data quality against 7 headings.

- Accuracy
- Timeliness
- Accessibility
- Clarity
- Comparability
- Coherence
- Completeness

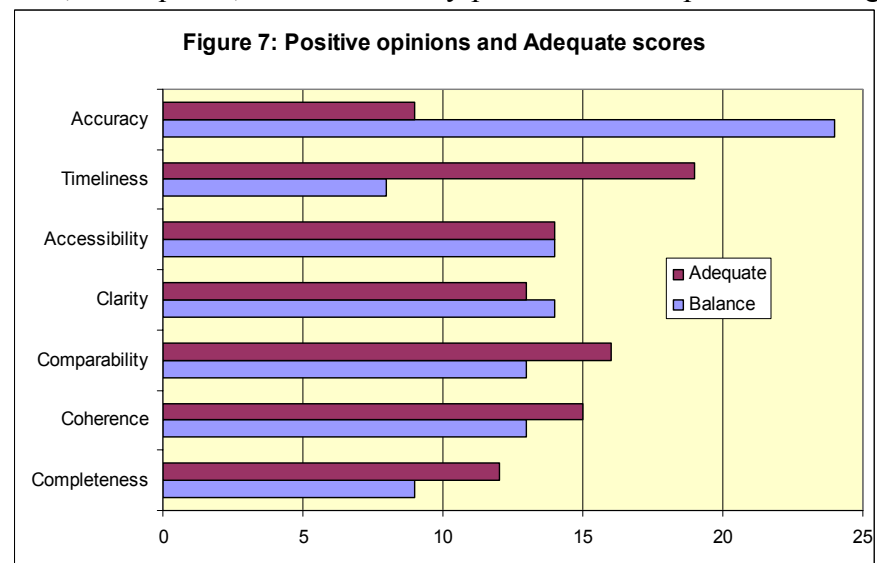Figure 6: Average assessment of data qualities over all users

In addition, users were asked to rank the importance of each data quality heading and their response is shown in *Figure 6*. Accuracy receives by far and away the highest score for importance from users at a little over 2.5 on the 7 point scale where 1 is most important. At the other extreme, coherence has the worst score at over 3.5. All the other qualities are bunched in a narrow band between 3.1 and 3.3 on the 7 point scale. The outcome is that users regard accuracy as the most important aspect of quality but coherence as the least. Taken as a group, they were not able to discriminate between the other qualities

As well as asking users to rank the importance of the data qualities, the survey asked them to judge each aspect as "Very good", "Good", "Adequate", "Poor" or "Very poor" with the option of having no opinion. *Figure 7* summarises the outcome of the survey by showing the balance of positive opinions (Good, Very good) less the negative opinions (Poor, Very poor). The figure also shows the number giving an "Adequate" score in case this influences the outcome. It is helpful that accuracy, judged the most important quality by users also has the highest positive balance (24) by some margin. In contrast, timeliness has the lowest positive balance (8). While this partly reflects a high Adequate score, there is a definite shift to more

Figure 7: Positive opinions and Adequate scores

negative opinions. Completeness also had a relatively low positive balance at 9 and this reflected a higher level of negative scores than for other measures. All the other measures recorded positive balances of 13 or 14. While it is good that accuracy scores so highly, there remain concerns about timeliness and completeness which will need to be addressed.

Figure 8: Comparison of Satisfaction Index and Positive Balance
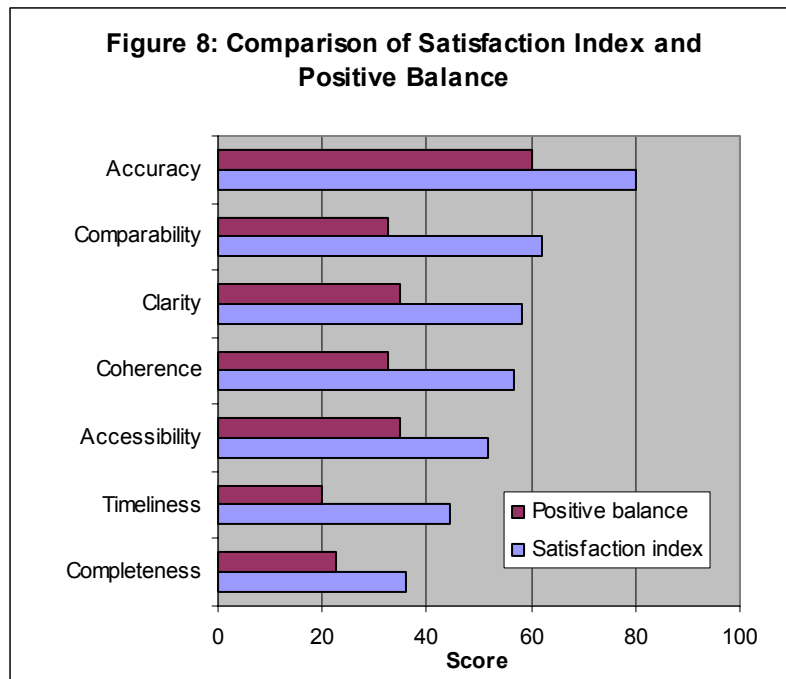
An alternative measure of user judgments about the data quality is a "Satisfaction index"[1]. *Figure 8* shows a comparison of the satisfaction index with the positive balance used in the analysis above, normalised so that 100 equals the total response of 40. It can be seen that accuracy scores best on both measures while the positions of timeliness and completeness at the foot of the table are reversed. However, the change is not sufficient to affect the conclusion drawn previously that the concerns about both completeness and timeliness.

3. Other matters

3.1 Missing statistics

Respondents were questioned about what statistics they needed which were not provided by European air transport statistics. One major lack is more information about the Rest of the World. There were a number of comments about the lack of data for major partners such as the US and Australia and near neighbours in what is a global industry. While Eurostat is responsible only for European air transport statistics, users are saying that it would be helpful it they could access all the air transport data they need from a single source, preferably from Eurostat. There were also user requests for:

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[1] For each question Q_i, i = 1,2, …, 23, the Satisfaction Index (SI_i)is defined as follows:

$$SI_i = 100 * (q_{i4} + q_{i5} - q_{i1} - q_{i2}) / \sum_{j \neq 3, j \neq 6} q_{ij}$$

where
q_{ij} = number of ticks for category j in question i, where
j=1 corresponds to "Very poor"
j=2 corresponds to "Poor"
j=3 corresponds to "Adequate"
j=4 corresponds to "Good"
j=5 corresponds to "Very good"
j=6 corresponds to "Don't know"

- More financial information about airlines and airports, especially their financial performance,
- Data about General Aviation,
- Passenger Origins/Destinations in a number of guises,
- The need to understand the full passenger trip including intermediate stops and
- Airline fares, airport charges and costs incurred by both.

3.2   Supporting services

Part of the quality assessment is about Eurostat's performance in answering user queries. *Figure 9* shows the balance of respondents replying favourably against those with a negative opinion. As the figure shows, users' experience of Eurostat's supporting service has been predominantly positive with a positive balance of 12 for speed of response and 17 for the overall service. This seems to be an area where Eurostat is performing very well indeed.

