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Topic (iii): Open source and software consortia in statistics

THE PC-AXIS SOFTWARE FAMILY – A "CONSORTIUM" FOR OUTPUT DATABASES

Invited Paper

Submitted by Statistics Sweden[1]

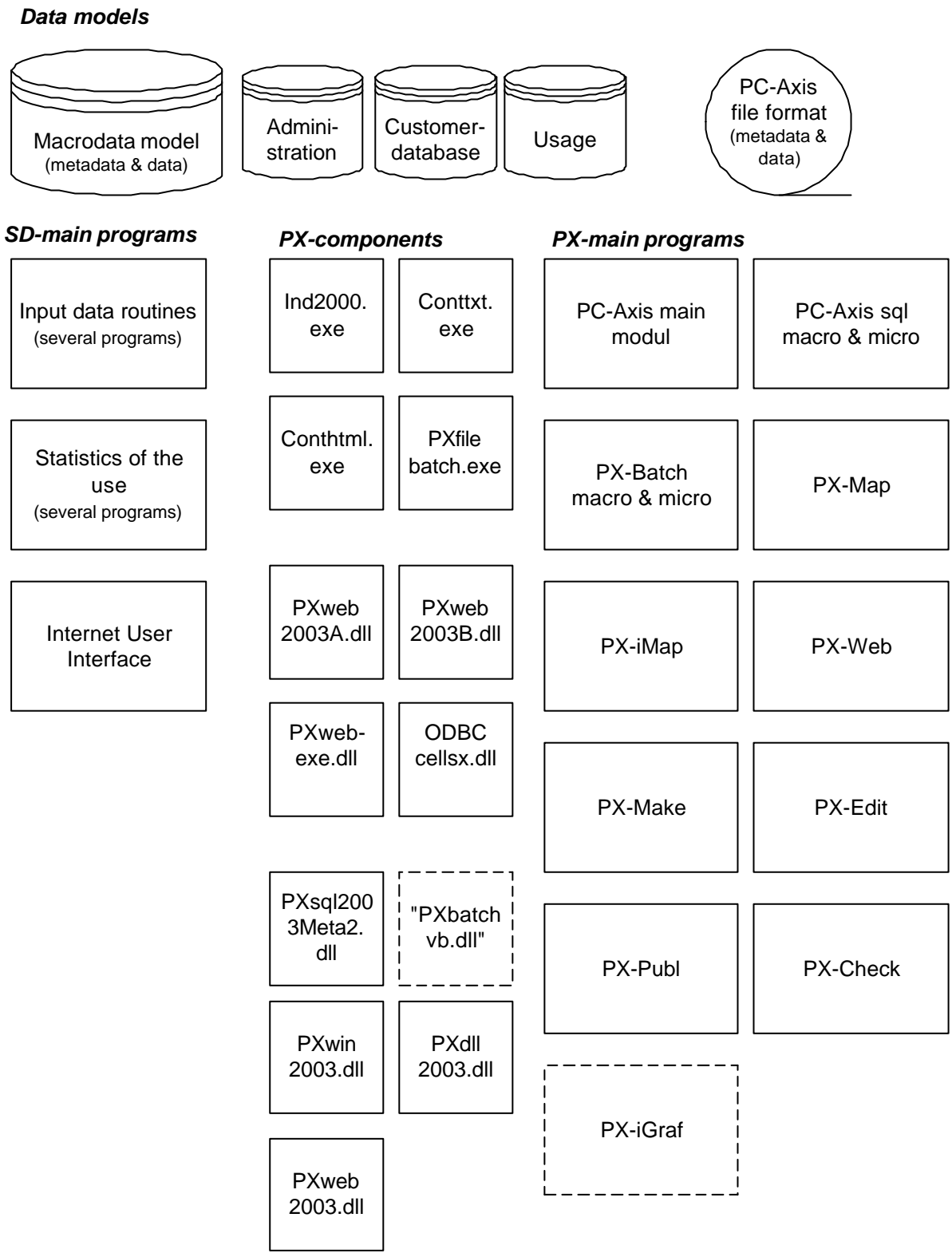## Addendum

1.   Figure 1 shows the structure of responsibilities in the different items in the cooperation on output databases that exists between Statistics Sweden, Statistics Denmark and Statistics Norway. The picture shows the different parts of the PC-Axis family, the data models and the software. Only the data models, main programs and components that are common at present are included in the presentation below. Parts not yet finished are line blocked in the picture.

