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COMMISSION STAFF WORKING PAPER
ON THE DEVELOPMENT OF THE SECOND GENERATION
SCHENGEN INFORMATION SYSTEM (SIS II)

2002 Progress Report

Submitted to the Council and the European Parliament in response to the obligation of article 6 of the Council Regulation n. 2424/2001 of 6 December 2001.¹

¹ Council Regulation n.2424/2001 of 6 December 2001 on the development of the second generation Schengen Information System (SIS II) OJ L 328 of 13 December 2001.

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1. INTRODUCTION

The SIS is a joint information system that allows the competent authorities in the member States, through an automatic query procedure, to search and obtain alerts regarding persons and objects. This tool is a vital factor in the smooth running of the Schengen area without internal borders and indispensable both in applying the Schengen provisions on the movement of persons and in ensuring public order and security, including national security, through police and judicial co-operation.

As described in the Council Regulation and Council Decisions of 6 December 2001 on the development of the second generation Schengen Information System (SIS II)² the current Schengen Information System (SIS) has the capacity to service no more than 18 participating States. It is at present operational for 13 Member States and 2 other States (Iceland and Norway) and is intended to become partially operational for the United Kingdom and Ireland in the foreseeable future. It has however not been constructed to cope with the increased number of Member States of the European Union after enlargement.

For this reason, and also to benefit from the latest developments in the field of information technology and to allow for the introduction of new functions, the Council decided that it was necessary to develop a new, second generation Schengen Information System (SIS II).

The mandate to take this forward was given to the Commission in January 2002. The so-called SIS II Committee assists the Commission in accordance with the management and regulatory procedures depending on the measures to be taken.³

In its Communication to the Council and the European Parliament on the development of the Schengen Information System II⁴ of 18 December 2001, the Commission set out its approach to its new task of developing the new, second generation Schengen Information System. The Communication mainly focuses on the development and the installation phases of SIS II, scheduled from 2002 to 2006. As far as operational management of SIS II is concerned, further decisions will have to be taken in the Council framework and the European Parliament will have to be consulted.

Council Regulation n. 2424/2001 of 6 December 2001 (article 6) provides that the Commission will submit by the end of every six month period, and for the first time by the end of the second six month period of 2002, a progress report to the Council and the European Parliament concerning the development of SIS II.

This first Report aims at providing a description of the work carried out by the Commission's services during 2002 and to outline the next steps.

² See footnote 1

³ See footnote 1.

⁴ Communication from the Commission to the Council and the European Parliament on the Development of the Schengen Information System II of 18 December 2001 (COM (2001) 720 final).

2. CRUCIAL OBJECTIVES AND PRE-CONDITIONS IN VIEW OF THE DEVELOPMENT OF SIS II

2.1. Objectives of the SIS II project

The SIS II project aims to procure and implement the SIS II, a new, second generation Schengen Information System.

Without prejudice of the future technical architecture, at an abstract level, SIS II could be described as constituting a Core System, with national interfaces. Each user would, through the usage of a national interface, linked to its national system, be able to input data and access data. The SIS II should allow for:

- *Enlargement*

The system must be designed to handle more than double the number of Member states the current SIS deals with. It should also be designed to easily integrate still more users, specifically the countries or organisations for which it would be decided to grant (total or partial) access to the information in the SIS.

- *Evolution*

The current SIS includes functions constituting a defined set of information types (persons and objects) in accordance with articles 95-100 of the Schengen Convention. SIS II will have to have the potential to handle a significantly larger number of data and the potential to be extended to cope with new information types, new objects and further new functions, which are under discussion in the Council framework. Ideally, the system should have the flexibility to incorporate new functionalities as well as new information and rules without major technical changes. The possibility to proceed to inter-linking of alerts and to introduce biometrics is also under examination as indicated in the Council Conclusions of 13 June 2002.

- *Economy*

Given the potential number of new users and the potentially increased number of new functions that will be handled, the system must be designed to be easily manageable and cost-effective. In order to achieve that, the SIS II should ideally be more homogenous than the current system, especially from the user's perspective.

The target date for the SIS II given by the Council is set at around 2006. It is assumed that this includes the integration of the future Member States, at least those that will be ready and have undergone successfully the evaluations in view of their full application of the Schengen acquis and the lifting of the internal borders. This would mean that the SIS II will need to be operational in 2005 for the migration of the current data and users.

