



**Report from a short-term mission
on
Internet Database Pilot project**

24th May – 4th June 2004

Jesper Ellemse Skou Jensen

**TA for the Scandinavian Support Program to Strengthen the
Institutional Capacity of the National Statistics, Mozambique**



Instituto Nacional de Estatística

Abbreviations used:

DAHR	Directorate for Administration and Human Resources
DICRE	Directorate for Integration, Coordination and External Relations
DCNIC	Directorate for National Accounting and Global Indicators
DESE	Directorate for Sectorial Statistics and Business Statistics
DCI	Directorate for Census and Surveys
DEMOVIS	Directorate for Demographic, Vital and Social Statistics
DISI	Department of Informatics and Information Systems
DDD	Department of Dissemination and Documentation
ESDEM	<i>Estatísticas Sociais e Demográficas de Mocambique</i> from UNICEF
INE	National Statistical Institute of Mozambique
LDB	<i>Live Database</i> from World Bank

Jesper Ellemose Skou Jensen, jej@dst.dk

Statistics Denmark
Sejrogade 11
DK-2100 Copenhagen O
Denmark

Table of Contents

1 EXECUTIVE SUMMARY	5
1 EXECUTIVE SUMMARY	5
1. Step: Finalize the technical Internet Database Pilot project	5
2. Step: Conduct a user pilot project	5
3. Step: Evaluate and decide about the use of PX-web	5
2 INTRODUCTION	5
3 MISSION PROGRAM	6
4 ACTIVITIES DURING THE MISSION	6
Adaptation of PX-Web.....	6
Integration to the new homepage	7
Training in the use of PC-AXIS, PX-MAKE and PX-WEB	7
Meeting with the internet reference group	7
Content structure of the Internet Database	8
Seminar	8
5 CONCLUSIONS AND RECOMMENDATIONS	9
5.1 Conclusions	9
5.2 Recommendations.....	10
5.3 Recommendations for further support from the Scandinavian program:	12
ANNEX 1 TERMS OF REFERENCE FOR THE MISSION.....	15
Activities	16
ANNEX 2 PROGRAM OF MISSION	18
Duração da missão: 24 de Maio a 4 de Junho de 2004	18
ANNEX 3 TRAINING	20
PC-AXIS	20
PX-Make	20
PX-Web	20
ANNEX 4 THE PX-WEB INSTALLATION AT INE (MAPUTO / MOZAMBIQUE).....	22
Translating PX-Web	22
Using Alias instead of directory names	22
The Front page or Running home to “Mama”	23
Cookies on the Front Page	23
Style sheet and background image	24
Varval and Saveshow	24
Footer	25
PxIncDB.....	25
User Statistics.....	25
PX-iMAP	26
Searching the PX-Web Database	27
Housekeeping.....	29

ANNEX 5 PROJECT PLAN FOR TABLE BUILDING IN INTERNET DATABASE PILOT PROJECT 30
Introduction..... 30
Objectives 30
Expected results 30
Time frame..... 31
Risks..... 31

ANNEX 6 OUTLINE OF OUTPUT DATABASE PILOT PROJECT..... 32

ANNEX 7 PERSONS MET DURING THE MISSION..... 36

1 EXECUTIVE SUMMARY

The PX-WEB solution was prepared so that it can be published as part of the modernized INE homepage, if and when sufficient data is prepared. Some data was put in the database. A database ready to publish on the INE web page for trial and evaluation purposes can be prepared in 2-3 weeks. Furthermore it is recommended that INE conduct a short pilot project to investigate user needs and expectations.

The steps below show the recommended way forward:

1. Step: Finalize the technical Internet Database Pilot project

It is recommended that INE as the next step in a stepwise approach creates a project plan describing the creation of a number of PX-files. These files can be sourced from the INE Yearbook and / or other existing sources.

As a minimum the content in the database should cover the following subject areas: Population, Geography, Trade, National Accounting, Balance of Payment and CPI (Consumer Price Index). It is recommended that the information structure in the Databases closely follows the structure in the Yearbook.

The technical aspects of the solution shall then be evaluated in terms of needs for additional training, support and further localization of PX-WEB to INE requirements. On completion of the data creation phase, the database should be demonstrated to the staff at INE, in order to evaluate and discuss the next steps.

2. Step: Conduct a user pilot project

It is important that Internet databases are driven by user needs. It is important to keep up with these needs through regular user satisfaction surveys, by registration of the usage and by conducting meetings with the key users. In the long term INE should conduct detailed user satisfaction surveys etc. In the short run (1-3 months) it is recommended to use a pragmatic approach focusing on the use of Internet as a new tool for publishing available data.

3. Step: Evaluate and decide about the use of PX-web

When recommendation 1 and 2 has been implemented INE should together with the ScanStat group evaluate the findings of the technical pilot and the user pilot and then discuss the way forward.

If it's decided that an internet database build on PX-Web technology is the way forward, it is recommended that ScanStat supports the launch of the pilot database to the public. The support should include the necessary hardware to create a "robust" production environment. If INE deems it necessary ScanStat can support the launch of the database with a short term mission to help finalize the content and prepare the database for production.

2 INTRODUCTION

The Mission was carried out from 24 May – 4 June 2004 in Maputo.

The consultant would like to express his thanks to all officials and individuals met for their kind support and valuable information. In particular I would like to thank my counterparts in INE the Head of DISI, Ms Anastásia Judas Honwana and Jose Inguane Project leader of the Internet project.

The mission was the result of the recommendations made in the report on Exploratory mission on creation of an Output Database (Ellemose & Wulff, December 2003). In this report it was recommended that INE should establish an Internet Database, with dynamic access to data, as a first step in moving towards a very ambitious long term goal of having a common data warehouse with data from all organizations inside the SEN.

Terms of reference for the mission is in annex 1

3 MISSION PROGRAM

The mission program was structured around the following activities

- A meeting with the president on the objectives and expectations of the mission. The meeting included a presentation of the demonstration database developed in December.
- An initial meeting with Director Destina Uinge and Counterparts to agree on agenda for the mission
- Meetings / discussions about content (structure and content of data)
- Implementation and test of PX-WEB with pilot tables
- Training to staff from DISI and DDD in using PX-WEB and PX-MAKE.
- Seminar for managers at INE incl. SEN to demonstrate the Internet Database and PX-WEB
- A meeting towards the end of the mission with Counterparts to present and discuss the results and recommendations.

Annex 2 contains the detailed mission program.

4 ACTIVITIES DURING THE MISSION

Installation of PX-WEB and Internet Information Server (IIS)

During the mission an internet sever, was delivered to INE. It was recommended to use Windows 2000 Server on the server, as INE not yet has any experience with the Windows 2003 Servers Zope / Plone - the CMS (Content Management System) for the new homepage - was also installed on the server and it seems that PX-WEB and Zope / Plone can work on the same server. If PX-Web is to be used for a full production database a dedicated server should be purchased for the project.

The internet server was connected to the INE network and the PX-Web pilot database is in principle already accessible to all the staff at INE.

Adaptation of PX-Web

PX-Web is highly versatile product which allows for building dynamic access databases on the Internet in a short time span. A Portuguese language version has been created with a significant effort from INE, in relation to translating the dialog in user interface. Doing the process of adaptation to INE requirements a document describing the changes involved in creating this particular version was created. The document is attached to this rapport as Annex 4

A consultant (Nadime Remane) from the consulting company Value-4U participated in a briefing on how PX-Web was installed and adapted to INE requirements.

Integration to the new homepage

Together with the consultant from Value4U - who has been commissioned to develop the new INE homepage - it was discussed how a dynamic database can interact with the new design and structure on the INE homepage. Value4U passed on technical information about the design and layout of the new database. PX-Web can use the style sheet (CSS) prepared by Value4U for the new homepage.

