Statistical National System, public programs management and statistical production based on administrative registers. Yucatán study case.

Julio Ortegón
Yucatán State Government, México – ortegon.julio@yucatan.gob.mx

Abstract

In Mexico the result based budget is the pillar from the new model of the public management, where the design of the public programs are the main tool for the policies to which they assign public resources, and they relate to monitoring and evaluation systems.

The bibliography about the management model for the results, generally part of the budget of which exists quality information, but in the operation exist gaps that affect the functioning of the model, mainly the follow up and the evaluation.

Seeing this situation the State of Yucatan designed a project to improve the statistical information for monitoring and evaluation. The emphasis was in improving the quality of the statistical information generated by the administrative registers, for which they developed the Quality Assessment of Administrative Registers (HECRA).

The evaluation framework, to monitor the public programs of the four sectors of the Public Administration from Yucatan, highlighted important lessons for the National Statistical System.

Keywords: Programs, statistics, sub national, register.

1. Introduction

The public management model which holds the results of the social development within the Mexican States has changed into a necessity, based on the modifications made within the federal law in the years 2007 and 2008.
The purpose of the changes in the law were to improve the ability to evaluate, to audit public expenses, and to follow up on federal resources sent to all states.
The modifications were initially made to the Republic Constitution and the law of Budget and Responsible Financing, and they forced the Mexican federal entities to implement the Performance-Base Budgeting and Evaluation system. These new responsibilities must be incorporated into the public accounts, including performance indicators for policies and public programs.

2. The Public Administration in Yucatán: demand information for follow up and evaluation.

In 2008 the public administration in Yucatan was focused on the alteration of the Development Planning System, for which they created territorial planning methodologies. These methodologies include a new regional division of the Yucatan territory, geographic analyses, and the way to organize the data within the statistical information system. They also worked on the first methodology documents to build an indicator system, given the fact that we detected a gap between different development indicator systems.   Furthermore the public information programs weren´t generating credible information.
These gaps are evidence of the information problems, complicating the sectorial and regional planning.
The federal legal modifications generated tension in the public sector of the state of Yucatan, due to the unresolved gaps between the development planning and the programmed annual budget.
The state found an opportunity to improve the public administration model, because of the technical assistance given by the Inter-American Development Bank through the PRODEV-program.
 The results of the diagnosis identified the following problems that affected the implementation of the new management model.

- Development planning:
    - The State Development planning of 2007-2012 did not include the assigned indicators of the targets.
    - Scattered sectorial information, based on the information produced by INEGI.
    - The information of the public programs were not useful for the development planning process.

- Programming
    - There were no programming / budgeting tools for midterm analyses.
    - The annual operative plan was realized based on tasks and activities. The programs were not based on the budget.
    - They didn´t identify the institutional production.
    - The criteria for the construction of the indicators were based through task parameters.
    - The programs generated statistical information without having a solid methodology.

- Evaluation of the investment projects:
  - o They started the evaluation of the infrastructural projects, but without having implemented any evaluation standards.
  - o Methodologies didn´t exist to execute the evaluation accordingly.
- Budgeting:
  - o The criteria to assign and budget funds focused on their expenses and the administrative classification. Investment programs and projects weren´t budgeted as a total, only their individual tasks per responsible area were budgeted.
- Monitoring:
  - o There used to be a trimestral follow up of the programmed tasks, not the results.
  - o A lack of methodology to construct indicators.
  - o The management of the indicators wasn't aligned with the program.
- Legal framework:
  - o Focused to accomplish the legal duties and the control of public spending, without having a planning cycle established: formulation, programming, budgeting, monitoring, evaluation and administrative control.

The Secretary of Planning and Budgeting was trained to coordinate the implementation of the public management model. They were also the one generating the accountability reports, the monitoring of the sectorial planning indicators, informing about the governmental performance, the statistical management information, statistical products of the State, and work together with the INEGI.

The Secretary performed a first diagnosis about the statistical and geographic information. They concluded that "the Public Administration depends mainly on the statistical and geographical information provided by INEGI, since they use their own information there is a lack of methodology and standards which should guarantee opportunity, trustworthiness, and accessibility of the information."

This diagnosis allowed them to focus on the technical cooperation of the World Bank to strengthen the implementation of the information systems of the Public Management framework.

3. The midterm strategy for the State Information System.

A technical cooperation was signed with the World Bank, aiming to strengthen the State Statistical, Geographical, and Evaluation Information System.

The cooperation implied the making of the following products, which were realized within the months March to December of 2009:
- Diagnosis of the information supply.
- Diagnosis of the demand for information by the Monitoring and Evaluation System.
- Diagnosis of the demand for information by decision makers.
- Workshop with suppliers and claimant of information to validate the results.
- IT diagnosis.
- Midterm strategy to improve the Information System of the State of Yucatan.