2.2. Technical strategic requirements for SIS II

In order to ensure coherence and continuity with previous works undertaken within the Council structure, the Commission drafted the technical requirements for SIS II on the basis of the discussions which were started in that framework. The technical strategic requirements were presented to the SIS II Committee which voted a favourable opinion during its July 2002 meeting.

In general terms, the main technical strategic requirements are: flexibility and extendibility; uniformity; reliability.

The system must have an **ability to be extended** or scaled. It must also be able to provide optional as well as mandatory services (e.g. those countries who are ready to use a certain feature can start and those who are not ready are not affected by this, in terms of technical impact). It must also have the **ability to implement changes easily**. This ability is essential in order to facilitate the smooth integration of the new countries, and also to meet future functional and technical demands. In order to make swift and easy changes, it should also have the ability to easily replace components for technical reasons (outdated technology, bottlenecks, etc).

A more **homogenous system**, especially concerning national interfaces, will have a positive impact on testing, data quality and data integrity/security. Other areas of uniformity could be sought in the validation rules and the potential use of common query interfaces.

Reliability is a strategic requirement and this includes concepts such as availability, security and performance.

High **availability** and **security** are priority issues for the future system. In this respect it also includes the ability to ensure that data is correct, safely delivered and not corrupted. An example of high availability features is the ability to recover after a crash or a system failure, and also to prevent a system failure or crash from occurring.

High **performance** is critical, for example in terms of response time. SIS II should be able to limit the time for the distribution of data entering in the SIS II through the national interface.

2.3. Project constraints

The Schengen States will be the main users of the SIS II. In this respect, a number of national constraints need to be addressed. Among these it must be ensured that if there should be a period of unavailability of data due to the migration from SIS to SIS II, this would be as short as possible.

Financial investments both at Community and national level will also need to be carefully evaluated. On the one hand, the building up of the solution proposed should not imply unrealistic costs. On the other hand, Member states should be ready to make the necessary investments on the national side. On the basis of the outcome of the Feasibility Study a sound evaluation of the financial needs at EC level regarding the building up of the SIS II will have to be carried out by the Commission. The exact boundaries of responsibility on the financing between the national and Community budgets still need to be decided.

National preparations, in the current Schengen States as well as progressively in the candidate countries, will need to be monitored and co-ordinated by the Commission's services. This role for the Commission is without prejudice to the fact that the performance of these preparations remain a national responsibility, but only aims at guaranteeing the timely development of SIS II, which will also require a commitment from the Schengen States in terms of their own planning for the modifications and adjustments to be made at national level.

In this respect, financial costs respectively at Community and national level will vary depending on the choice of architecture and on the type of national interface to be delivered.

For the candidate countries there is a need for active exchange of information knowing that these countries will be able to participate as observers to the SIS II Committee only by the signature of the Treaties.

An additional constraint may derive from the partial implementation of the Schengen acquis by United Kingdom and Ireland where data under article 96, at present, cannot be used by these states and therefore will need to be filtered out from the other data in the SIS II. The same filtering mechanism will probably have to be realised for other partial users of the SIS II.

2.4. OUTLINE OF THE SIS II PROJECT: MAIN PHASES

As described in the Commission's Communication on the development of SIS II, the SIS II project could be divided following a sequence of phases, such as: preparatory work and feasibility study; development and construction; acceptance and customisation. The table in annex II further details such phases, providing an indication of the pre-requisites on which they are dependent and including crucial elements of the project, such as the choice of the architecture and the network for SIS II. This table is therefore by definition only indicative and will also be reviewed following the conclusions of the Feasibility Study.

3. STATE OF THE WORK (JANUARY - DECEMBER 2002) AND THE WAY AHEAD (JANUARY-JUNE 2003)

In its Communication of 18 December 2001, the Commission presented a number of key elements of its approach in view of the development of SIS II. .

These key elements are summarised below:

- ensure coherence and continuity with the work undertaken within the Council structure;
- request the appropriate budgetary and human resources needed for the management of the project;
- take into account the internal guidelines it has developed for other major IT projects and profit from earlier relevant works;
- ensure that there is independent external quality control;
- ensure that data protection requirements are respected at all stages.
- The next paragraphs include an explanation on the way in which these elements have been addressed and will be brought forward in the next six months.

3.1. SIS II Committee

Among the preparatory works, the Commission organised the setting up of a Committee composed of representatives of the Member States, which would follow the management or

regulatory procedure depending on the measures at stake as prescribed in the Council Decision and Council Regulation of 6 December 2001 on the development of SIS II⁵.