Training in the use of PC-AXIS, PX-MAKE and PX-WEB

During the mission training in the use of PC-AXIS, PX-MAKE and PX-WEB was given to 4 staff members from IT department. Due to the length of the mission, the training was focused on the core functionality of the PX software family.

A more detailed description of the training is found in Annex 3.

It is important to note that the PX software family is a very comprehensive and versatile tool which can be adapted in a large number of ways. It can also be used as the core of a common data warehouse. This means that there are still areas of the software package where further elaboration and training will be advantageous.

The training would then focus on more general questions regarding data, data structure, meta-data, and internet dissemination using databases.

Additional training would also make it possible to cover more advanced questions of “how to design and structure” a user friendly internet Databases, and the interaction between Internet Servers and Databases.

It would also be advantageous to address questions like “how to organize the daily work with the database” and “how to manage user expectations and dialog with users”

Most of the recommendable additional training would be relevant to all internet database and common data warehouse question, instead of focused on the PX- family of software.

Meeting with the internet reference group

A meeting was held with the Internet reference group. An early version of the INE PX-Web adaptations was demonstrated for the group.

As a dynamic access database today is seen as an integral part of the homepage of any NSI it is highly recommended that the Internet reference group shall coordinated and closely monitor the developments of the pilot database project.

The pilot database can be completed and published without dealing with the organizational challenges (preparing and validating data, and without establishing a common meta-data standard) by including only already prepared and published data like the yearbook or other sources.

To establish a common meta-data definition - which will add significantly to the quality of the database- will take a significant amount of work and is only possible with strong coordination and support from the subject matter departments. This is only absolutely necessary in the long run, if data is to be updated on a regular basis. Any long term ambitions to include data from the other participants in the SNE will automatically lead to a higher demand for well structured meta-data and documentation.

But if INE has any real ambitions about moving forward to a common data ware house, real work must be done on first identifying and describing relevant meta-data, and then coordination the consistent use of these meta-data throughout INE. Ultimately it will be possible to design the database and proper procedures for updating around these meta-data.

Content structure of the Internet Database

At the different meetings it was suggested that INE should adapt the structure of the Yearbook as a presentation structure for data on the Internet. This would be advantageous as the structure is stable over time and is also well known to INE's present users.

It was stressed that presentation structure should always present data from the user perspective. And that the information should never be ordered or presented by internal organization or by methods of collection. Even though this sounds like common sense, it is a problem for a large number of homepages both inside and out side the world of statistics.

Seminar

A seminar was conducted with vice-presidents and heads of subject matter departments (Presidência, Directores e Head of Departements). At the seminar PX-Web was again presented at it was discussed how an Internet Database would relate to the overall INE IT-Strategy. It was also discussed what kind of impact a dissemination database would have on the subject mater departments.

A number of the participants focused on the relationship between any kind of internet dissemination database and the common data warehouse described in the IT-Strategy.

A number of participants felt that it would be more logical to jump straight to an internet dissemination database build from the common data warehouse, instead of starting "backwards" by building the Internet dissemination database. In principal this is a very relevant and significant discussion.

The answer to the question is very much depending on level of sophistication and the time span from now until the common data warehouse is operational. At the time of the seminar it was not possible to have a real overview of common data warehouse project.

However a report about the common data warehouse is in the making and a draft is expected to be ready at the end of August 2004. It will be prepared by DISI as required in the project document for the Scandinavia program.

It was stressed by the consultant that it is important to keep momentum in the dissemination database project. It can be expected that external users - especially outside Mozambique – will expect that INE offer a dynamic access database as part of the homepage. This expectation could be further elaborated in a pilot study of user needs.

If the common warehouse is to form the basis of an internet database, the establishing of the warehouse can be a rather ambitious and time consuming undertaking. The time frame for such a project may very well be too long to meet short term user expectations for access to data through the internet.

Until the level of sophistication and technology for the common data warehouse is defined, it can be difficult to advice on the best way forward.

It is however very important to follows the stepwise approach outlined in the December mission report, in order to minimize technical, economical and organizational risks.

From the perspective of INE's users it is not really relevant how advanced the technological design behind any given internet Database is.

Ultimately it gives a lot more value to end-users to have a Database on the Internet in 2004, than to wait while a common data warehouse becomes available.

Especially if the user interface and the data presented in the two solutions has the same functionality and quality.

In the seminar it was stressed by the consultant that any projects on implementing dissemination databases involve both an IT aspect and an organizational aspect. The organizational challenges are independent of the technology used to implement the IT aspect. The organizational aspects and challenges are basically the same, even if a competing product to PX-WEB is chosen.

Competing products could be the Super Star family, Stat-Line or Beyond 20/20. All products require a very high standard of IT integrity and centralized management of data and related work flows which can be very difficult to achieve.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The mission proved to INE that the PC-AXIS software family is easy to learn and use. PX-Web can be used to create a internet dissemination database with relatively little impact on the organization and its IT resources, in this scenario PX-Web will be used together with the PX-Make and PC-AXIS software.

Another scenario is to use PX-Web as a “front end” / user interface which takes its data from a common data warehouse solution.

Both scenarios could be the best way forward, but the choice will very much depend on decisions regarding the development of the common data warehouse. A draft report on the common data warehouse is expected at the end of August 2004.

However in order to minimize risk we will suggest that INE follows the first scenario, as this scenario will give comparable value to end-users inside a shorter time span.

If approached correctly a significant part of the work (like meta-data definitions and organizational procedures) involved in establishing an internet output database can be reused or will have direct relevance for the future common data warehouse.

The work done during the mission showed that compared to other relevant solutions PX-Web is easy to learn and to maintain, for the IT people who should operated it.

Compared to other potential internet database solutions the development of the different tools and software's in the PX-family is defined by yearly meetings in the user reference group. The reference group is open to all NSI's using the PX-family software; this means that INE has a real possibility to influence the future development of software.

Also the cost of the PC-AXIS software is very competitive. Finally al relevant expertise is available inside the ScanStat consortium, which gives INE easy access to qualified training and support now and in the foreseeable future.

5.2 Recommendations

This report has 3 short term recommendations and 4 long term recommendations.

SHORT TERM RECOMMENDATIONS:

During the mission the short term consultant was informed that the work on adaptation and implementation of INE's future IT Strategy and its associated strategies was progressing well. We hope that this work will continue to progress well as the implementation of the different IT policy's will greatly assist any future projects regarding not only Internet dissemination but also the proposed common data warehouse. Also the proposed IT-policy's will greatly reduce the any potential risks in launching

It is recommended that INE follows the steep wise approach set out in the December rapport (Wulff & Ellemose, December 2004). This implies the following 3 steps:

1. Recommendation: Finalize the technical Internet Database Pilot project

A project plan should be adapted and implemented for adding data to the pilot database. A draft project plan is included in mission rapport as Annex 5. It's recommended that INE finalizes this plan and then undertake the work of adding data to the Pilot Database, so its full potential can be evaluated by the senior management and potential customers / end- users. The database should only contain data that it is easy to access inside the organization and easy to convert into PX-Files.

It is recommended that this is done as soon as possible. The purpose of adding data is to establish the basis for a technical evaluation of PX-Web.

So when the "minimum" database is ready INE should evaluate the technical solution based on PX-Web in terms of "costs of ownership", maintainability and organizational impact.

2. Recommendation: Conduct a user pilot project

INE should prepare a project plan for a user pilot project and then conduct the project. During the mission it became apparent that INE believes that it needs further inputs regarding user needs / demands in relation to an Internet Database.