The Statistical and Geographical National Institute (INEGI) joined the World Bank for this project, to provide the missing geographical diagnosis, as the World Bank doesn't possess any graphical information for public information systems. Therefore the INEGI provided the:

- Diagnosis about the offer and demand for geographical information.
- Workshop with producers and users of geographical information.

Every diagnosis was realized by all governmental organizations, therefore the people responsible for the public administration, universities and investigation centers, and non-governmental organizations participated in those workshops.

As a result of the diagnosis a strategy was designed to create a public information system, programmed to be implemented midterm, but with a certain amount of short term actions.
The main implemented strategies were:

- Statistical Information:
  - To strengthen the institutional framework
  - To extend the coverage of the thematic and geographic statistical operations
    - To develop new statistical projects
    - To strengthen the methodology to collect data – Strategical collaboration with the INEGI
  - To incorporate regulations to establish quality standards for the production and documentation of the data
  - To incorporate data dispersal policies and promote a better access to the data.
  - Integrate databases
  - Offer trainings for the usage of new standards, methodologies, documentation and data dispersal.
- Geographic information
  - To produce an inventory from the geographical data
  - To revise and establish norms about the geographical information
  - To actualize the geographic technology tools
  - To establish a Geospatial Collaboration Center.
  - To offer trainings
- Monitoring and Evaluation Information
  - To establish a State Monitoring and Evaluation System
  - To establish an independent evaluation agency
  - To create an Economical and Social Analyses division within the Secretary of Planning and Budgeting

Within the midterm strategy two lines of actions are defined, which resulted to be relevant for the model based on the improvement of the information of the Administrative Registers: a) to establish a quality framework to evaluate the administrative registers, and b) to consolidate the database of the Public Management performance indicators.

4. Yucatán: El modelo de mejora de la información basad en registros administrativos
To develop the improvement model of the administrative register's information, financial assistance was requested on behalf of the National Statistic and Geographic Institute (INEGI) to the World Bank. The World Bank was the acting as administrator of grant funds provided under the Trust Fund for Statistical Capacity Building, proposed to extend to the recipient for the benefit of the State of Yucatán a grant for the Strengthening Information in the State of Yucatan Project. The target of the project was to increase the availability, quality and use of statistics.
This performance framework determined the principle character of the project in Yucatan: the connection between the way of collecting the statistical information of the administrative registers coming from the public monitoring and evaluating programs.
The main tools for the implementation of each element are:
1. Inventory of the administrative registers.
   a. Identifying the relevant administrative registers to improve the public programs and focus on results.

      b.   The profiling of the administrative registers.
      c.   Unification of the automatized inventory of the administrative registers.
      d.   To establish procedures to actualize and maintain the inventory.
2.   Quality Evaluation of the administrative registers' information.
      a.   Design of the evaluation tools.
      b.   Training for the implementation of the tool.
      c.   Evaluation of the administrative registers.
      d.   Improving and monitoring of the improvement programs.
      e.   Documenting of micro data according to the International Data Documentation (IDD).
      f.   Development of an IT application to place the evaluation tool online.
3.   Normative Instruments
      a.   Procedures for the politics to dispersal the data.
      b.   Law of State Statistical and Geographical Information System.

From now on we will establish main characteristics based on the mentioned elements one and two, given that they are the principle findings and learning moments of the project.

5.   Administrative   register   inventory

The inventory of the administrative registers of the Public Administration is a repository of metadata about the actions, facts, persons, organizations or things, which the governmental organizations collect continuously or periodically actualizing the inventory. They do this to comply with the functions established within legal instruments and statutory.

The focus on the inventory results was established once the relevant registers were defined, which are related to the public products (goods and services) and with the beneficiaries of the public programs. This allowed us to discard the registers associated to the management organization. View Figure 1. They managed to integrate a total of 887 registers through the Identification Format application and they realized the characterization of 236 selected registers corresponding 27 governmental organization.

The collected information includes the identification of the administrative register, design aspects, information about the information collection from the administrative registers, characteristics of the database and information about the spreading and usage of the information.

Graphic 1 show 97% of the geographical state registers allows the generation of analyses from programs and services for the territory.

Graphic 2 show 25% of the captured information from the registers was from the municipalities and 57% from the towns. In other words, 82% of the registers were able to feed the demand of the territorial analysis of the public policy.

The problem was in the usage of the statistical information that was collected, as the information was never digitalized, and therefore couldn´t be used statistically. 64% of the registers generated information which was difficult to convert into statistical information. Only 21% of the registers were systemized and ready to be used for statistical purposes.

These data show the potential the administrative registers have for the production of the statistical information. Information is generate from the public services, transfers, public property, with a territorial breakdown, but this lump of information can´t be used for statistical purposes. With the integrated inventory a process started of the elaboration of the tools to evaluate the quality of the information of the administrative registers.