Figure 9: Supporting services: Positive balance
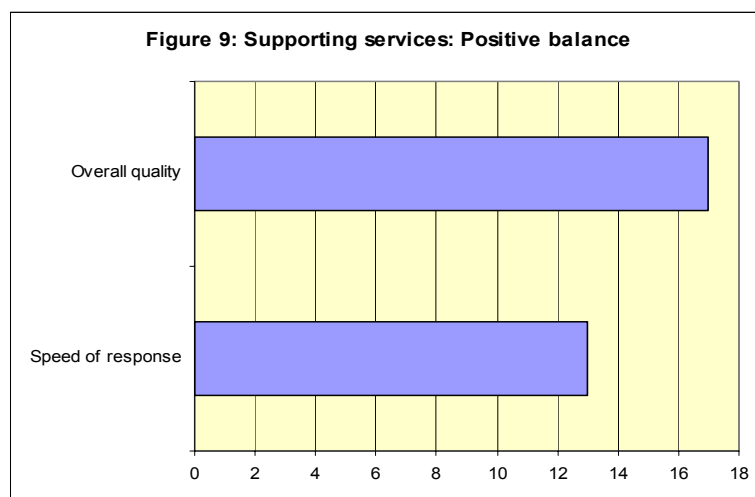
3.3   Use of other data sources

The survey also asked respondents if they used other sources. *Figure 10* shows that out of the 40 respondents, 32 said they used other sources, while 8 did not. Where they were using other sources, they were asked to identify them. 26 were using national public data sources, 20 IATA, 17 ICAO and 14 ACI data with 10 using other sources. These covered a wide variety, some more specialised such as OAG[2] and Airclaims[3] and others such as the Association of European Airlines (AEA) data and Eurocontrol. More interesting for the review are the reasons for using other sources.

Figure 10: Other sources used

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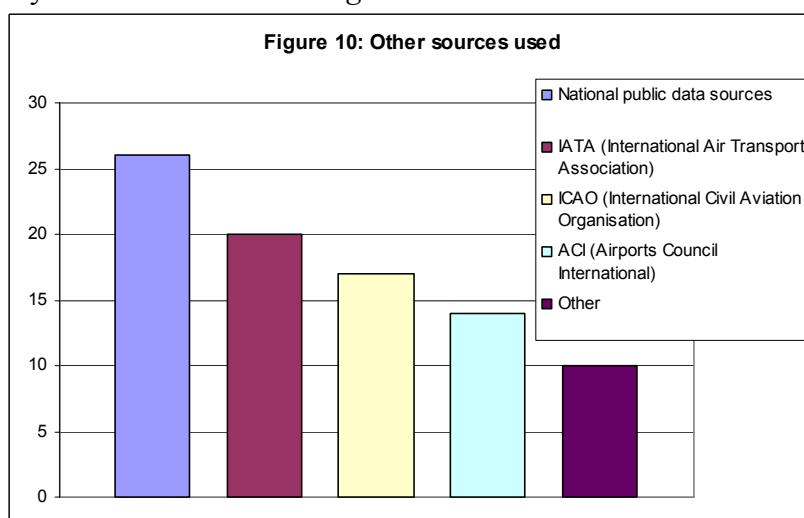
[2] OAG now OAG Travel Solutions but it began life as the Official Airline Guide
[3] Airclaims is the world's leading provider of insurance claims management and consultancy services to the global aviation industry

These are shown in *Figure 11*. The most important reason to use other sources was the coverage of the data with 22 respondents quoting this. The next three most important reasons were the time series available, choice of indicators and accessibility, all being mentioned 17 or 18 times by respondents. All the other measures received much lower scores. It is clear that coverage is an issue to come back to later in the review.

Figure11: Reasons for using other sources
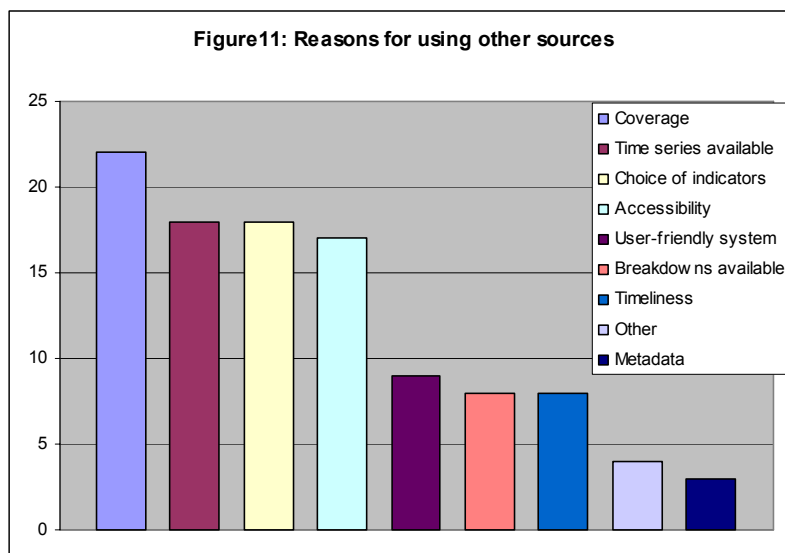
3.4   SDDS data

The survey included questions about the SDDS metadata in New Cronos. 31 respondents were unaware of it while 9 were. Of these 9, 8 had actually used it and 6 of these judged its quality "Good" while the other two judged it "Adequate". There is a clear need for action to improve user knowledge about the available SDDS data. However, it should be noted that the re-design of the Eurostat web page currently under way will help to give more visibility to the metadata.

3.5   Suggestions

The final question in the survey asked respondents to suggest ways in which Eurostat could improve the quality of its statistical products and services. Although this was couched in very broad terms, all the respondents who took up the opportunity did so in the limited air transport context. There were a large number of suggestions but some themes emerged.

- Timeliness needed to be improved.
- There were inconsistencies in the reporting of data at individual airport to airport routes between countries and this should be remedied.
- The New Cronos database was felt to be difficult to use and needed to be made simpler and more user friendly.
- Gaps in the data from reporting countries (Sweden and Greece were mentioned) should be eliminated.
- There was one plea for airline data and another for more information about airport infrastructure.
- The scope of the data needed to be widened to include near neighbours and the major international players, USA, Japan, Middle East etc.
- A full list of airports and airlines was requested.
- Finally, one respondent pleaded to be allowed to use his mother tongue.

4. Conclusions and recommendations

Two main concerns for users emerged from the consultation, the timeliness and completeness of the data. This leads to the first two recommendations

Recommendation 1: E6 should pursue vigorously with partners in the Task Force an earlier delivery of the data to allow dissemination of the data to be brought forward (A1).

Recommendation 2: E6 should consider how best to meet external users' demands for a more complete global database to ease access to the data they need for their activities (A2).

Another key concern was the lack of data about General Aviation. This demand was related to air safety issues. Unless partners understand the background, there seems little prospect of any early implementation. Discussions aimed at improving partners' grasp of what is required would best take place in the context of the Task Force before coming to the Working Group.

Recommendation 3: discuss user needs for General Aviation data in the Air Transport Task Force (B2).

Better airline data was one subject where partners felt an improvement could be made. The value of such data is sufficient for it to be discussed at the next Working Group, based on a proposal from Eurostat.

Recommendation 4: Eurostat should develop a proposal for improved airline data as requested by users (B1).

It seems unlikely that the Regulation on air transport statistics would be a good tool for collecting data on airline fares. Eurostat should examine whether other possibilities exist in the normal frame for the collection of price statistics before pursuing such a subject here.

Recommendation 5: E6 should explore whether information on air fares could be incorporated in Eurostat's wider collection of price statistics. (B3).

It is clear that there are strong needs for data on the origins and destinations of passengers and freight. However, some examination of how partners are currently tackling such problems should be undertaken before attempting collection within the frame of the Regulation. This is a topic best taken up in the Task Force.