A project to assess user needs would normally have two aspects. One aspect dealing with general demand for the product and one aspect dealing with specific requirements to the product, if there is a general demand.

We believe that the December mission has already established that there is a real demand for an output database on the Internet. Also internet databases are increasingly becoming the "norm" or best practices among national statistical institutes.

It is therefore recommended that INE in the suggested user pilot project instead enters into a dialog with selected users regarding content, documentation, pricing, updating frequencies and other user dialog issues. It is recommended that the Database created in step 1, is used as the basis for this dialog.

It is always important to take user needs and expectation to data into account before deciding on an internet database, but it is highly recommended that INE uses a pragmatic approach and concentrates on publishing available data, instead of starting a dialog with user over which data to include. It is important that user dialog only (or at least mainly) touches issues which you have real possibilities of accommodating or reacting to.

3. Recommendation: Evaluate and decide about the future use of PX-web

When recommendation 1 and 2 has been implemented INE should together with the ScanStat group evaluate the findings of the technical pilot and the user pilot and then discuss the way forward.

If the needed technical and organizational conditions are in place it is recommended to publish the data on the Internet using PX-WEB.

During the process of implementing step 1 and 2 INE will be able to build sufficient knowledge to evaluate the amount of work involved in maintaining a database based on the PX-Web technology, and also to assess the organizational challenges involved.

LONG TERM RECOMMENDATIONS:

1. Continue the stepwise approach to a common data warehouse.

The project of building a common data warehouse as a core for dissemination on the Internet in general, in the form of a dynamic databank as well as for publishing on other media like paper and CD-ROMs is still highly recommended. The pilot project has introduced INE to the initial steps and technologies needed to start moving towards a dynamic access database on the Internet.

It is recommended to discuss 3-4 different types of solutions. The document describing the solutions should also include a discussion about data warehouse in general and about how to implement data warehouses in statistical bureaus.

A draft of this rapport is expected to be ready at the end of August 2004, and will be prepared by DISI as required in the Project document for the Scandinavia program.

2. Top level ownership

If a database is to be maintainable in the medium to long run it requires a great deal of cooperation between Dissemination, IT and Subject matter functions around INE, this is clearly only feasible with a very strong degree amount of support from top-level management. It is possible that the actual work can be delegated to the Internet reference group. However if the dissemination database is to be build using data from the common data warehouse, the project becomes more complicated and will there for requires even more top level ownership.

3. Internet Reference group to organize the database contents

Establishing the Internet database is a task involving the DISI, DDD as well as the subject matter directorates. The work can be organized and coordinated within the Internet-reference group that holds members from these areas. As the group has ownership of the Internet project it is the natural forum for coordinating an Internet Database.

4. User involvement.

The dynamic database shall be driven by user needs. It is important to keep up with these needs through user satisfaction surveys, by registration of the usage and by meeting the users. 6 months after launching of the database INE it is recommended to evaluate the project involving comments from the users. INE should conduct annual user meetings to get input to the development of the web site and the database.

5.3 Recommendations for further support from the Scandinavian program:

All recommendations for support from the Scandinavian program assume that a decision to move forward with a PX-Web solution is made. However it could be discussed how the Scandinavian program could provide support for the proposed user pilot and to facilitate INE's discussions on the way forward. The recommendations listed below assume that INE decides to move forward following the PX-Make / PX-Web scenario.

If INE decides to implement an internet database based on the common data warehouse model it is difficult to recommend further specific support activities before a project definition for the warehouse has been developed. The development of a detailed project plan regarding the establishment of a dissemination database based on a common data warehouse could be supported by a short term mission.

1. Short term mission to support the launch of the pilot database

It is the impression of the short term consultant that INE's users can benefit greatly from having access to an Internet Database and that it should be possible for INE launch the Pilot Database to the general public in near term future, using the PX-Web platform. It is therefore suggested that the ScanStat consortium supports such a decision with at least one short term mission.

If INE decides to launch the Pilot Database to the public, it is recommended that the launch is supported by a short term mission (2 weeks).

The purpose would be to follow up on the training already provide to INE with special emphasize on quality insurance and putting in places the proper procedures for updating and maintaining the database and it's integrity.

Major topics to be covered are the (re)use of meta-data when designing and building tables and designing the tables for "best presentation". There are also a number of facilities in the PX-family which should be elaborated.

An expected result of the mission should be the compilation of a Meta-data guide book / overview. The purpose of this is to assure consistency in the database. This type of work is the most basic definition of any statistical dissemination database and is a necessary building block of any out-put database or common data ware house solution. In this aspect the work will also have relevance for future work on the common data warehouse,

2. Provide the necessary hardware

The mission should also oversee the installation of a proper and fully configured production environment. It is recommended that an environment with two servers is created.

One server should be inside INE and used only for PX-WEB applications, its purpose will be to store, test, and validate data until they are ready to be published. If possible it should be configured so that the Subject matter departments can access and check-up on tables (with confidential data) before publishing. In all other aspects this server shall reflect the production Server.

As such this server could be seen as the first central data repository for the common data warehouse targeted in INE's IT-Strategy.

The second server shall contain the public part of the database, and should be hosted or housed outside INE together with the server running the INE homepage.

At a first glance a setup with two dedicated servers can seem overly complex and expensive, but it will make it possible for the internal PX-Web server to act as a significant building block in the common data warehouse. Also it will provide for a "robust" installation, were the running of other applications will not be affected or affect PX-Web. In case of technical trouble with either the PX-Web server or the Internet server, INE would still have either the Database or the Homepage running thereby providing a minimum of redundancy.

It should be discussed if ScanStat should provide a shot-term IT mission to help install and configure the relevant hardware or if it is better to rely on a "housing/hosting" solution.

3. Provide an upgraded PX-Web version

As the new homepage develops it may be necessary to provide further localization of the PX-Web installation. Eventually dealing with things like closed user groups or subscription databases. If the project is extended over time and a new version of PX-Web is released it may also be advisable to provide upgrade support. This could be done by adding an additional week to the setting to work short term mission.

4. Facilitate Participation in the Axis reference group

If INE decides to launch a Internet database build on the PX-Web technology, then it is important that INE participates in the annual PC-AXIS Reference Group Meeting, where future development is decided. Members are statistical offices that use PC-AXIS/ PX-WEB. The first coming meeting takes place in 4th quarter of 2004. It is there fore recommended that the Scandinavian program provides financial support for participation in the Axis reference group activities.

5. Short term mission on marketing and user dialog

If a decisions to launch the database is made it is suggested to have a short term mission on how to enter into a dialog with selected users to regarding marketing, content, documentation, pricing, updating frequencies and other user dialog issues. The mission could be scheduled 6 months after the launch of the database and then include a user satisfaction survey.

ANNEX 1 Terms of Reference for the mission

TERMS OF REFERENCE

for a short-term mission on

Internet Database Pilot project

24 May – 04 June 2004

within the Scandinavian Assistance to Strengthen the Institutional Capacity of INE/Mozambique

Consultants: Jesper Ellemose Skou

Counterparts: Marcelino Silva, Anastácia Judas Honwana and Jose Inguane

D R A F T

Background

Today INE has a web page (www.ine.gov.mz) with static data. The page is hosted at an Internet Service Provider outside INE (TVCabo) and the updating is done via the dissemination unit (DDD) using simple file transfer software.

Value-4U – a private company – has been contracted to help INE to improve the structure and navigation on the Internet Page. This project started in the beginning of April.

In addition to this a short term mission about output databases was carried out in December 2003. It was recommended to use a stepwise approach when introducing Internet database solutions and data warehouse solutions. The Internet Database Pilot project is the first step. The next step will depend on further discussions and decisions.