6. The Quality Assessment of the information from the administrative registers: HECRA

The next phase of the project was to develop methodologies and tools for quality management of the administrative registers.

The main instrument is the tool for Quality Assessment of Administrative Registers for statistical use (HECRA in Spanish). The scope of the tool is to assess the quality of administrative registers for statistical purposes. It has four relevant quality aspects (Segui, XXXX) with several dimensions of assessment:

- Administrative data source: structured by questions focused on institutional environment, legal framework, information security, procedures, delivery and data treatment of administrative registers. Is evaluated with 37 indicators.
- Metadata: composed by questions than assess the quality attributes linked to information about data of administrative registers. Is evaluated with 9 indicators
- Data: structured for assess the quality associated to the data stored into the administrative register file. Main aspects are technical controls on data, coverage of the administrative register, record linkage methods, identification keys, data processing, data precision, coding and multiple records. Is evaluated with 22 indicators.
- Statistical product. Asses the quality of statistics, tables and micro data files produced from administrative registers, either as frame of sample surveys, secondary information source, or as generating statistics directly by processing data of the statistical register. Is evaluated with 19 indicators

The main instrument, the Self-assessment questionnaire of the quality of administrative registers for statistical purposes is based on quantitative quality indicators that must be filled out by two informants, the data source keeper and the main user (primary) of the administrative data.

It was defined that HECRA will participate in actions within the following sectors: Health, Education, Economic, Agriculture and Life stock and Tourism. In total 62 questionnaires were held by HECRA focused on 34 public programs within 8 organizations from the Yucatan State Government. When identifying the registers that had to be evaluated, priority was mainly given to the indicators that were related with programs that counted with a logical framework. Also taken into consideration where the indicators that year round generated information, indicators which were used to make policy decisions, accountability information used for key documents of the State Government, for example their year report.

Subsequently the most important evaluation results of the administrative registers were presented. The main errors that were found globally and per sector will be mentioned, but the complete questionnaire structure will be added in the appendices.

The two elements that affected the quality of the statistical information in all sectors and almost in all the registers related to the documentation of metadata and the availability of the information and the metadata on the web. This means that the tools which were developed for the national information system were not implemented in the public management.

The quality problems within the administration source were related to the lack of communication between the management of the administrative registers and the final user. The responsible people of the information are unaware in more than half of the cases of the necessity of the user.

In regards to the data, the problems are related to a gap between the program management and the production of the information. The lack of vision for the information management and the deficiency of the standardized analysis methods to provide quality control, affected the credibility of the information.

Determined was that the programs and organizations were unaware of the demand of information and the necessities of the primary user. They never performed an analysis to identify and to contrast the consistency of the information from other sources. The most important problem is the availability and clarity of the information. This means that the users of the statistical products can't access the online information with ease and they don't contain metadata which allows them to understand the data with exactitude.

Main failures in quality attribute.

Quality elements	Quality attributes	%
Administrative data source	1. Relevance	56.3
	2. Information security and limitations on the information.	40.6
	4. Control and continuous improvement.	31.3
Metadata	1. Metadata documentation	96.8
Data	5. Measurement	34.4
	7. Data processing	31.3
	8. Data accuracy	28.1
Statistical product	2. Relevance	25.0
	3. Coherence	18.8
	4. Availability and clarity	90.6

The organizational development determined the characteristics of the administrative registers' management. In appendices 2 the errors of the most relevant quality attributes from each sector are shown.

7. Most important discoveries and knowledge acquisition.

- The improvement process of the administrative registers showed that the public administration did not incorporate the information management as a central part of the public management.
- Any process to improve the information of the administrative registers should be first divided into identifying and characterizing of the relevant administrative registers. Assuming that the administrators of the programs identify and control with precision the management of the registers, they could cause a delay and increase of the project costs.
- They noticed that the health and educational sectors present the best general attributes for the different quality elements. This can be explained as in these sectors the collected information of the administrative registers is designed according to the federal framework. Nationally these sectors incorporate international standards, information systems, codification and manuals.
- Besides these advantages, state government organizations have problems to access the information when needed, the direction of the program doesn´t use the information as part of their processes. Additionally, the geographical breakdown to which they have access is not sufficient to make territorial analysis.
- The administrative registers designed for state programs have the worst quality attributes.
- The statistical information used in certain reports, including collected by INEGI, are independent calculations, instead of a standardized process to obtain the needed data.
- It is necessary to develop a training strategy which includes basic aspects to increase awareness, what is and what do they use the administrative registers for, specialized training on how to document micro data, to maintain and evaluate the quality.
- The institutionalized strategy was one of the main weaknesses of the project. Regardless of having manuals and standards, at the end of the governmental term the new lay was put off. This generated a delay in the follow-up of the project. Up until today they continue to actualize the inventory of the administrative registers, but they stopped the evaluation of the processes.