Recommendation 6: the existing collection of such data in partners should be discussed in the Task Force to see if a pan European system, which meets user needs without overburdening partners, could be developed (B4).

As with fares, there may be other avenues within Eurostat for the collection of data on airline and airport costs and financial results. Eurostat needs to explore the scope for this internally before responding to this request.

Recommendation 7: E6 should explore with other units in Eurostat whether the collection of data on airline costs, airport/airline financial performance is feasible in other contexts (B5).

User ignorance of the metadata in accessing New Cronos is a concern. However, it is understood that some steps have already been taken to remedy this by giving the metadata more prominence. The cost of providing good metadata means that the success or otherwise of these changes should be investigated.

Recommendation 8: B6 and D4 should analyse whether the forthcoming redesign of the Eurostat web site will achieve sufficient improvement (A3).

Among the other issues raised by users, some perhaps less urgent recommendations arise. In terms of the quality of the data, users expressed some dissatisfaction about the quality at detailed airport to airport level.

Recommendation 9: to improve the coherence of the data, E6 should continue the enhancement of data checking to detect differences in reporting between partners at a detailed route level (C1).

Another issue is the continuation of gaps in the data, harmful to the uses made of the data.

Recommendation 10: in cooperation with partners, develop a road map to achieve the elimination of such gaps (B6).

Users had some criticism of the ease of use of the New Cronos database. This is not specifically an air transport issue but applies to Eurostat as a whole.

Recommendation 11: D4 should assess whether the forthcoming improvements to the New Cronos interface have resolved this problem (A4).

Chapter 4 - Checklist

In the course of the rolling review process, a standard template for a checklist for the assessment of statistical processes and output has emerged. For air transport statistics, the checklist was completed in June 2008. The template for the checklist is divided into the following 14 sections:

1. Background information

2. Conceptual framework

3. Users and customers

4. Data Providers

5. Validation (at country level)

6. Validation (at your level)

7. Statistical confidentiality

8. Documentation

9. Data dissemination

10. Follow-up of the statistical production process

11. IT conditions

12. Management, Planning and Legislation

13. Staff, work situation and competence

14. Comments on the checklist

While all these raise important issues for a statistical office to consider, not all of the detail within the sections will be relevant in the case of individual reviews. This occurred in the present case. It illustrated a need to revisit the design of the checklist to make it both easier to complete and easier to interpret. Some suggestions on how this might be achieved are made in a separate report. The completed checklist itself is attached at Annex 2.3, with the assessment diagram at Annex 2.1.

1.   Background information

Air transport data is collected under the Regulation (EC) No 437/2003. Information is collected on passengers and freight transported and numbers of flights. Only aggregate data is collected and it covers EU Member States, EU candidate countries and EFTA countries.

2.   Conceptual framework

The conceptual framework is provided by the carefully crafted definitions found in the Regulation itself. These form part of the legal basis. In addition, more detail is provided in the Reference Manual on Air Transport Statistics. Supplementary definitions will be found in the Glossary for Air Transport Statistics 4th edition. In parts of the collection process, the internationally agreed ICAO codification systems are used for airports, aircraft and airlines. Appropriate protocols are used in the transmission of data to Eurostat.

All this provides a firm conceptual foundation for the collection process.

3.   Users and customers

Eurostat staff have good information about their key institutional users and make contact with them regularly. Institutional customers are judged to have a generally good opinion of the quality of the data, the only areas of some concern were timeliness and completeness. Known customer needs not met by the current collection were airline specific information, true origins and destinations of passengers and freight and general aviation.

However, Eurostat staff knew little about other data users other than what was collected in the user survey linked to this rolling review. One possible solution to this difficulty might be to create a user forum. This need not be a physical meeting but could be organised using the recent advances in uses of the World Wide Web to enable group working across countries and time zones. The activities of any such forum would complement the meetings of the Working Group and any Task Forces. A second possibility would be to invite a very limited number of non-institutional users to the meetings of the Task Force.

4.   Data providers

The data providers were a mixture of National Statistical Institutes, Civil Aviation Authorities, Ministries of Transport and individual airports. The performance of the suppliers is monitored and they all provide data electronically according to strict standards. For less than half the countries, there were some problems with timeliness, missing data, revisions and transmission in an incorrect format. Data providers are consulted at Working Group meetings every 18 months.

There is no permanent cooperation in data collection with international organisations

5.   Validation (country level)

While countries do undertake a survey, this covers all the airports within the scope of the regulation. There is no "sampling" as such. The scope of the regulation is set to include all eligible airports in the collection no matter in which country they are situated. While airports are the point of collection, they may also obtain data from airlines, handling agents and air traffic control providers. The register of eligible airports is compiled by Eurostat from information received from countries and is updated annually by Eurostat.

There were some concerns about the completeness of the data supplied from some countries. There was no information about what steps were to be taken to remedy these deficiencies. However, some of the candidate countries need to improve their collection arrangements and could benefit from additional help. Most countries provided good metadata on the quality of their statistics.

While there is no harmonised questionnaire, common guidelines for the methodology to be used are in place. Unit non-response, imputation, sampling errors, seasonal adjustment and estimation are not issues for this data. While there are some revisions, these are at a low level so that no explicit revisions policy has been adopted.

6.   Validation (Eurostat)

The data validation routine at Eurostat is rigorous and comprehensive with numerical checks, consistency checks, codification checks etc. However, because the collection is a census of all airports above a certain threshold, there are no sampling errors as such. At Eurostat, it is assumed that all airports within the scope of the statistics will have responded so that no imputation or estimation is needed. In transport statistics, it is a convention that no seasonal adjustment is undertaken, even though the data are indeed highly seasonal. While there are revisions, the impact

on the disseminated data series at aggregate levels is minimal. All this leads to the assessment that the overall accuracy of the published statistics is very good.

7.   Statistical confidentiality

Some countries provide data on individual airlines which they classify as confidential. Such data is held by Eurostat but not released for dissemination and no access is provided to researchers. When the data causes problems for dissemination, these are dealt with on an ad hoc basis using aggregation. However, it would be helpful if some modus operandi could be found to allow selected users some access to confidential data on an ad hoc basis. An example might be access by DG TREN staff involved in international negotiations on traffic rights. This possibility should be followed up in the Working Group.

8.   Documentation

The data production process is documented and a process description exists. The documentation of the software (eventually TRIS) is the least well completed. The documentation is available on CIRCA and is regularly reviewed but not after each production round. Information on data disseminated is released in the SDDS files and CIRCA. All this published data is updated regularly. The SDDS files are available in three languages and are largely complete. The overall quality of the documentation is judged good. Information on the quality of key statistics is available to users in the Reference Manual on CIRCA and is in a standard form. The documentation covers comparability, coherence and accuracy. It was last updated in January 2008. Its quality is judged as good, as was the ability of Eurostat to provide assistance to users. Finally, the Eurostat process improvement methodology was "unknown", suggesting that a reassessment is required.

9.   Data dissemination

Air transport statistics are disseminated in three ways, on-line databases, electronic releases and through the paper publications, Statistics in Focus. Access to all of these is free of charge. A very good service of ad hoc analyses was available. The timeliness of publication was set by the deadlines for the supply of data in the legal act. One area which could be improved would be to establish a pre-announced timetable for dissemination. The situation has improved recently with the inclusion of details about the updating of the air transport data on New Cronos on the Data Releases page on the Eurostat web site. Clearly, it would still be helpful to set out a clear policy for the paper publications in order to become more compliant with Eurostat's rules on this question. While fixing firm publication dates well in advance was not necessary for air transport data, unlike more sensitive series, it would be helpful to fix the month of dissemination for each type a year ahead, firming up the actual date of dissemination nearer the time. Improving the timeliness record more generally would need the co-operation of partners in the provision of data earlier than currently foreseen in the legal act. To facilitate earlier dissemination, some changes to the IT performance would be needed as this one element holding the current system back.