The SIS II Committee, which was convened for the first time on 11 January, has been meeting on a monthly basis throughout 2002. Iceland and Norway, following an official exchange of letters, take part in these meetings as observers.

In order to ensure coherence and continuity with the work previously undertaken in the Council framework, the drafting of the technical specifications for the SIS II Feasibility Study, scheduled for starting in July 2002, was initially based on the work done by the Swedish and Belgian Presidencies at the level of the technical working groups of the Council. This was also true for the preparation of a part of the documentation needed in view of the SIS II feasibility study, such as the strategic technical requirements for SIS II, a description of the current system and the technical presentation of the functional requirements for the SIS II agreed upon by Council in its Conclusions of June 2002.

The assistance of the representatives of the Member States, who represent the future users of the SIS II, proved to be constructive and allowed the Commission's service to take into account a number of national constraints and to get a useful technical input. In view of the above, the Commission's services have been organising in the course of the year 2002 several workshops focused on technical issues linked to the national preparations, such as migration and testing. In addition, Member states have been invited to attend information sessions, both with candidate countries (see below 3.2) and with the contractor of the SIS II Feasibility Study.

It emerged during 2002 that one of the major constraints of the project is the necessity to reconcile different national views in respect to the future technical architecture for SIS II. At this stage, it could be noted that most of the Member States favour a solution taking into account the latest technological developments and are willing to plan modifications at national level for allowing the building up of a flexible information system which is easy to change. Some other Member States, while recognising the long-term benefits of a flexible and modern technical solutions, are more reluctant, at least at this stage, to accept such fundamental national modifications, notably given their financial constraints, and may prefer to keep their present national systems (currently named N.SIS) with minor modifications at the expense of other strategic requirements.

The role of the SIS II Committee will be crucial in the first half of 2003. The Technical, Feasibility and Security reports planned in the Feasibility Study will be concluded in February 2003. On that basis, the Commission will submit for opinion to the Committee the architectural option(s) for SIS II.

In case of favourable opinion, the drafting of the technical and functional specifications will be started. The last step of the Feasibility Study planned for March-April will in fact provide for a blueprint of the specifications and these will need to be discussed with the SIS II Committee.

In parallel, works towards the co-ordination of national planning and the identification of financial and technical implications at national level will have to be pursued. This will only be

⁵ Article 4 and 5 of the Council Regulation 2424/2001.

possible on the basis of the Feasibility Study and the continuing active participation of Member States' experts.

3.2. Involvement of the future Member States of the European Union

One of the main objectives of developing SIS II is to establish a system allowing the integration of new Member states. It must be possible for them to participate in the SIS II as quickly as possible after the date of their accession and once they satisfy all the pre-conditions for bringing the full Schengen acquis into force. They need therefore to be properly involved in good time.

As outlined in the Commission's Communication of 18 December 2001 this process had to be started with an information phase. A first information seminar was organised on 6 June 2002 by the Commission in co-ordination with the Spanish Presidency and allowed for the experts of the candidate countries to get updated information on the technical development of the works as well as on the Council discussions on new functions for SIS II. Alongside the TAIEX Seminar, a preparatory meeting had been organised with the Permanent Representations of these countries on 18 April where information on the national situation concerning IT relevant preparation was asked for. A further information session took place on the 13 December. This session took place immediately after the technical intermediary report for the SIS II Feasibility Study was ready for a first discussion with the SIS II Committee on 12 December. This allowed the Commission's services to present to the candidate countries an updated overview of the state of play of the project.

Towards the end of the Feasibility Study appropriate channels should be used for informing the candidate countries of the characteristics of the proposed technical solution for SIS II in order for them to make their national preparations. The Commission will examine the necessity of organising a seminar in March-April 2003.

As soon as the technical specifications for the procurement of SIS II are ready, the candidate countries will be informed about the content of these specifications, taking into account the legal constraints.

Once the technical specifications are made, there will be a firmer basis for discussing the plans for integrating the candidate countries. At that stage, their national plans for preparation of the national systems to interface with the SIS II will need to be established. Once this initial planning is made this issue would be subject to a continuous communication as the plans evolve. This will also imply a specific co-ordination task for the Commission.

In addition, as from the signature of the Treaties the candidate countries should be able to participate to the SIS II Committee meetings as observers.

3.3. Commission's project management

The Commission has been confronted with a new task at the request of the Council and it underlined in its Communication of 18 December 2001 that the costs of the various aspects of the project, including the human resources involved, needed to be evaluated to guarantee a timely development of SIS II.