Definition of structure and content of a simple pilot database and training in the software PX-WEB will be the core activities at the mission. Information and discussion of the internet database - especially with top management - will play a crucial role at the mission.

The work on introducing PX-WEB on this mission should be done in close cooperation with the Internet Project Group at INE and Value-4U. The Internet group consists of persons from the IT-department and from the dissemination department. The work on analysis of requirements and training will be important activities in this group.

Objective

One objective is to develop competence of the main counterparts in this mission

- about how to define content in order to dynamically publish basic statistical information / fulfill user need
- about the creation of information architecture in order to support the use of output database and internet database

- about tools and methodologies to use for development and operation of the output- and internet database

Another objective is to present ideas about how to continue the work on implementing Internet databases including how to ensure connection to other databases at INE.

Expected results

- Pilot version of an Internet Database using PX-WEB. The Internet Database should be ready to publish at INE's webpage
- Mission report that comments on the objectives and achievements and include recommendation about of the next steps on improving the Internet database and on building internal database architecture inside INE

Activities

- A meeting with the president on the objectives and expectations of the mission.
- An initial meeting with Director Destina Uinge and Counterparts to agree on agenda for the mission
- Meetings / discussions about content (structure and content of data)
- Implementation and test of PX-WEB withy pilot tables
- Training to staff from DISI and DDD in using PX-WEB and PX-MAKE.
- Seminar for managers at INE incl. SEN to demonstrate the Internet Database and PX-WEB
- A meeting towards the end of the mission with Director Destina Uinge and Counterparts to present and discuss the results and recommendations

Tasks to be done by INE to facilitate the mission

- Elaborate ToR for the mission
- Prepare and supply the consultant with necessary documents and information, such as mission reports, strategies, plans etc.
- Supply good working conditions for the consultant

Consultant and Counterpart

Consultant: Jesper Ellemose Skou from Statistics Denmark

Main counterparts:

Anastácia Judas Honwana, Head of Department, IT-department

Silva, Marcelino, Head of Department, Dissemination-department

Jose Inguane, Project Leader Internet Project

Timing of the mission

Two weeks (24 May – 04 June, 2004).

Report

The consultants will prepare a draft report to be discussed with INE before leaving Maputo. They will submit a final draft to INE for final comments within one week of the experts have returned to work. Statistics Denmark as Lead Party will print the final version within 3+ weeks of the end of the mission. The structure of the report should be according to Danida format.

The Counterpart has to ensure that the final printed report has at least a summary in Portuguese if the main report is in English – or vice versa.

These Terms of Reference were prepared by

Day / /

Approved by/in the name of the President of INE

Day / /

Prepared by: Mogens G. Nielsen. Consultor, Scanstat

ANNEX 2 Program of mission

PROGRAMA DE VISITA DA MISSÃO IMPLEMENTAÇÃO DO PROJECTO PILOTO DA BASE DE DADOS PARA DISSEMINAÇÃO NA INTERNET

Maputo, ao 1 de Junho de 2004

Duração da missão: 24 de Maio a 4 de Junho de 2004

Consultores: Jesper Ellemose Skou

Contrapartes: Marcelino Silva , Anastácia J. Honwana, José Inguane

24 de Maio

12:30 -13:30 Encontro com a Dira da DICRE, o Consultor de TI e CD do DDD e do DISI, Discussão dos Termos de Referência e ajustamento do programa

14:00 -15:00 Encontro com a S. Excia o PINE, Directora DICRE, Consultor IT, CD DISI, CD DDD

25 de Maio

08:30 -10:00 Apresentação do ESDEM (Bruno Rodolfo)

10:00 -12:00 Reunião com a Value for U

14:00 -15:00 Apresentação do LDB (Dr.José Inguane)

26 de Maio

08:00 - 12:00 Preparação da documentação para o Seminário com o Grupo de referência ,

13:30 - 15:30 Reunião - apresentação do PX-Web para o Grupo de Referência para Internet do INE , proposta da estrutura para os conteúdos a serem apresentados na base de dados.

27 de Maio

8:30 - 15:30 Configuração e instalação do servidor

28 de Maio

11:00 - 13:00 Preparação da base de dados e integração do PXweb com o Zope/Plone no servidor

13:00 - 15:30 Preparação do formação

31 de Maio

8:30 - 15:30 Preparação do formação

1 de Junho

08:30 - 12:00 Formação PX-Axis

14:00 – 16:00 Preparação do relatorio do missão

2 de Junho

08:30 - 12:30 Formação PX- Make part 1

13:30 - 15:30 Seminário - apresentação do PX-Web para os gestores do INE (Presidência, Directores e CDs),

3 de Junho

08:30 - 10:30 Formação PX- Make part 2

10:30 – 12:00 Formação PX- Web part 1

13:30 - 15:30 Formação PX- Web part 2

4 de Junho

8:30 - 15:30 Discussão e avaliação da Missão

ANNEX 3 Training

The training activities have 3 main components PC-AXIS, PX-Make and PX-Web. All training is done as a combination of short instructions and "hands on" exercises.

PC-AXIS

Purpose:

The purpose is to give the participants an understanding of PC-AXIS and the multi dimensional statistical cubes (matrixes) which forms the core of the system. For example, how to change head / stub in a table and how tables can be merged in to larger tables. It was also demonstrated how aggregations and calculations can be made in PC-AXIS, as this greatly reduces the amount of work needed when creating tables.

Participants: Mr. Anselmo Nhane
Mr. Jose Inguane
Mr. Luis Rachid Mrs Nyansat?????

PX-Make

Purpose:

The purpose is to give the participants an understanding of how the cubes can be built from scratch using already available data sets. PX-Make is relatively easy to use, but a lot of attention must be used on analyzing tables in order to define the relevant statistical variables and their values.

Participants:
Mr. Anselmo Nhane
Mr. Jose Inguane
Mr. Luis Rachid
Mrs Nyansat?????

PX-Web

Purpose:

The purpose was to explain how PX-files are moved into the PX-Web database. How to update the master / index files in PX-Web and it is also demonstrated how new subject areas and databases are created. Finally the different step in individualizing PX-Web is demonstrated.

Participants:
Mr. Anselmo Nhane
Mr. Jose Inguane
Mr. Nadime Remane (Value4U)

Course material

PC-AXIS & PX-Make user's Guide ; (Statistics Sweden, May 2001)

The PX-Web installation at INE (Maputo / Mozambique); Statistics Denmark May 2004

Different descriptions of PX-Web, PX-iMap, PX-iGraph, see The PX-Web installation at INE (Maputo / Mozambique)

Also a number of notes describing different basic exercises were used

ANNEX 4 The PX-Web installation at INE (Maputo / Mozambique)

PX-Web as part of the PC-AXIS family is developed mainly by SCB (The Swedish Statistical office). The map component is done by SSB (The Norwegian Statistical office). In INE installation the graph function is the Danish PX-Igraph version (Lars Knudsen and Michael Pedersen). Statistical information about usage of the INE PX-WEB installation is also in the INE case developed by Statistics Denmark.

This document describes the localization of PX-Web at INE and how the look and feel of the solution can be changed. The document assumes a basic understanding of Microsoft Internet Information Server and HTML.

The actual updating of the PX-Web database is described in the PX-Web 2003 document by Lars Nordbäck. See also www.pc-axis.scb.se

Translating PX-Web

All texts in the user interface of PX-Web are passed around in the software application. The texts are found in the pxwebine\pxweb\dialog\includes\global1.asp file

Please note that PX-iMap has it's own language file, which also needs translation.