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Figure 1:

Statistical databases and the PC-Axis family

Data models

| Macrodata model (metadata & data) | Admini-stration | Customer-database | Usage | PC-Axis file format (metadata & data) |

SD-main programs

| Input data routines (several programs) |
| Statistics of the use (several programs) |
| Internet User Interface |

PX-components

Ind2000.exe	Conttxt.exe
Conthtml.exe	PXfile batch.exe
PXweb 2003A.dll	PXweb 2003B.dll
PXweb-exe.dll	ODBC cellsx.dll
PXsql2003Meta2.dll	"PXbatch vb.dll"
PXwin 2003.dll	PXdll 2003.dll
PXweb 2003.dll	

PX-main programs

PC-Axis main modul	PC-Axis sql macro & micro
PX-Batch macro & micro	PX-Map
PX-iMap	PX-Web
PX-Make	PX-Edit
PX-Publ	PX-Check
PX-iGraf	

2.   The following list provides responsibilities for various PC-Axis components and the rules for development and maintenance of these components:

A. Commonly used data models
A.1 Macrodata model
-   Main responsible: Statistics Sweden (Doris Carlström)
-   Contact person: DSt (Lars Knudsen)
-   Contact person: SSB (Thomas Hoel)
-   **Common rules:**
    - The data model shall be available both in Swedish and English (i.e. the name of the tables and columns);
    - In every version of the data model, the border showing the commonly used parts must be obvious;
    - To enable the use of common programs and components, the common parts of the data model must be used in the same manner in every country. This means that tables and columns should have either the Swedish or the English name. The content of the columns, such as codes, must also match the description;
    - Every installation should set up a database, where all the common tables and columns are present. For each table and column, there should be information on the table/column in the model description on whether content is necessary or not. If the table/column can be empty, the programs and components involved must account for this;
    - Local tables and columns can be added, but will not be handled by the common programs and components.
-   **Creating a new version:**
    - Will be discussed in partnership between SSB, DSt and SCB;
    - Suggested changes of the model should be sent to the main responsible person at SCB, who will compile the suggestions;
    - Checking the PC-Axis file format;
    - Checking with the PC-Axis International reference group and others using the model;
    - English names of the new tables and columns are checked with NSO, Ireland;
    - Changes are put together at Statistics Sweden;
    - SCB produces a sketch of the model in Swedish and English simultaneously;
    - SCB will make an update of the variable description.

A.2   PC-Axis file format
-   Main responsible: SCB (Louise Björkell)
-   Contact person: DSt (Lars Knudsen)
-   Contact person: SSB (Trygve Falch)
-   **Common rules:**
    - Keywords in English;
    - In every version of the file format, it should be very clearly indicated which is the common part;
    - For a PC-Axis file to be able to be handled correctly in the common programs and components, every keyword has to be put according to the common standard;
    - The description for every keyword must contain information whether it is mandatory or optional. If the keyword can be missing, the programs involved should take care of this fact;
    - Customized keywords can be added, but will not be handled by the common programs and components. The customized keywords have to be named in a special way. A rule should be established that, for instance, all customized keywords should have a prefix, such as Z.

- **Creating a new version:**
  - A new version is released every year;
  - Suggestions of changes to the model should be sent to the main responsible person at Statistics Sweden, who compiles the suggestions;
  - These will be discussed in the PC-Axis International Reference Group;
  - Suggestions will be matched to the Macro data model;
  - Suggestions will be checked by the Nordic Database Group (SSB, DSt, SCB) and by others using the file format;
  - The changes are compiled by Statistics Sweden;
  - Statistics Sweden produces a documentation in English.

B. Common rules for the software
- **General rules:**
  - It must be possible to use the software with the common parts of the macrodata model or the PC-Axis file format;
  - If this is not possible, such a deviation must be monitored by the use of a parameter;
  - If using a SQL database, this should work with Sybase, MS-SQL-Server and Oracle;
  - It should work under different Windows versions;
  - There must be user and systems documentation to make it possible to use the program in other sites without problems;
  - Reports on errors and suggestions for improvements shall be sent to the main responsible person for a certain program. This person shall correct the errors and compile all suggestions on improvements.
- **Creation of new software or amendment of old software:**
  - The responsible country has to come to an agreement with the other countries, so the main program becomes sufficiently general in its function.
  - The other countries should support by participating in user tests.