Overall, the coherence of the statistics between different periodicities and other statistics and information on the area was judged good. The same applied to comparability over time. Most countries (>80%) used standard concepts in the collection. Mirror statistics revealed few asymmetries between countries at the aggregate level but more so at the detailed route level. This led to the judgement of good comparability of the statistics across countries.

10. Follow up to the statistical production process

This section looks at the processes for producing the statistics. Lessons learnt during the production rounds were followed up but not after each round and used available quality indicators. There is cooperation with ICAO and Eurocontrol as well as some involvement in the glossary for transport statistics, a joint Eurostat, UNECE and ITF venture. The areas where improvements were sought were:

- Better dialogue with users, especially those outside the European institutions

- Timeliness and

- Availability of data at country level

One key recommendation in this review is that some mechanism to improve dialogue with non-institutional users should be examined. Improving timeliness is another with firm user support. Making more country level data available is desirable but may need a change in the legal act if it is to be achieved or some mechanism to allow access on an ad hoc basis under strict conditions.

11. IT conditions

Clearly, the development of TRIS is a key factor here. However, there remains another problem with the IT system which needs resolving in order to improve the efficiency of system management. This is exporting data from the production database to New Cronos. The current system is not fully reliable and some time consuming verification is needed in order to check the quality of the transfer. While some revision to the system is foreseen, it would be wise to give finding the solution to this particular problem a higher priority.

12. Management, planning and legislation

This is an area where some disquiet is apparent. With most of the processing and publication work outsourced, there is no internal staff backup for the key stages in the production process. However, there is a clear timetable for the processes themselves. The main non-compliance problems with the data supply relate to the coverage of the data and incomplete datasets. The most important advantages arising from a legal act to cover collection were:

- Legal power to collect the data,

- Harmonisation of definitions and

- Harmonisation of the datasets to be delivered.

The three main triggers for developing or revision legislation are:

- New changed policy demands,

- Need for further harmonisation ands

- Reducing the reporting burden.

13. Staff, work situation and competence

In a situation where most of the support work is outsourced, this section is difficult to answer in quite the way intended. Fortunately, the documentation of this project is very good. This means that the needs of new staff will be covered quite well. The resources available were sufficient and the working conditions satisfactory. However, there was not sufficient effort available to undertake detailed analysis of the data including comparison with the situation for other international partners.

One specific problem which arose is the resource effort required to manage the external contracts. If would be helpful if some way could be found to reduce this as it would make more time available for more productive, high value analytical work.

14. Comments on checklist

The final element asked about the time required to complete the checklist. The response was less than 4 hours.

15. Comparing user and internal estimates of quality

One subject of interest is to compare user views on the quality of European rail transport statistics with the Eurostat insiders' assessment of key user satisfaction. While, the key user group may have views which diverge from those of all users, it is still useful to compare the rankings provided by users, shown in Table 1, matched against the checklist estimates. Accuracy, which comes top of the users list, has a score of 4 in the check list. Accessibility, second in the user list, has a score of 5 in the checklist. At the other end of the scale, coherence and comparability, bottom of the user ranking list, achieved a score of 4 in the checklist. Timeliness, and completeness, both bottom of the checklist, were mid table for users. The divergence on coherence is sharp. This may reflect the fact that the concentration at Eurostat is on the aggregate country level while users are much more concerned

Table 1: User rankings of data qualities against checklist scores		
Quality	**User ranking** (1 is best)	**Checklist score** (5 is best)
Accuracy	1	4
Accessibility	2	5
Completeness	3	3
Timeliness	4	3
Clarity	5	4
Comparability	6	4
Coherence	7	4

with the detail for airport to airport statistics. Where there are problems, it is likely to be at the detailed level. Eurostat may need to spend more time investigating such difficulties with partner countries to improve the quality at the airport to airport level, especially for major routes.

16. Recommendations

The air transport statistics team has no means of making regular contact with non-institutional users. This also applies to the rail transport statistics team, the subject of an associated rolling review, and may apply in the other modes. This is in marked contrast to the regular consultation of partners and institutional users through the meetings of the Working Group and its associated Task Forces. Attempting to replicate this structure with the wider user community would be expensive and probably not cost effective, while extending the Working Group to include such users runs the danger of diluting its value as the prime forum for partners to express their views. In at least one Member State, a Transport Statistics User Group, supported by that country's Ministry of Transport exists and as part of its role acts as a discussion forum to be consulted by the Ministry when the need arises. At a European level, it would be hard to copy this solution given the problems of differing time zones and languages. One possibility is to explore the recent developments in the World Wide Web, making collaboration in such circumstances possible and very cost effective. An alternative proposal emerged during the discussion of the review report for rail transport statistics. Here, it has been proposed to use the "Forum" facility within CIRCA to see if it would be possible to establish an ongoing contact with rail statistics users. This would act as a pilot for transport as a

whole. No further action in air transport statistics would be required until the outcome of this pilot was known.

Recommendation 12: assessment of the value of the Eurostat process improvement methodology. The fact that this methodology was unknown in air transport statistics is an indication that its adoption is at best patchy and may not be widespread. B1 need to assess the current situation with this methodology and decide on its future (F2).

Recommendation 13: clear timetables for the release of paper publications (SIFs) need to be established. For each publication, the month of release should be established and announced well in advance. Closer to the time, a firm data should then be decided and announced. This would bring air transport statistics more into line with the policies adopted in other areas (A5).

Recommendation 14: the time has come to review completely the basic architecture of the IT system for air transport data. The "Transport Information System" (TRIS) project is currently underway to begin the process of the modernisation of the handling of both the air data and the data for other modes. This initiative should be pursued vigorously (D1).

Recommendation 15: while TRIS is important, another area of concern for air transport statistics is the transfer of data from the production database to New Cronos. It would be extremely helpful if this could be made less error prone and more reliable. More priority should be given to this improvement (D2).

Recommendation 16: with almost all of the work of processing the air transport data outsourced, there is a project management burden on Eurostat staff. E6 should continue their approaches to the appropriate central team to establish a contract structure to allow the release of Eurostat senior staff time for more productive work.

In contrast to non-official users of air transport statistics, Eurostat had a very clear view about the future requirement of key official users. These needs emerge in the Working Group and other meetings and contacts with the key users. The unmet needs include airline information, true origin/destination data and general aviation data. The tenor of the comments from the other users would suggest much support for the development of the collection system to provide data in such areas.

Chapter 5 -   Partner survey

A partner survey was conducted as part of exercise managed by Eurostat looking at the evolution of air transport statistics in the period October 2008 to January 2009. In view of this activity, it was decided not to conduct a full partner survey within the framework of the rolling review itself. Some results from the parallel Eurostat exercise, relevant to the review, have been passed to the review team for analysis. 31 out of 32 partners responded to the questionnaire. This is an excellent response which shows the importance that partners place on European air transport statistics. However, in this survey, partners were not asked to give their views on the quality of the statistics in this domain.

The results of the survey in three sections of the questionnaire were passed to the review team. These dealt with:

- Additional variables or modifications to existing variables,

- Safety related data and

- Other issues related to the modification of the Regulation

The responses are described below.