The user interface has an reference to a HTML-files which can contain various information on how to use PX-Web from an end-user perspective.

In the INE version this file is found in: <http://localhost/pxwebine/pxweb/Dialog/tipsPC11.asp>

It is also possible to have the same file for users of the Macintosh computer.

Then the file is tipsmac11.asp

Please note that these files must edited by someone with an understanding of how HTML works.

Using Alias instead of directory names

PX-Web will name each subject area and each table area with the name of the directory the files are placed in, if you do not place a file called alias.txt in the directory. In the file there shall be only the text you would like to use instead of the directory / folder name. It is highly recommended that you use the alias.txt method as the Internet Information server (and browser) can have serious problems addressing pages / files with the special Portuguese characters. You should also pay special attention to avoiding blank spaces in your directory names.

The Front page or Running home to "Mama"

The PX-Web application displays a bread- crumb to ease navigation backwards and forwards.



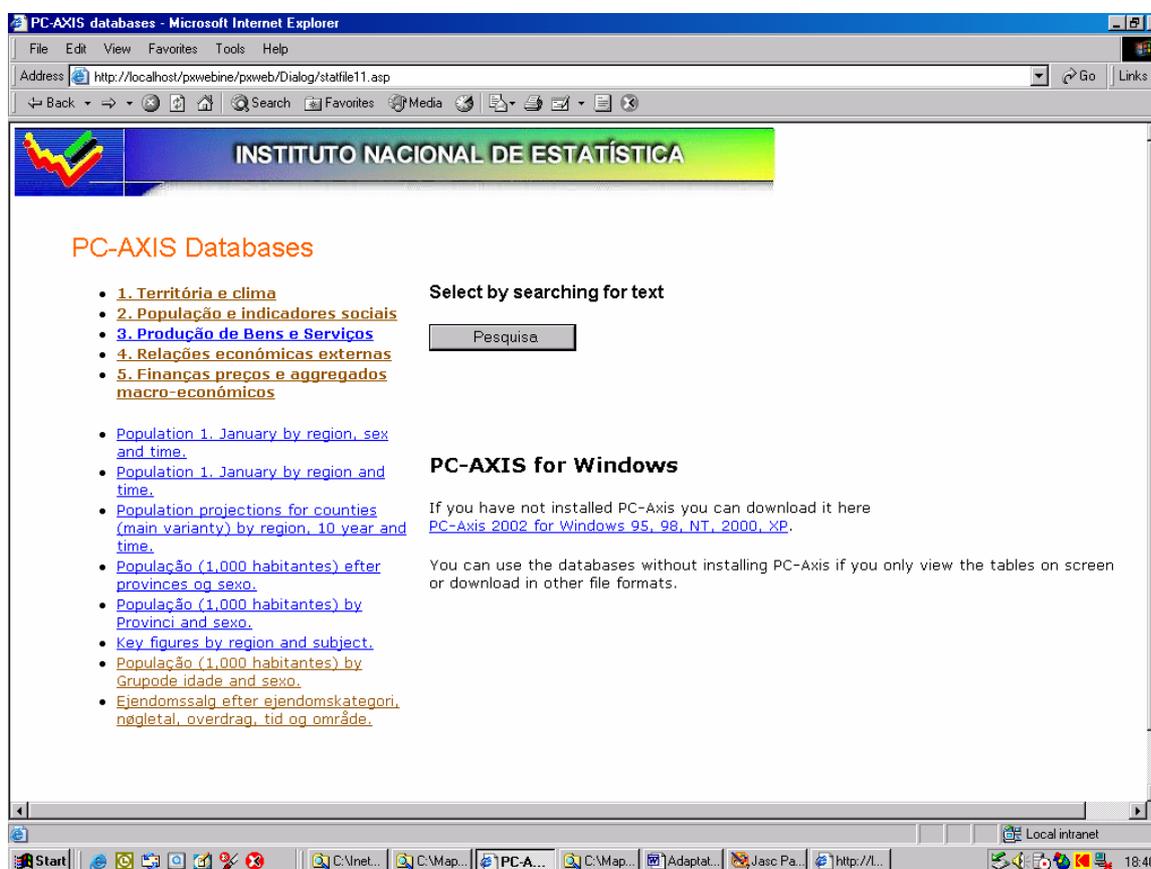
► [Base da dados](#) - [Área de Estatística](#) - [Quadro](#)

Quadro: **Climate by Clima indicator, Region and Time.**

Informação: [Informação](#), [Notas de rodapé](#)

The start of the bread-crum is the file pxwebine/pxweb/dialog/statfile11.asp
You must edit this file so it displays the different databases in the installation.

It is normal to use the statfile11.asp as the entry point / front page of the Database.



Cookies on the Front Page

If cookies are allowed on the computer the user can use PX-Web to put a cookie on the local computer. The statfile11.asp will then search for the cookie and display the files most recently used by the visiting computer.

This function can be turned on / off in the Pxwebine/pxweb/dialog/includes/global1.asp files by changing
allowcookies=false to true

If the user would like PX-Web to remember a table, the user shall use the create cookie icon in the tool bar.

[Variáveis e valores](#)



Style sheet and background image

CSS file and the different logo's is referred in PxIncSA.asp which must be placed in each subject area.

CSS file 2_ine.css is placed in pxweb\dialog\include

Background image background_ine.jpg is placed in pxweb\dialog\include

The Top logo ine_log.gif is placed in pxweb\dialog\include

Please note that you must state the size of the top logo in the PxIncSa.asp file

Other wise the logo will either not be displayed at all, or it will look very must distorted.

The following block of programming codes holds constants in PxIncSa.asp

```
"""""" translate

strH2text="Área de Estatística "
strSeltext="Select part"
strTotttext="Download total"
strView="View table"
strTitletext="INE - "

"""""" end translate
```

As part of adapting PX-Web to your installation you must translate these 5 constants.

Varval and Saveshow

The top logo displayed on the Varval and Saveshow pages is taken form pxwebine\pxweb\incheader.asp which takes the logo from strLogo in the Global1.asp file. Global1.asp must also be adapted to have the proper references to style-sheet and colors.

Again “Varval” and “SaveShow” includes their own footer file. This is found in the

Pxwebine\pxweb\dialog\includes\IncFooter.asp

This file must be edited as HTML.

Footer

On each auto generated page an "footer" can be included. The footer must be requested when the subject area files are updated using the selectdb.asp file

The content of "Footer" is in the IncFooter.asp file. This file must be in the subject area directory. You can adapt the content of IncFooter.asp file for each subject area. Fx if you would like to have different sources in each subject area.

PxIncDB

The look of the database proper can be change in the PxIncDB.asp file. This file must be placed in each main database directory. In the INE case the content of PxIncDb and the PxIncSA files is very similar. Please note that there are important differences. Especially relating to the specification of where the different style-sheets and logo's are located.

User Statistics

When running a dynamic statistical Database, you are also interested in the number of users and the number of file downloads they do. This feature is turned on or off the entire

PX-Web installation in the pxweb/dialog/includes/global1.asp file where you change between logging=true or logging=false

In the PX-Web\PxWebstat folder a Microsoft Access database is located.

It is called pxwebstat.mdb. When you need to see the usage of the database you can either make a copy of the database file or move it to your own computer. Then the file can be analysed using MS-Access, MS-Query or Excel.

A very aggregated display of information can be obtain by going to

[Http://localhost//PXwebIne/pxweb/pxwebstat/webstat.asp](http://localhost//PXwebIne/pxweb/pxwebstat/webstat.asp)

Please change to the proper production address.

The procedures who takes care of the logging of the user behaviour is changed in dialog\savehow.asp when the

'<!-- #INCLUDE FILE="includes/Countfile.asp" -->' is invoked.