C. Common PX-Main programs
- **C.1 PC-Axis Main module:** A Windows program that selects items from a PC-Axis file, creates and presents tables, graphs, files(PC-Axis, Excel, Gesmes/TS etc.)
  - Programming language: Visual Basic
  - Required components: PXWIN2003 and PXdll2003
  - Main responsible: SCB (Louise Björkell)
  - Contact person: DSt (Annegrete Wulff, Lars Knudsen)
  - Contact person: SSB (Thomas Hoel, Åse Lukerstuen)
- **C.2 PC-Axis SQL macro & micro:** Windows program that selects items from an SQL database (Macro or Micro), creates and present tables, graphs, files (PC-Axis, Excel, Gesmes/TS etc.) and can make "saved query".
  - Programming language: Visual Basic
  - Required components: PXSQL2003Meta2
  - Main responsible: SCB (Louise Björkell)
  - Contact person: DSt (Lars Knudsen)
  - Contact person: SSB (Thomas Hoel)
- **C.3 PX-Batch:** Windows program that selects items from an SQL database (Macro or Micro) using a "saved query " and creates files (PC-Axis, Excel, Gesmes/TS etc.)
  - Programming language: Visual Basic
  - Required components: PXSQL2003Meta2
  - Main responsible: SCB (Louise Björkell)
  - Contact person: DSt (Lars Knudsen)
  - Contact person: SSB (Thomas Hoel, Per Olav Løvbak)
- **C.4 PX-Map:** Windows program that creates maps from a PC-Axis file (Both stand-alone and call from PC-Axis.)
  - Programming language:

- Main responsible : SSB (Marianne Vik Dysterud, Arne Knut Ottestad)
- Contact person: DSt (Lars Knudsen)
- Contact person: SCB (Bo Justusson)

C.5   PX-iMap: Web program that creates maps from a PC-Axis file
- Programming language:
- Main responsible: SSB (Bjørn Roar Joneid)
- Contact person: DSt (Lars Knudsen)
- Contact person: SCB (Bo Justusson)

C.6   PX-Web: eb program that selects items from a PC-Axis file, creates and presents tables, graphs, files (PC-Axis, Excel etc.)
- Programming language: ASP
- Required components: PXWebexe.dll and PxfileBatch.exe
- Main responsible: SCB (Louise Bjökell)
- Contact person: DSt (Lars Knudsen)
- Contact person: SSB (Per Olav Løvbak)

C.7   PX-Make: Windows program for the creation of a PC-Axis file from, for instance, an Excel file.
- Programming language: Visual Basic
- Main responsible: DSt (Annegrete Wulff, Søren Netterstrøm)
- Contact person: SCB (Lars Nordbäck)
- Contact person: SSB (Åse Lukerstuen)

C.8   PX-Edit: Edits a PC-Axis file and makes a new file.
- Programming language: APL
- Main responsible: Finland (Veli-Matti Jantunen)
- Contact person: DSt (Lars Knudsen)
- Contact person: SSB (Åse Lukerstuen)
- Contact person: SCB (Louise Björkell)

C.9   PX-Publ: Windows program that creates PC-Axis files from a SQL database (Macro). It is used together with MS-Word and MS-Excel Macros.
- Programming language: Visual Basic and VBA
- Required components: PXSQL2003Meta2
- Main responsible : DSt (Karsten Bjergkvist /Louise Björkell)
- Contact person: SCB (Annika Nyström)
- Contact person: SSB (Per Olav Løvbak)

C.10 PX-Check: Checks that a PC-Axis file is prepared according to the rules for the PC-Axis file format.
- Programming language: Visual Basic
- Required components: PXdll203.dll
- Main responsible: SCB (Louise Bjökell)
- Contact person: DSt (Lars Knudsen)
- Contact person: SSB (Åse Lukerstuen)

C.11 PX-iGraf (not ready): Web program that creates graphs from a PC-Axis file.
- Programming language: ASP
- Main responsible: DSt (Lars Knudsen)
- Contact person: SCB (Louise Björkell)
- Contact person: SSB (Per Inge Vaaje)

D. PX-Components in common
- Coordinator: SCB (Louise Björkell)
- **Components that also can be used as stand-alone:**
  D.1 Ind2000.exe: Creates value sets and aggregation list files (VS and AGG files).
  - Programming language: Visual Basic