1.   Additional variables or modifications to existing variables

In this section, partners were asked to comment on a number of new variables or modifications to existing ones. They were offered three possible responses:

a. Some breakdown is already provided and, therefore, the modification would be acceptable

b. No breakdown is provided but the modification would be acceptable

c. No breakdown is provided and the modification would not be acceptable

In the figures which follow, a, b and c are used to represent these responses.

Question 2.1 raised the issue of airline identification. There were two proposals:

1. Make it mandatory to identify EU and non-EU airlines

2. Allow voluntary identification of the ISO or ICAO country code for each airline.

Figure 12 shows partner responses. For the large majority, some breakdown is already provided so that the proposed modification was acceptable. For 7 partners, while no breakdown was currently provided, the modification would be acceptable. One partner felt that the modification would not be acceptable. This seems a clear cut result, allowing serious consideration to be given to such a change. Indeed, given the broad measure of support for these relatively modest proposals, Eurostat might have thought of bringing forward more radical proposals, identifying airlines directly in the returns from partners.

Figure 12: Question 2.1 Country codes
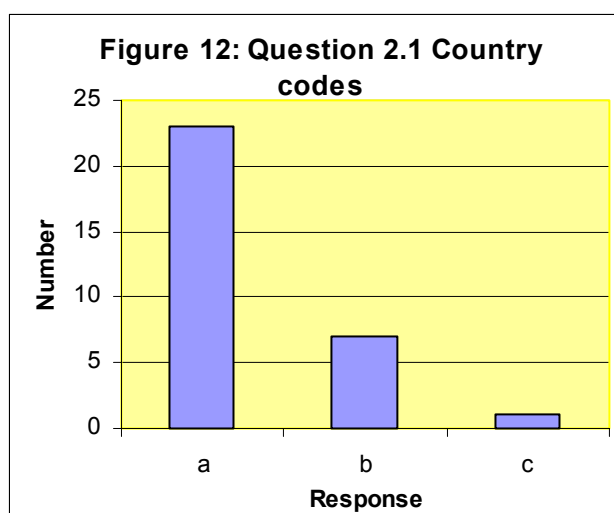
Question 2.2 dealt with the problems of identifying the true origins/destinations of both passengers and freight. This is clearly data that users find very valuable, particularly in the context of transport modelling. However, it is expensive to collect and this is reflected in the responses received to the question (see *Figure 13*). 24 partners thought that it would be difficult or was not to be collected at all. 6 partners said the data was already available or could easily be collected while another said it could be provided if a suitable data source and methodology were provided.

All this again illustrates the difficulties of collecting true origin/destination data, something that applies across all transport modes. The fact that as many as six partners claim to have the data or could easily make it available needs to be tested against user requirements to see if the two match. However, the fact that a large majority of partners would find such collection either impossible or difficult suggests some degree of caution.

Question 2.3 dealt with the collection of air fares, including a breakdown by economy, business and first class. Only one partner (see *Figure 14*) said that the data was available now or that it could easily be provided. Another two thought that it could be provided given a suitable data source and methodology. However 28 partners thought such collection would be difficult or should not be undertaken. Given this response, it seems unlikely that collection under the Regulation alongside the regular transport data could be achieved. Eurostat needs to

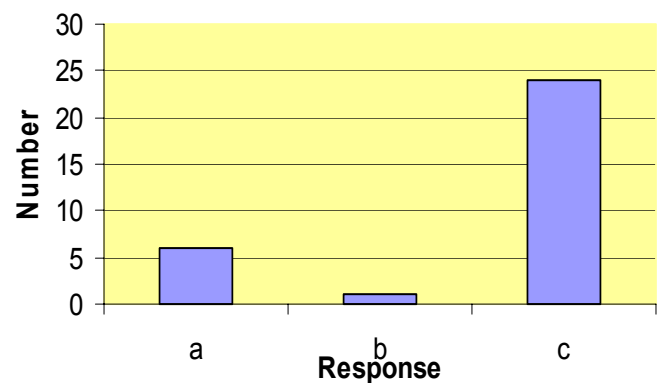**Figure 13: Question 2.2 True origin/destinations, passengers freight**

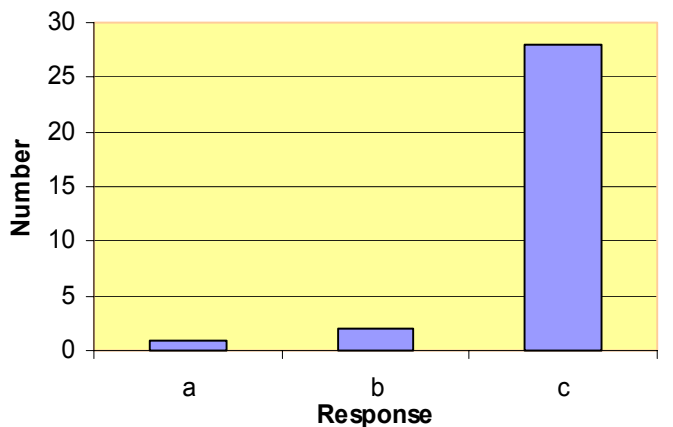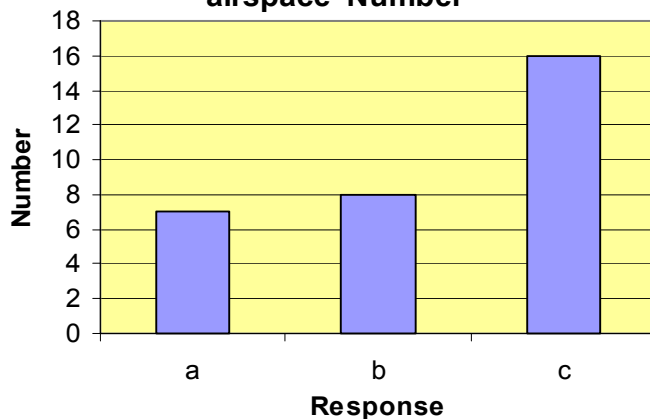**Figure 14: Question 2.3 Average monthly fares per journey**

Figure 15: Question 2.4 Aircraft-Km, Passenger-Km (PKm) and Tonne-Km (TKm) flown on the national airspace Number

look again at how best to proceed. One possibility is the inclusion of air fares, structured in a suitable way, in the regular collection of price statistics elsewhere in Eurostat.

Question 2.4 asked about aircraft km, passenger km and tonne km flown in national airspace could be provided. Here the response, shown in *Figure 15*, was more nuanced than in the previous questions. While 15 partners thought that the data was either easily available or could be made so once a source and methodology could be established, 16 thought it would be difficult or that it should not be collected. There

seems to be a need here for discussion among partners to see whether the methodologies and sources available to some could also satisfy the major difficulties foreseen by others. Such a discussion would best take place inside the Task Force.
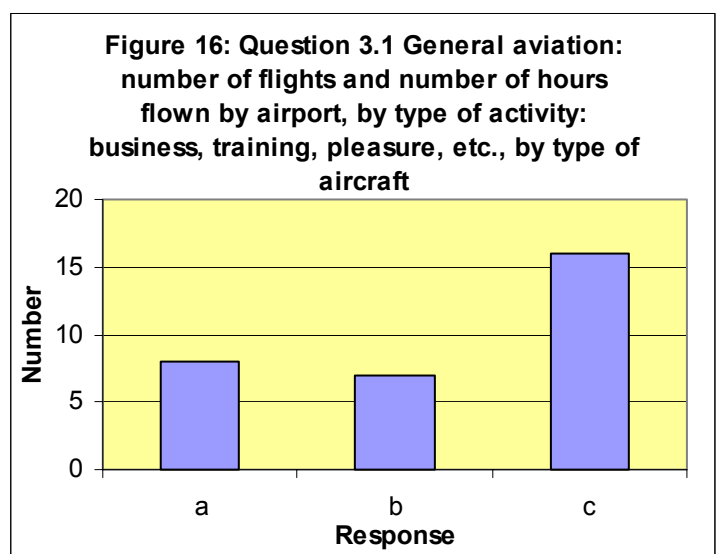
2.   Safety related data

This section of the partner survey turned to aspects of aviation which had a bearing on the safety of air transport operations. This subject is particularly significant in the field of air transport because the consequences of any incident could be catastrophic. In this section, partners were offered three possibilities for response. The data was:

    a.   Available now or easy available (a harmonized methodology is needed)

    b.   Maybe collected provided that a data source and a harmonized methodology are identified

    c.   Difficult or not to be collected

These three are indicated in the figures below.