In this respect, the Commission provided a first financial assessment for the whole project (2002-2006) in the financial annex to its Communication anticipating that the financial implications will also depend on the structure and content of the system to be put in place. It

was therefore added that the feasibility study would allow having additional elements to confirm the figures in that financial annex. Considering the above, it might be necessary to propose - starting from the budget provisions for 2004 - an adjustment to the initial financial assessment.

Concerning human resources, in 2002 three Commission officials (2 A and 1 B grade) and one national detached expert, which were supervised by a Head of Unit composed the SIS II Project Team. Four additional posts will be devoted to the SIS II project in 2003 in view of new technical tasks such as the drafting of technical and functional specifications for the development of SIS II; the co-ordination of national preparations; data protection aspects and network analysis.

As of 16 December 2002, a new unit "Large-scale information system" has been created within DG JAI to exploit synergies between the major IT projects in the Justice and Home Affairs policy areas: SIS II, EURODAC and VIS (Visa Information System).

In addition, in April 2002, following an open call for tender procedure, a contract of assistance had been concluded with a major IT consultancy (Unisys) to provide advice on the project and to guarantee an external independent quality control.

Finally, in order to take into account possible synergies within the Commission, in particular the internal guidelines for major IT projects, a Project Management Board has been set up in October 2002 to represent and share the in-house knowledge from other Commission services such as the Informatics Directorate of DG ADMIN, DG ENTRE and DG INFSO. As of 2003, in order to ensure maximum transparency of the work conducted by the Commission services, a representative of the Presidency will be systematically invited to participate in the Project Management Board on behalf of Member States.

3.4. SIS II Feasibility study

Preparatory works, such as the drafting of the technical specifications and other relevant documentation for the SIS II Feasibility Study, the organisation of a call for tender⁶ under restricted procedure and the conclusion of the contract were successfully achieved without any delay. The Commission's services signed a contract for the performance of the SIS II Feasibility Study with the selected contractor (Deloitte & Touche) in July 2002.

The SIS II Feasibility Study has been divided into three steps:

- Assessment of the strategic approach for SIS II;
- Preparation of a Technical, a Feasibility and a Security Report on a number of architectural options which could be feasible for SIS II;
- Draft of a blueprint of the technical specifications.
- As planned in the tendering specifications, an intermediary report was drafted by the contracting company and presented by the Commission's services to the SIS II Committee of 12 December and 17 January 2003. It contains the first orientations towards a number of

⁶ Publication of the pre-information notice concerning a service contract for the performance of the SIS II Feasibility Study in the OJ S 204 of 23 October 2001.

technical architectures which could be viable for the SIS II in light of the given technical strategic requirements and national constraints.

- Currently, the study is focusing on two architectural options, one of them with two variants, including the possible combinations within them. They are:

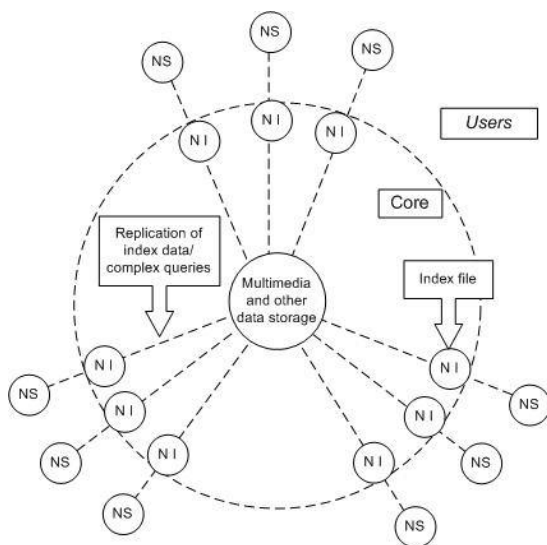
- Decentralised option

A decentralised option is an option in which important data are stored decentrally, in the national interfaces. However, depending on the details of that option, some data may still be stored in a central system.

- In this option, all character data are stored decentrally. Furthermore, all information, including multimedia content and additional data, is stored centrally. The idea behind this option is that the system will mainly need to support hit-no-hit functionality for local officers. Additional data are used only when a hit is made. Then more time is available for getting this additional information, for e.g. SIRENE officers. This option might be described with the term “caching database”. Every user receives a copy of every new, updated and deleted alert for the purposes of technical copies, if desired.