- Main responsible: SCB (Louise Bjökell)
- Contact person: DSt (Lars Knudsen)
- Contact person: SSB (Trygve Falch)

D.2 Conttxt.exe: Produces a list of contents for a PC-Axis database.
- Programming language:
- Main responsible: SCB (Louise Bjökell)
- Contact person: DSt (Lars Knudsen)
- Contact person: SSB (Trygve Falch)

D.3 Conthtml.exe: Produces a list of contents in HTML for a PC-Axis database.
- Programming language: Visual Basic
- Main responsible: SCB (Sara Sjöström)
- Contact person: DSt (Lars Knudsen)
- Contact person: SSB (Trygve Falch)

D.4 PxfileBatch.exe: Windows background program edits PC-Axis files and converts to other formats.
- Programming language: C
- Main responsible: SCB (Louise Bjökell)

- **ActiveX-components:**

D.5 PXweb2002A.dll: Component that links ASP code and PXWeb2002.
- Programming language: Visual Basic
- Main responsible: SCB (Louise Björkell)
- Contact person: DSt Lars Knudsen)
- Contact person: SSB (Trygve Falch)

D.6 PXweb2002B.dll: Component that links ASP code and PXdll2003
- Programming language: Visual Basic
- Main responsible: SCB (Louise Björkell)
- Contact person: DSt (Lars Knudsen)
- Contact person: SSB (Trygve Falch)

D.7 ODBCcellsx.dll: Component that supplements a PC-Axis file with data. It is only used in ODBC environment.
- Programming language: Visual Basic
- Main responsible: SCB (Louise Björkell)
- Contact person: DSt (Lars Knudsen)
- Contact person: SSB (Trygve Falch)

D.8 "Pxbatchvb" (under development): Component under development in Visual Basic. It shall, in the first instance, replace the Macro part of Pxbat2002 and ODBCcellsx. In the long run, it can also replace the ASP code on the Internet.
- Programming language: Visual Basic
- Main responsible : SCB (Louise Björkell/ Sara Sjöström)
- Contact person: DSt (Lars Knudsen)
- Contact person: SSB (Trygve Falch)

Other Components:

D.9 PXSQL2003Meta2.dll: Produces PC-Axis files from a SQL database – Macro or Micro – exists in 2 versions, one for Sybase and one for ODBC
- Programming language: C
- Main responsible: SCB (Louise Björkell)
- Contact person: DSt (Lars Knudsen)
- Contact person: SSB (Trygve Falch)

D.10 PXwin2003.dll: Makes different types of preparations as per cent, pivot function on a PC-Axis file and creates a new PC-Axis file.
- Programming language: C

- Main responsible: SCB (Louise Björkell)
- Contact person: DSt (Lars Knudsen)
- Contact person: SSB (Trygve Falch)

D.11 PXdll2003.dll: Converts a PC-Axis file to different file formats, such as Excel, text file, Gesmes etc

- Programming language: C
- Main responsible: SCB (Louise Björkell)
- Contact person: DSt (Lars Knudsen)
- Contact person: SSB (Trygve Falch)

D.12 PXweb2002.dll: Does different types of preparations like per cent, pivot function on a PC-Axis file and creates a new PC-Axis file, compare Pxwin2003.

- Programming language: C
- Main responsible: SCB (Louise Björkell)
- Contact person: DSt (Lars Knudsen)
- Contact person: SSB (Trygve Falch)

D.13 Pxwebexe.dll: Component that makes it possible to use PX fileBatch.exe on the Internet.

- Programming language: VB
- Main responsible: SCB (Louise Björkell)

E. Cooperation groups

E.1 Gesmes

- Contact person: DSt (Annegrete Wulff)
- Contact person: SSB (Marianne Vik Dysterud, Thomas Hoel)
- Contact person: SCB (Lars Nordbäck)

E.2 Search

- Contact person: DSt (Michael Pedersen)
- Contact person: SSB (Per Inge Vaaje, Thomas Hoel)
- Contact person: SCB (Johan Sjöström)

E.3 Customer database

- Contact person: DSt (Lars Knudsen)
- Contact person: SSB (Marianne Vik Dysterud, Thomas Hoel)
- Contact person: SCB (Annika Nyström)

F. Other co-operation groups linked to the database activities

F.1 Release routines

- Contact person: DSt (Michael Pedersen)
- Contact person: SSB (Per Olav Løvbak)
- Contact person: SCB (Annika Nyström)