Question 3.1 considered General Aviation, i.e. flying for business, training, pleasure etc. Partners were asked if data was available for General Aviation by type of activity i.e. business, training etc and by type of aircraft. *Figure 16* shows that 16 partners thought the supply of such data was either difficult or should not be attempted. 8 partners believed they had the data already available while 7 others thought the supply of such data was possible provided that a source and methodology were developed. Faced by such a response, there is clearly a need for more discussion with partners about the problems raised by the collection of General Aviation data, preferably within the Task Force.

Figure 16: Question 3.1 General aviation: number of flights and number of hours flown by airport, by type of activity: business, training, pleasure, etc., by type of aircraft

Question 3.2 asked about aerial work flights such as crop spraying, photography etc. Partners were asked about the availability of data by type of work flight and by type of aircraft. *Figure 17* shows the responses. On this occasion, 9 partners said the data was already or easily available while 7 others thought that it could be collected if a source and methodology was identified. 15 thought collection would be difficult or should not be attempted. The conclusions from this are much the same as for General Aviation. There needs to be more discussion among partners to identify the sources used by those where the data is already

Figure 17: Question 3.2 Aerial work: flights by airport broken down by type of aerial work by type of aircraft

or easily available to see if it could be generalised among those partners where there were problems in collection. This would best take place in the Task Force.
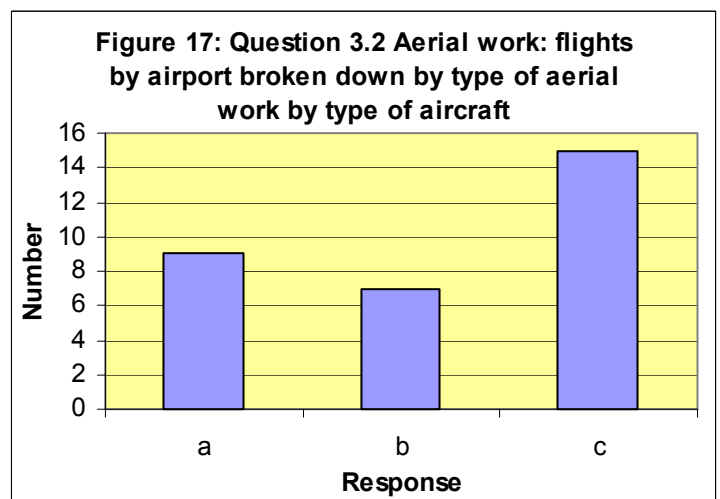
Question 3.3 considered the collection of data relating to civil aircraft on each partner's register. Would it be possible to collect data on hours flown, the number of flights and the number of aircraft by type of aircraft and by type of operation? This is clearly extremely valuable data for the calculation of exposure to risk while flying. *Figure 18* shows that the response in this case was rather more negative than for the other two questions in this section. 21 partners felt that the collection of such data would be difficult or should not be attempted. 7 partners thought that it was either available already or could easily be made so. 3 others thought that such data could be collected if a source and methodology were identified. Given a so overwhelmingly negative response, there seems little prospect that any such collection could be

Figure 18: Question 3.3 for civil aircraft registrations by country: hours flown, number of flights and number of aircraft by type of aircraft by type of operation

considered in the short term. Eurostat needs to undertake further research into the systems in use in those partners which claim to have the data easily available.
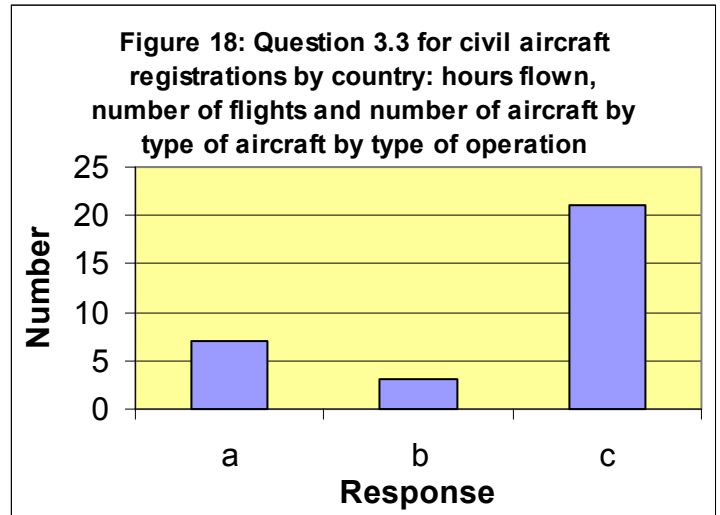
3.   Other General Issues

In the final section in the questionnaire of interest in the context of the rolling review, partners were asked to respond on a limited range of issues related to the operation of the Air Transport Statistics Regulation. The outcome was a very strong steer from partners on what actions to take.

Question 4.1 asked about possible changes to the thresholds at which airports are required to provide data. No guidance was given on whether the thresholds should be raised or lowered. If they are raised, fewer airports would be burdened with requests for statistics, while, if they are lowered,

Figure 19. Question 4.1: Modify Thresholds for Data Provision

more would be. As *Figure 19* shows, 27 partners preferred to leave thresholds where they currently are rather than change them. 4 partners were in favour of some change but whether this was an increase of a decrease in thresholds is not clear. This outcome indicates no appetite for either increasing the burden on airports or for reducing the quality of the statistics currently gathered.