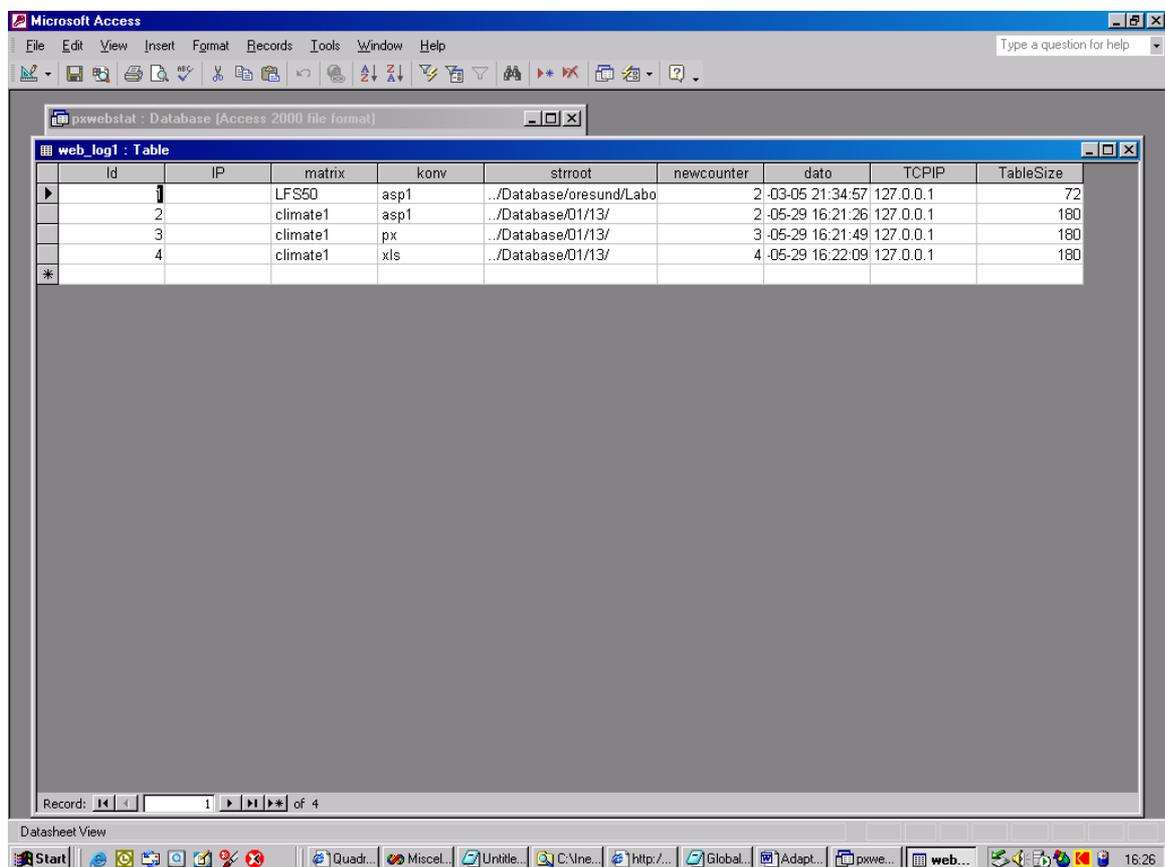
Just after the invoking of

<!-- #INCLUDE FILE="Includes/logging.asp" -->

Please note that the method based on including countfile.asp is a specific statistics Denmark Feature. A simple file driver is used for the ACCESS database file. The relevant ACCESS driver must be installed on the IIS Server.

Different methods can be used. Logging.asp and Countfile.asp must be corrected if a different driver method is to be used.

The Access file



The column TCPIP contains the TCP/IP address from the visiting computer. Please remember that you will very often only be able to identify the address of the proxy server, used by the visitor. Also note that stroot indicates the real name of the files place in the Database and not the titles in alias.txt which are presented to the users.

PX-iMAP

The map functionality in PC-AXIS and PX-Web is made by SCB (Statistics Norway).

The actual maps are located in \pxwebine\pxweb\map\maps

The maps used by PX-Map are normal shape files from the ARC-View software packages. Two sets of Mozambique maps (“distrits” and “provines”) are found in the installation. These maps were provided to Statistics Denmark in December 2003 by the department of XXXX of INE.

```

provinces.ini - Notepad
File Edit Format Help

[MAPS]
NumMaps=1
l=c:\inetpub\wwwroot\pxwebIne\Pxweb\Map\Maps\provinces.shp

[DEFAULT]
SymbCol=colLightYellow
StartCol=colLightYellow
EndCol=colRed
NullCol=colWhite
ShowNoData=0

[FIELDS1]
MapName=provinces
KeyField=CODIGO
KeyPField=CODIGO
NameField=NOME
NamePField=provinces
StatPField=Statistics

```

For each map there is an ini file. In this file the absolute path of the shape file is stored. So if the PX-Web is moved to another location / server this absolute path must be adapted.

PX-iMap has it's own language file for the user interface. You must translate the proper part of the file: "Pxwebine\pxweb\map\pximap_lang.asp"

PX-iGraph

PX-Web ships with a graph system which is adapted from the PC-AXIS software. In the INE installation we have used the PX-iGraph from Statistics Denmark.

To include this solution a small change is made in \dialog\htmltable.asp

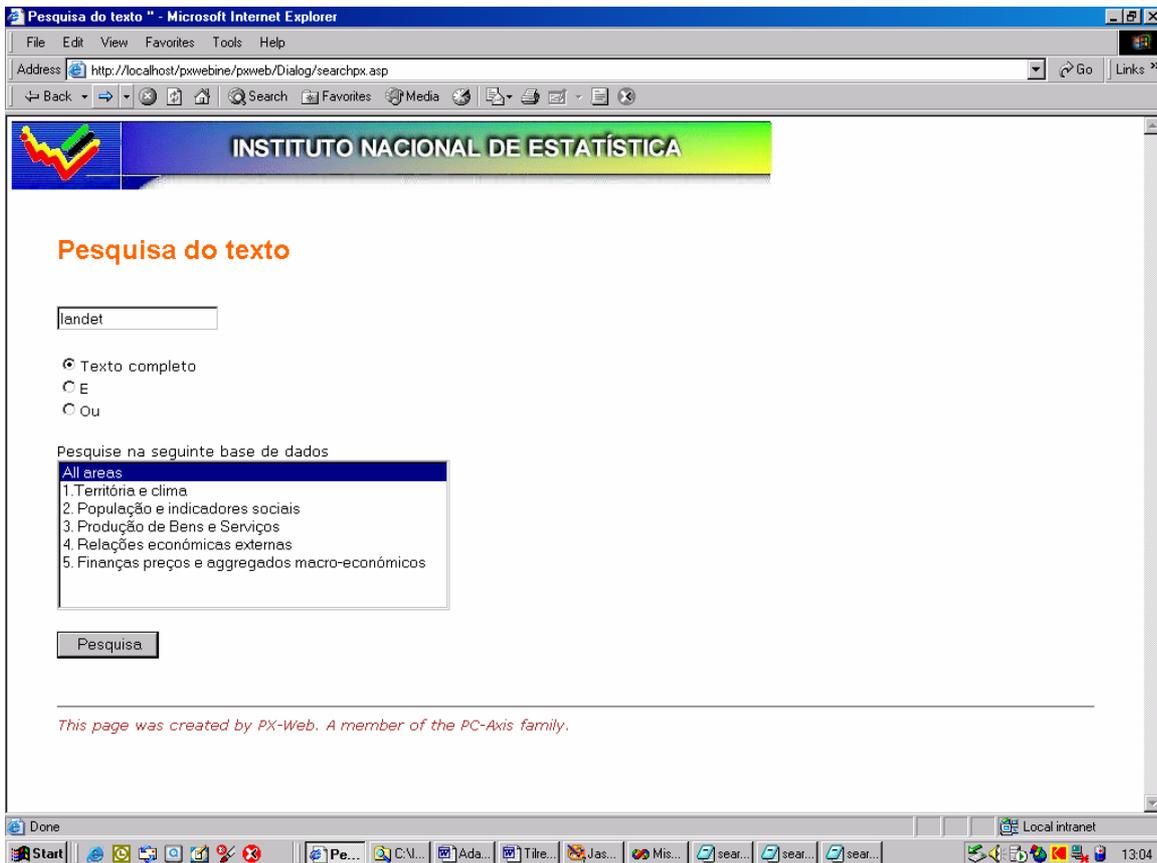


The Danish graph component is located in **/pxwebine/pxweb/graphics**

A number of texts and messages can be found hard-coded in the different files.