All alerts (including eventually multimedia information) enter SIS II at the national interface, and are then sent to the core system. This core system distributes the character data to the other national interfaces. The character data is used as a local reference index. A query takes place in two steps. First, a query enters SIS II at a particular national interface where it is processed. The result is the fact that there is a hit or not, maybe with the data about this hit that is stored locally. If there is a hit and there is need for more information, a second query can be made to the central system. Thus, the way the network is used is quite different from the way the network SISNET of SIS 1+ is currently used.

Visualisation



- *Hybrid option with two variants : both decentral and central storage of all data*

The hybrid option combine the central, decentral and interaction system options.

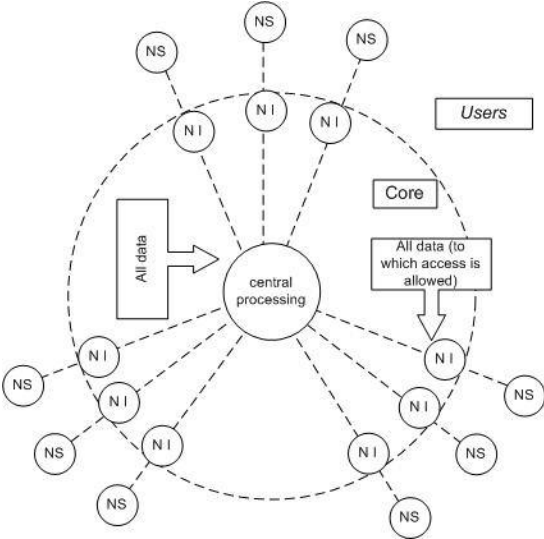
One of the variants is a combination of a fully centralized option and a decentralized option. In this variant the core system contains a master database. The national interface contains a

replication of all data that is available in the master database (with the exception of some filtered data). This variant is much like the present SIS I+, with the difference that the national interfaces are being developed for all users in the same way. The national interfaces contain, like the current N.SISs, all of the data and are full replications of the master database. Every user also receives a copy of every new, updated and deleted alert for the purposes of technical copies.

A second *variant* is that the national interfaces do not store any data and are little more than “pass through” interfaces.

All alerts enter SIS II at the national interfaces and are sent to the central system. The central system then broadcasts the alerts to all other national interfaces or, in the *variant*, through the national interface directly to the national system. Queries take place on the local national interfaces or on the national systems, which may act as a technical copy. The core system might also be used for direct usage by users via a national interface. This allows new users to start immediately. The network is being used for both synchronisation of databases and optionally for querying.

Visualisation



A pure Central option was discarded but it was agreed that both Decentralised and Hybrid options would include centralised elements in their architecture design.

According to the Council Conclusions of 13 June 2002, the possibility and impact for the studied architectural options to allow for searching on biometrics also needs to be examined in the Feasibility Study. This will also contribute to defining whether this functionality should be activated in the first version of SIS II.

Concerning the future network for SIS II, some first analyses have already been carried out in the Feasibility Study with respect to the SISNET network, currently used for the SIS I+. The Feasibility Study will also take into consideration capabilities and services of other possible networks for SIS II, such as TESTA, which is developed under the IDA programme⁷.

⁷ IDA, Interchange of Data between Administrations, is a European Commission driven strategic initiative using advances in information and communications technology to support rapid exchange of information between Member State administrations. <http://europa.eu.int/ispo/ida>

From February to April 2003, provided that the favourable opinion of the SIS II Committee on the technical architecture for SIS II is given within the planned timeframe, the last step of the Feasibility Study will allow for a first blueprint of the specifications in view of the tender for the building up of the new system.

The timeframe for developing and implementing SIS II is extremely tight. The Commission underlines that the main functionalities, i.e. the current SIS I+ functionalities and any requested additional functionalities such as e.g. the handling of biometrics, interlinking of alerts or new objects to be covered by the system will need to be absolutely clear before the call for tender can be launched. This does not exclude that the detailed technical specifications regarding such new functionalities (e.g. male/female field on issue documents) will be developed at a later stage but it will be impossible to take on board additional requirements for the system during the development and implementation phase which starts with the launch of the call for tender.

In order to respect the timeframe, the main functionalities must be agreed on by end of July 2003 at the latest. Any delay in the decision on functionalities beyond that date would invariably lead to a delay in the implementation and delivery of the system.

3.5. Involvement of data protection authorities

As already mentioned in the Commission's Communication on the development of the Schengen Information System II it is essential that data protection requirements are respected at all stages and before the putting into place of the new system in order to ensure the necessary guarantees to EU citizens and third-country nationals.