The second question in this section dealt with the important issue of whether timeliness could be improved by shortening the time which partners have to supply the data after the end of the reference period. Here, a

Figure 20: Question 4.2 Shorten deadline for data provision
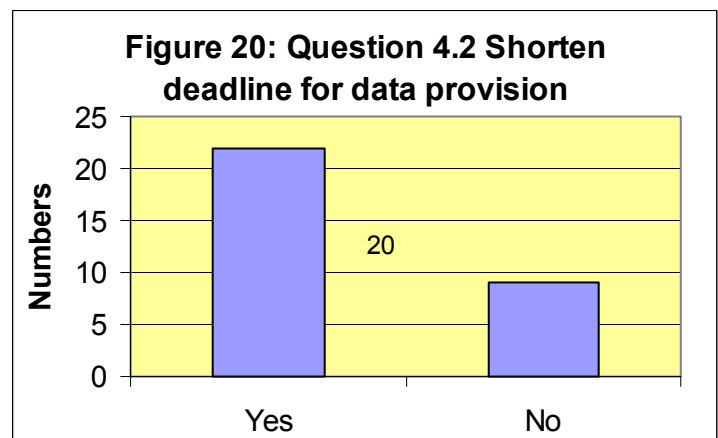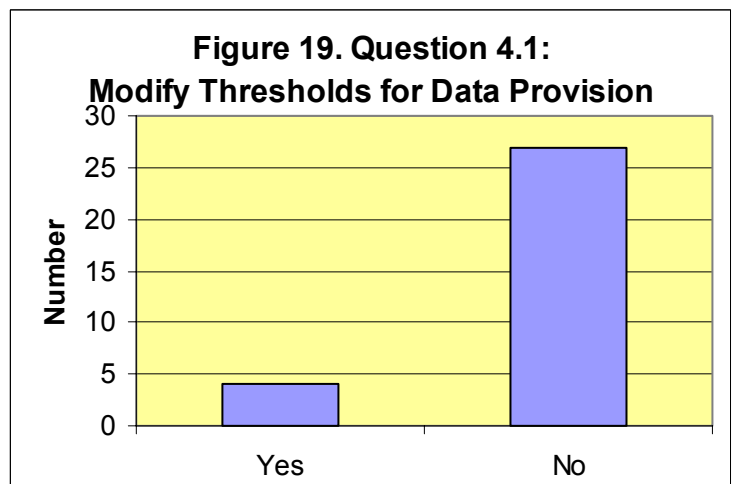
specific proposal was put forward proposing a reduction of the deadline for data provision from 6 to 5 months, reflecting user interests in such a change. Figure 20 shows that 22 partners were not unhappy with this idea but 9 were opposed to such a change. Given this response from partners and the strength of user requests, there seems a clear mandate to take such a change forward.

Finally, Question 4.3 asked whether partners thought it necessary to set up a Task Force. 20 partners agreed that it would be necessary, 11 thought not.

4. Recommendations

Looking at the proposed modifications/extensions, a very large majority of partners felt that more airline information could be provided. Eurostat needs to follow this up in the Task Force to prepare a proposal to be put to the next meeting of the Working Group.

Proposal 18: E6 should develop a proposal for the Working Group about the better identification of airlines in the collection under the Regulation (B1).

The evidence from the partner survey is that some partners have origins/destinations data already available or feel that such data could be made available relatively easily. Others are against collection of such information. There is a need to research what is currently available. It would then be helpful to discuss the techniques in the Task Force. This would allow those partners unable to support collection to see whether they could use such methods. If users are represented on the Task Force, their advice on what the coverage of really important data would be could be the basis for some useful but limited collection and aggregation. However, it emerged that the expert undertaking the review had not understood that the current requirement is for "True" origin/destination data, limited to the air legs only and not including any associated surface movements. While the recommendation stands, it has been superseded in practice by the True origin/destination alternative.

Proposal 19: Eurostat should investigate what systems are in place among partners for the collection of true origins/destinations for passengers and freight. The results should be discussed in the Task Force to determine whether collection on a pan European scale, which meets user needs without overburdening partners, is possible (B4).

With almost total rejection of the collection of air fares in the frame of the Regulation, alternatives need to be considered. An obvious possibility is collection within the frame of existing price statistics. Eurostat needs to explore this and report back to the Task Force and Working Group.

Proposal 20: E6 should examine whether information on air fares could be incorporated in Eurostat's wider collection of price statistics.

Opinion among partners was divided on the possibility of collecting data on General Aviation. Some claimed to have the data requested available while others were opposed to any collection. Part of the problem may be a lack of understanding by partners of the needs for this data. The best way forward may be to discuss the data requirements in more detail in the Task Force.

Proposal 21: discuss air safety needs for General Aviation data in the Task Force (B2).

As for information about the hours flown, number of flights and number by type for aircraft on the civil register, the lack of enthusiasm was so marked that no recommendation for action is given here. The same applies to any change to the thresholds for airport reporting. In contrast, there is strong support for reducing the time available for partners to report in order to speed up publication. The Task Force should develop a proposal for a modification to the legal act to allow this for presentation to the Working Group. As this will take some time, the Task Force should explore the possibility of implementation of a shorter reporting delay on a voluntary basis.

Proposal 22: the Task Force should develop a proposal for a change to the Regulation reducing the reporting delay. This should be presented to the Working Group. It should also examine the scope for implementation on a voluntary basis in the interim before the legal act can be changed (A1).

Chapter 6 - Conclusions and recommendations

The report deals in great detail with the rolling review process as it was applied to air transport statistics, the response of users to the statistics which emerge, the opinions of the staff directly involved in operating the collection/dissemination system and the views of the partners supplying the data. It is valuable to step back from this consideration of the detail to assess the system as a whole. The overall impression given is of a stable, well established collection system, which produces statistics of high quality for its main customers and satisfies many of the requirements of its other customers. It manages this without overburdening its partners or the organisations involved in supplying them with the basic data. This is not to say that everything is perfect but to emphasise the merits of the existing collection and to acknowledge the excellent performance of all those involved in the production of the finally disseminated data.

However, improvements are possible. The most striking deficiency that emerged was the lack of any continuing contact with non-institutional users. Indeed, the response to the user survey is the first time that the air transport statistics team had real feedback on their performance from this group, although the response received was not unexpected. This problem is not limited to air transport. The same difficulty emerged in the rail transport statistics rolling review and may also apply in the other transport modes. The outcome of the rail rolling review was a proposal to test the forum facilities in CIRCA to see if some ongoing contact with non-institutional users could be organised. This would act as a pilot study for the other transport modes and no further action for aviation statistics is recommended here until the outcome of the pilot is known.

It was going to be one recommendation here that a Task Force for air transport statistics should be created to consider in more detail how the system should develop. However, it is understood that such a decision was made while the review was in process and the recommendations here deal with the subjects for the Task Force to tackle. One major subject is improving the timeliness of the dissemination of the data. With this rated as the most important weakness of the current system by users and with a strong majority of partners willing to accept a shortening of the timetable for data delivery, there is a real chance that progress could be made (Recommendation A1). This would either be via a change to the legal act or, in the interim, by a voluntary effort (Gentlemen's Agreement) to reduce the delays in data delivery. The Task Force should take up this subject as a matter of the highest priority. A second set of issues is the user requests for either more detailed data or for an extension of the collection to other subjects (Recommendations B1, B2, and B4). These cover airline information, General Aviation and origins and destinations. Airline data is the one topic where some progress could be hoped for as the majority of partners seem willing to countenance improvements in this area. The others raise larger problems of how the collection would be organised, with strongly differing views among partners. Discussion in the Task Force will be helpful in establishing whether some progress is possible by exploring the systems used by those partners where some data is available. On one issue, origins and destinations, initial thoughts were that this would best be studied in the wider context of collection across all modes. While this is still appropriate for the surface modes, it was realised that, for air transport, some partners were collecting some data of this sort and these systems should be discussed to see whether useful data on a pan European basis could gathered. However, the expert conducting the review had in mind a wider interpretation of origins and destinations, including travel by surface modes to and from airports. Eurostat are currently more concerned with "true" origins destinations, i.e. the airport of the start of a passenger's journey and the airport where the journey ends. The priority given to the needs of institutional users for such data means, that this will supersede any work on the broader origins/destinations topic considered here.

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There are other subjects, collection of airline fares and airline/airport financial results, where extensions of the collection have been proposed (B3 and B5). At this stage, discussion in the Task Force is unlikely to be helpful and E6 should investigate whether useful data could be gathered by other units. Until the outcome of these internal discussions becomes known, there is little point in involving the Task Force.