Changes to the iGraph setup should not be made.

Searching the PX-Web Database



It is possible to search the PX-Web database the function is called from the pxwebine/pwweb/dialog/stat11.asp file.

As search file is not capable of reading the alias.txt file. The different levels of the database must be described in the stat11.asp file.

The number of databases / directories

```
<INPUT TYPE="hidden" NAME="nodb" VALUE="5">
```

in the stat11.asp file must equal the number of directories otherwise a IIS error will happen.

```
<input TYPE="SUBMIT" VALUE="<%=strSearchCmd(LangIndex)%>" id=SUBMIT1 name=SUBM
<INPUT TYPE="hidden" NAME="lang" VALUE="<%=Langindex%>">
<INPUT TYPE="hidden" NAME="db1" VALUE="../Database/01">
<INPUT TYPE="hidden" NAME="db2" VALUE="../Database/02">
<INPUT TYPE="hidden" NAME="db3" VALUE="../Database/03">
<INPUT TYPE="hidden" NAME="db4" VALUE="../Database/04">
<INPUT TYPE="hidden" NAME="db5" VALUE="../Database/05">
```

```
<INPUT TYPE="hidden" NAME="db1name" VALUE="1.Territória e clima">
<INPUT TYPE="hidden" NAME="db2name" VALUE="2. População e indicadores sociais">
<INPUT TYPE="hidden" NAME="db3name" VALUE="3. Produção de Bens e Serviços">
<INPUT TYPE="hidden" NAME="db4name" VALUE="4. Relações económicas externas">
<INPUT TYPE="hidden" NAME="db5name" VALUE="5. Finanças preços e agregados macro-económ
```

```
<INPUT TYPE="hidden" NAME="nodb" VALUE="5">
```

```
<!--Problem that INE uses alias text
Search px should be adapted to read the alias.txt
Fast solution is to bring db1name forward to Searchpx and read it there
Louise should adapt searchpx so it will read alias.txt
Otherwise I should do it
```

Jesper Ellemtose May 2004

```
--->
```

Also changes have been made to the searchpx.asp file. The changes are described in the files themselves. If you add new database areas in stat11.asp, you should also include the new database in searchpx.asp

Housekeeping

It is necessary to keep the PX-Web installation tidy at regular intervals.

As the users makes her selection from the PX-files which defines the database a temporary px-file is created. The file is placed in pxwebine\pxweb\temp .

It is therefore necessary to delete these files from time to time, as they take up valuable space on the server. PX-iMap also creates temporary files, but these are created in pxwebine\pxweb\map\temp, you should also delete these files at regular intervals.

It's important **NOT** to remove the temp directories entirely, as this can (will) create problems with file access rights on the IIS.

The Internet Information Server (IIS) generates a log file each day. This file has a record for each HTTP request made against the Server. These files should be removed from the IIS with regular intervals. They can be valuable as input material for programs like Web-Trends but there is no need to keep these files on the server for ever, especially if / when you run into problems with space either for data or on backup tapes.

ANNEX 5 Project plan for Table building in Internet Database Pilot project

Introduction

Doing a short term mission in May- June 2004 PX-Web was installed on an Internet Server at INE, as part of an Internet Database pilot project. A dissemination structure based on the INE for the database was suggested. A few PX-files were created as part of the training in PX-Make. To launch the pilot database on the internet a large number of files is needed. This plan outlines the creation of a sufficient number of PX files.

Objectives

1. Create PX-tables covering the following areas

Population Geography

International Trade,

National Accounts,

Balance of Payment

CPI (Consumer Price Index)

Data shall be sourced either from the Yearbook, or from ESDEM

The tables should then be placed in the relevant areas on the INE PX-Web database

2. Evaluate PX-Web's relevance as a tool for INE

The evaluation should have the form of a report.

3. Present the database with data to the President of INE

The presentation should be done at a seminar with the President and representatives from the top level management.

4. Create the basis for a management decision on launching a PX-Web solution as part of the redesigned homepage

Expected results

When the tables are created and loaded into the database. It shall be possible to present a working database to the President and the top management at a seminar.

At the same seminar DISI shall represent an evaluation report of PX-Web as a tool at INE.

The report must evaluate PX-Web in terms of training requirements, maintainability, support, and try to estimate the difficulties in creating PX-tables in the future.

It should also deal with the impact of PX-Web on the IT structure at INE, back up, security, installation of PC-AXIS at workstations etc. The "foot print" of Pc-axis must be compared to other systems already at INE, so the relative difficulties can be seen.

The report shall try to assess how difficult in terms of manpower and training it will be for INE to keep a PX-Web database in operation. It should address questions like how difficult will it be for other people at INE to learn the software, is it feasible to operate the system with out short term support mission. If not which questions should these missions address?

The purpose of the report is for the INE management to decide on going forward with implementing of an Internet database using support from the ScanStat consortium.

If the management decides to go forward a project plan for the implementation of the database should be prepared.

Time frame

A total of 20work days shall be used for the project.

10 days shall be spent on creating and loading the data.

It suggested that two people work together on this task, and it is important that they work on the project uninterrupted and at the same time, to insure coordination and sharing of experiences.

2 days shall be used for coordinating the codes and values and the texts used in the pilot database, so the database gets a uniform expression.

5 days shall be used for writing the evaluation report.

3 days shall be used for preparing the presentation

The working days are understood as full days, without interruption.

Risks

The time frame is not optimistic, but assumes that the personal involved in creating the tables can do this without interruption.

If not, they will need significantly more time, as they will have difficulties in gaining the confidence and speed, which can only be gained by experience.

Other more “important” commitments, a real risk for the project is that the people who has received training doing the short term mission, can not be made available for the work or can only work on the project part time, as they are all key participants in the Internet project.

ANNEX 6 Outline of Output Database Pilot project

Phases in Step 1.

If the stepwise approach is approved by INE, the first step of the project (The pilot project) can be broken down into a number of smaller steps. The pilot project is estimated to have duration of 3 months, starting after access to a suitable Internet Server has been established. The phases in step 1 are not entirely progressive, but can to a certain degree be carried out in parallel.

Organisation of the pilot project

Before a pilot project can begin a suitable project document must be established.

It must describe in detail the work to be undertaken by INE, and the persons who are to carry out the work. The pilot project could refer to the Internet Reference groups .