Once the Feasibility Study is available, the Commission's services have the intention to consult both the data protection authorities responsible under the first pillar and the third pillar for examination of compatibility with international law and Community law.

4. CONCLUSIONS/RECOMMENDATIONS

The Commission's services have so far been able to meet the tight timeframe indicated by the Council for the development of SIS II, a new, second generation Schengen Information System.

From the experience gained during these first twelve months, it appears that the different phases of the project will only be respected by fulfilling a number of pre-conditions involving the SIS II Committee, the Council and the European Parliament.

In particular, the selection of the technical architecture for the SIS II will have to receive the favourable opinion of the SIS II Committee in early 2003. To allow for this, the national constraints have carefully been taken into account all along the first two steps of the study through informal consultations, committee meetings and seminars. It is however also necessary that Member states remain at all levels committed to this project, which is crucial in view of the enlargement and of a better control of the external borders. The political commitment should now be translated into the readiness to undergo and plan inevitable necessary national modifications.

As regards candidate countries, Commission Services are aware that it will be important to continue to involve them in the works in order to allow them to make the necessary national preparation.

At the Council and European Parliament level, a clear political and financial support for the building up of a new, flexible system based on modern technology is needed, so that further integration of new users and functions, also in light of events such as those of the 11 September 2001, would not require too long implementation timeframes in the future.

SIS II background: May 2001 - December 2002

Date	Description
29 May	JAI Council: SIS II as priority in view of enlargement and agreement on Community financing
29 June	Publication in the Official Journal of the two Belgian and Swedish initiatives on the development of a second generation SIS (SISII)
1 Sept	European Parliament: Coehlo Report on development of Schengen cooperation (Schengen Information System and the protection of personal data) is adopted
17 Oct	Publication of pre-information notice on service contract for the performance of technical assistance for the SIS II (OJ S 200)
23 Oct	Publication of pre-information notice concerning a service contract for the performance of the SIS II feasibility study (OJ S 204)
6 Dec	Council: Adoption of Council Decision and Council Regulation on the development of a second generation Schengen Information System (OJ L 328 of 13 December 2001).
7 Dec	Council (Comix): Principle agreement on a number of new functionalities for SIS and SIS II
18 Dec	Commission: Adoption of Commission's Communication on SIS II (COM (2001) 720 final and publication of invitation to tender notice for service contract of technical assistance for SIS II (OJ S243)
1 Jan	COM in charge of the technical development of SIS II
2 Jan	Publication of notice service contract - restricted procedure -for the SIS II feasibility study (OJ S1)
11 Jan	SIS II Committee meeting
23 Jan	Opening of tenders on a service contract for the performance of technical assistance to the creation of SIS II
8 Feb	Deadline for reception of request to participate for SIS II feasibility study
15 Feb	Opening session of the requests to participate to the study. Evaluation meeting for tenders on IT consultant
25 Feb	SIS II Committee Meeting
27 Feb	Selection of "requests to participate" for the Feasibility Study
28 Feb	Tendering specifications sent to the selected companies for the study
13 March	SIS II Committee

19 March	SIS II presentation at TAIEX Seminar on Schengen and Visa
21 March	SIS II presentation at TAIEX Seminar on Police Co-operation
11 April	Reception of tenders on tender related to the feasibility study
12 April	Signature of the contract with the company in charge of the performance of technical assistance for the development of SIS II
18 April	Meeting with Missions of candidate countries in preparation of the TAIEX seminar on SIS II of 6 June
19 April	Opening session for tenders on SIS II feasibility study
23 April	SIS II Committee Meeting
28 May	SIS II Committee Meeting
1 June	Coreper: presentation of two Spanish initiatives on the introduction of certain new functions for the SIS
6 June	TAIEX seminar on SIS II
4 June	Committee Meeting
4 June	Seminar with MS on SIS II: migration, testing, national preparations
18 July	Signature of the contract with company performing the SIS II study.
5 Aug	Start of Feasibility study
10 Sept	Committee Meeting
10 Oct	Meeting of the Project Management Board
14 Oct	Committee Meeting
31 Oct	Meeting of the Project Management Board
5 Nov	Workshop on architectures
25 Nov	Workshop on migration and impact issues
3 Dec	Meeting of the Project Management Board
12 Dec	Committee Meeting of December 2002
13 Dec	Information session with Missions of Candidate Countries
17 Dec	Coelho Report on the two Spanish initiatives has been adopted
19 Dec	JAI Council (Comix): political agreements on parts of the two Spanish initiatives

Planning focusing on 2003

ANNEX II