One area where action seems desirable is the elimination of gaps in partner reporting (B6). This emerged in the user survey and Eurostat need to address such deficiencies.

Dissemination is another major topic (A2, A3, A4 and A5). One problem for users was the limitation of the data in New Cronos to Europe only (A2). In a global industry, any serious study needs access not just to Europe but to the figures for major partners, US, Japan, Middle East etc as well as near neighbours. The ideal for them would be for New Cronos to be expanded to include this other data. This may be too ambitious for Eurostat to achieve but some progress on this front would be welcomed by users. As for New Cronos itself, there was concern that access to the statistics and the metadata about their quality could be improved (A3 and A4). While the review was in progress, some changes have been and some others will soon be made to the user interface with the aim of achieving improvements for both these issues. An assessment of their effectiveness needs to be carried out. One final area is to establish a timetable for the paper (pdf) publications to bring air transport more into line with Eurostat norms (A5).

The development of the IT systems for air transport statistics is of course a key issue for improving the efficiency with which the processing of the data is undertaken. TRIS, the Transport Information System, is the main plank of the effort to provide a coherent IT architecture for air transport and the other modes. It needs to be provided with the resources necessary to allow a speedy implementation (D1). For air transport, problems have been experienced with the transfer of data from the production database to New Cronos. The solution to this needs to be given a higher priority since it holds back the early dissemination of the data (D2).

Other matters included the use of Eurostat staff resources. Although not part of the checklist itself, there was a considerable discussion at one of the project meetings about the project management burden imposed by the contracts governing the outsourcing of the data processing for air transport statistics (E1). If some way could be found to reduce the burden, it would release significant resources for activities with a higher value added such as additional statistical analysis of the data. It is understood that E6 is already exploring ways to simplify the administration of the contracts, and is well aware that significant resources could be released for activities with a higher value added such as additional statistical analysis of the data. These actions are commended and they should be pursued vigorously. Over and above such work, there would be significant benefits to the analysis and understanding of the trends in the air transport sector if more resources for such work were made available (E3). While the collection of transport data does vary between the modes of transport, there will be commonalities. There may be some benefit in a systematic benchmarking between modes. It is recommended here that E6 examines the scope for doing this (E4). The Eurostat process improvement methodology had made no impact on the air transport statistics team. What is recommended here is that some assessment is made of the prospects for some implementation of the methodology to help decide on its future (E2).

To conclude: the air transport statistics system is stable and efficiently operated. It gathers statistics of recognised good quality, without overburdening partners and their data suppliers. While improvement is always possible, the need for a balance between user needs and partner capabilities must always be kept in mind.

Towards the end of the review, the inclusion of the "Priority" column in the list of improvements actions was requested. As a consequence of the lateness of this request, there is no discussion of the priority column in the body of the report. Comment on it is included in the paragraphs that follow to explain the thinking behind the rankings given.

For air transport statistics, the key issues to emerge were the development of the IT systems, both in the general implementation of TRIS and in the more specific resolution of the problems experienced in the transfer of data from Eurostat's production database to New Cronos. Amending the Regulation to reduce the reporting delay allowed to partners was another high priority issue. Achieving a better identification of airlines is a final key issue, responding as it does to well found user needs and where there is broad support amongst users.

At a slightly lower level of priority are questions about the accessibility of New Cronos and the visibility of the metadata in it. At the same level are the proposals to include a very limited number of non institutional users in the Task Force and a continuation of the effort to improve the route level detail. None of the other recommendations have as high a priority as these.

ID	Direction of improvement/ Recommendation	Priority	Source	Owner	Timing
A) Improving the dissemination of European air transport statistics					
A1	Improvement in timeliness of dissemination: the Task Force should develop a proposal for a change to the Regulation reducing the reporting delay. This should be presented to the Working Group. It should also examine the scope for implementation on a voluntary basis in the interim before the legal act can be changed.	1	USS CL PS	E6	Long/ medium-term Under way
A2	Easier user access to global data: E6 should consider how to respond to this user demand.	4	USS CL	E6	Medium term
A3	More prominence for the metadata in New Cronos: B6 and D4 should analyse whether the forthcoming redesign of the Eurostat web site will achieve sufficient improvement.	2	USS CL	B6/D4	Short-term
A4	Improve accessibility to New Cronos: D4 should assess whether the forthcoming improvements to the New Cronos interface have resolved this problem.	2	USS	D4	Short-term
A5	Clear timetables for the release of paper publications to be established. For each publication, the month of release should initially be established and announced well in advance. Closer to the time, a firm date should then be decided and announced.	4	CL	E6	Short-term
B) Improving data collection					
B1	Improve the collection of airline information: E6 should develop a proposal for better information about airlines in the collection for discussion in the Working Group.	1	USS PS	E6	Under way
B2	Extend data collection to General Aviation for air safety: discuss air safety needs for General Aviation data in the Task Force.	3	USS PS	E6	Under way
B3	Extending collection to cover airline fares: E6 should explore whether information on air fares could be incorporated in Eurostat's wider collection of price statistics.	4	USS PS	E6	Done (not feasible for the time being)

ID	Direction of improvement/ Recommendation	Priority	Source	Owner	Timing
B4	Improving collection of passenger and freight origins/destinations: the existing collection of such data in partners should be discussed in the Task Force to see if a pan European system, which meets user needs without overburdening partners, could be developed.	2	USS PS	E6	Long-term superseded by work on "True" origins/ destinations
B5	Extending collection to cover airline costs, airport/airline financial performance: E6 should explore with other units in Eurostat whether such collection is feasible in other contexts.	4	USS	E6	Long- term
B6	Elimination of gaps in partners' air transport data: in cooperation with partners, develop a road map to achieve this.	1	USS CL	E6	Medium-term
C) Improving data quality					
C1	Improving quality of route level detail: E6 to continue the enhancement of data checking to detect differences in reporting between partners at a detailed route level.	2	USS CL	E6	Medium-term
D) Improvement to IT systems					
D1	Improved IT processing of the air transport data. The planned implementation of TRIS is important and should be pursued vigorously.	1	CL	E6	Under way
D2	Improved IT processing of the air transport data. In addition to TRIS, a key issue for air transport is the arrangements for the extraction and transfer of data from the production database to New Cronos. A higher priority should be given to this specific area.	1	CL	E6	Under way
E) Other matters					
E1	Better use of Eurostat staff resources: the outsourcing of data processing imposes a project management burden on Eurostat staff. E6 should continue their approaches to the appropriate central team to establish a contract structure to allow the release of Eurostat senior staff time for more productive work.	4	CL	E6/ESTAT	Medium-term

ID	Direction of improvement/ Recommendation	Priority	Source	Owner	Timing
E2	Assessment of the value of the Eurostat process improvement methodology. B1 need to assess the current situation with this methodology and decide on its future.	5	CL	B1	Long- term
E3	Better data analysis and the comparisons with other countries: provide more internal staff resource to enable this	3	CL	E6	Long- term
E4	Wider adoption of best practice within E6: E6 should examine what scope there is for benchmarking between modes to ensure the adoption of best practice in the collection and processing of European transport statistics.	5	CL	E6	Short- term Under way

Priority: 1 is highest priority, 5 lowest

Source: CL (checklist); USS (Users' survey); PS (Partners' survey)

Owner: unit E6 Transport Statistics, unit B1 Quality; Classifications, unit D4 Dissemination, etc.

Timing: short-term (within the next 6 months), mid-term (within the next 2 years), long-term (needs more than 2 years for implementation