	Activity	Duration	Responsibility
1 +	Installation of Web Server plus PX-Web software	3 days	ScanStat. Should be combined with network support mission
2			
3	Localisation of PX-Web	3 days	ScanStat, INE shall provide translations and take linguistic responsibility.
4	Definition of structure and content	5 days	DDD / DISI must be based on decisions supported by the Internet reference group Support by short term mission from ScanStat
4a.	Training in PX-WEB, PC-AXIS, and the concept of multi-dimensional cubes. Hands on training building tables. Should involve 2 people from DISI	5 days * 2 persons = 10 days	DISI supported by short term mission from ScanStat 4 and 4a is related and should be undertaken in the same mission.
5	Identification of textual information and descriptions in relation to the data selected to be included in the pilot project	2 days	DDD
6	Building tables	10 to 12 days Depending on activity 4.	DISI at INE.
7	Validation of tables	2 days for DISI to review of the tables. About ½ day for each subject matter	Relevant subject matter departments at INE. Shall refer to Internet reference group

		department . Again dependent on 4.	
9	Loading of data into production database. Follow up on 4,5,6 and 7. Opening of system on Internet.	5 days * 1 person.	DISI supported by short term mission from ScanStat
10.	Project evaluation		INE
11.	Marketing and media	?	DDD

1. Getting access to a suitable web server

The PX-Web solution runs on Microsoft Internet Information Sever (IIS). PX-Web is normally installed on Windows 2000 Server. End of 2003, PX-Web has not been tested on Windows 2003 server. It is expected that PX-Web will run on Windows 2003 without any problems. If INE starts a migration project to Windows 2003 Server before a project is initiated, then PX-Web should be installed on 2003 Server. PX-web does not need a dedicated IIS and can be run on the same IIS as the INE homepage. But it is important that an external PX-Web solution runs on IIS dedicated to INE. Running PX-Web will not be advisable in an environment where homepages from different organizations are hosted on the same Information Server.

The requirement of a dedicated Web Server should be taken into consideration as part of INE's procurement of a new Content Management System (CMS), in order to modernize and improve the homepage.

The PX-Web solution should have its own name on the Internet (DNS'entry) like statbank.ine.mz. The selected name must be registered with the local hosting authority and the INE's Internet Service Provider.

Installation of an Internet Information Server could be performed as part of one of the Network support missions undertaken by the Scanstat consortium.

In terms of tools and platforms the suggested PX-Web solution fully corresponds to the IT-Strategy and IT-Policy of INE.

2 Installation of software

PX-Web consists of a series of components (dll's) which will be supplied the ScanStat consortium. Depending on the future hosting of INE's homepage FTP software for file upload must be installed. This is not part of the PX-WEB software.

3. Localisation of PX-Web

PX-Web's user interface is designed for easy localisation in terms of language and so called "Look and Feel". At present the system does not support Portuguese, but this is clearly a minor project for someone with adequate language skills. Icons, logos and colours must be adapted to follow INE's corporate identity. Again this is not a major project as the product has been designed specifically to allow easy localisation. Localisation must also include preparation of on-line help texts and user guides.

4. Definition of structure and content

The content in Dissemination Output Database is normally shown / presented in a number of subject areas. Some national statistical offices choose to reuse the subject area structure from either their yearbook or some other form of known publication structure.

When a structure has been agreed, the content (tables) inside each subject area must also be agreed. As the project is intended to be a pilot project it is important to keep the number of tables to a manageable level.

It is suggested that data is selected by the criteria of easy access and general demand. One could say that the pilot project shall focus on the low hanging / easy to pick fruits. Frequency could be criteria, but if data with a high sampling and / or publication frequency is included in the pilot project, it is important to set aside the necessary resources for continues updating.

5. Identification of metadata

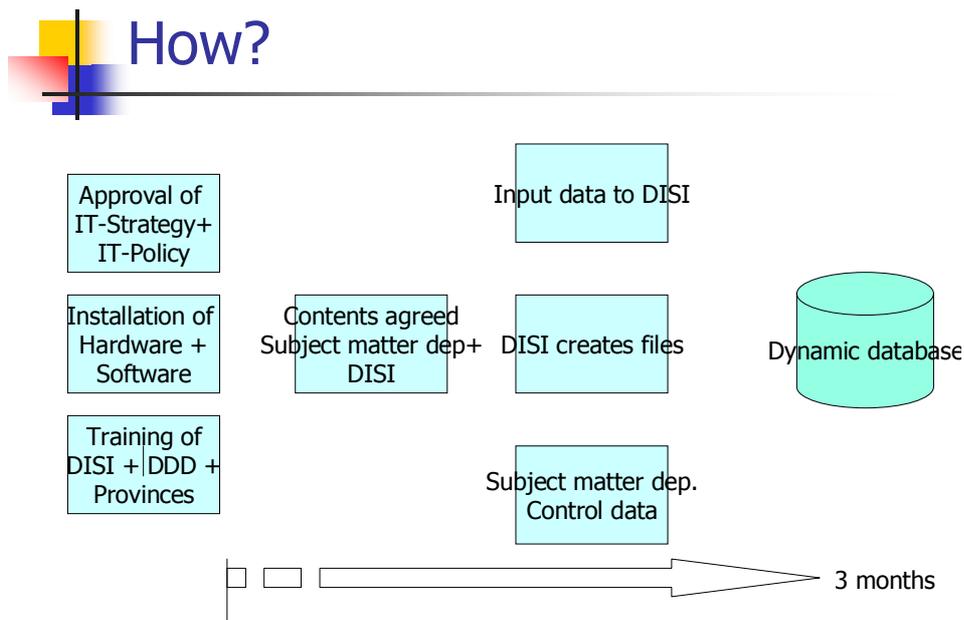
The content for inclusion in the pilot project has been identified, variables and values for each table must be described in order to harmonize (codes, titles, units, etc.) meta-data for the tables

6. Building tables

The tables and meta-data has been agreed, the tables can be build. It is suggested to use the PX-Make software to do the actual table construction. Before the construction of tables can begin training in PX-MAKE and the concepts of multi-dimensional cubes must be conducted.

7. Validation of tables

It is important that the tables created by DISI and / DDE is review by the responsible subject area statisticians before they are published on the Internet.



8. Internal / External database?

Depending on the amount of data involved in the pilot project, it should be considered to establish an internal PX-WEB solution on the Intranet. Data in the internal database should then be arranged by subject area and access to data should be limited to DISI technicians and the relevant subject matter people. The purpose of such an internal / intranet PX-WEB solution will be to allow the different subject matter divisions the possibility of applying quality assurance to the tables before they are published to general public.

9. Loading the data into the production-database

When data has been validated by the subject matter departments it can be loaded into the public access web database.

10. Evaluation of step 1 in the project.

When the data defined by the pilot project has been published on the Internet, it is important to evaluate the project. The evaluation shall address both external user's expectations to data and the organisation of work during the pilot project.

11. Marketing / dissemination

Finally potential users of the data included in the pilot project should be made aware of the new possibility's created by the dynamic internet database.

ANNEX 7 Persons met during the mission

Dr. João Dias Loureiro, Presidente do INE.

Mr. S Excia Vice President Demography

Ms. Destina Eduarda Sidónio Uinge, Director DICRE.

Ms. Anastásia Judas Honwana, Head of DISI

Mr. José Inguane, DISI

Mr. Anselmo Nhane, Analista

Mr. Rachid, Luis

Vi mangler også Bruno

Mr. Arao Mbalate, Director DCI

Ms. Fatima Zacarias, Director DEMOVIS

Mr. Marcelino Silva, Head of DDD

Mr. Azarias Marcos Nhanzimo, Director DESE

Mr. Francisco Silva, Director Soares da Coata

Mr. Hans Erik Altvall, Consultant, Coordinator.

Mr. Mogens Grosen Nielsen, Consultant

The Internet reference group

who was???