The mechanisms of the quality management which establish and apply in the National Statistical and Geographical Information System are not incorporated by the states to manage public policies. In Yucatan it was identified that it is necessary to create an organization that collects the statistical information of the programs and public services. This should be incorporated in the public registers, given that the autonomy of this state organ makes it impossible to obligate them to update their internal processes.

This generates several challenges for the national information system, given that as of today the model has been implemented in five federal states.

It is essential to know that the management of the programs and public services in the state require incorporating a statistical culture, absent to this day.

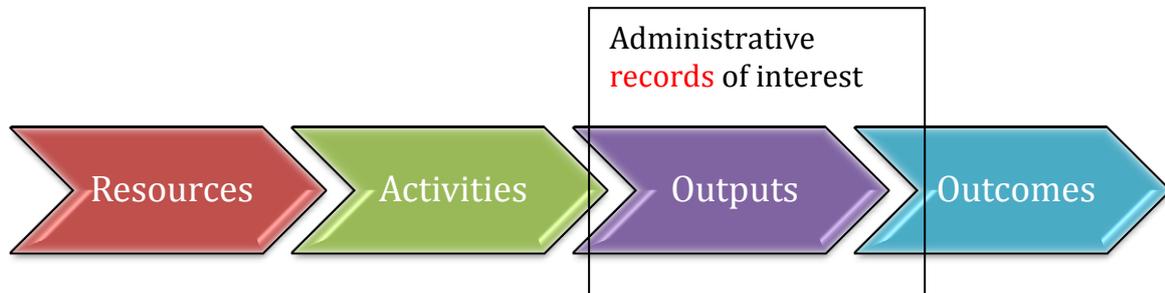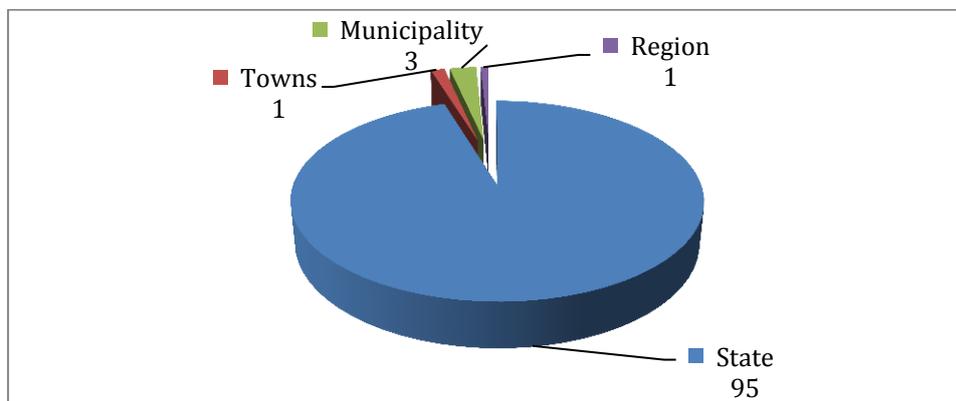**Figure 1.**Value chain and administrative records strategy

Administrative records of interest

Resources → Activities → Outputs → Outcomes

Table 1. Geographic coverage (%).

Graphic 2. Geografical breakdown (%)

State
16

Region
2

Towns
57

Municipality
25
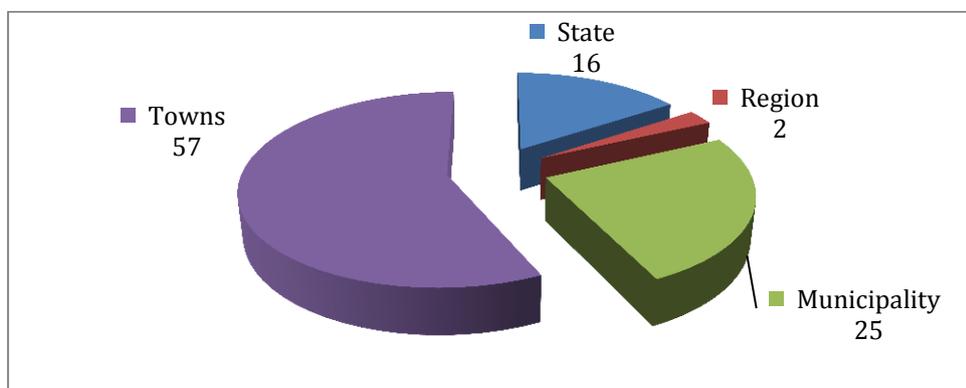
Graphic 3. Condition of statistical use (%)

Systematized
21

Severe
dificulty
35

Usable
14
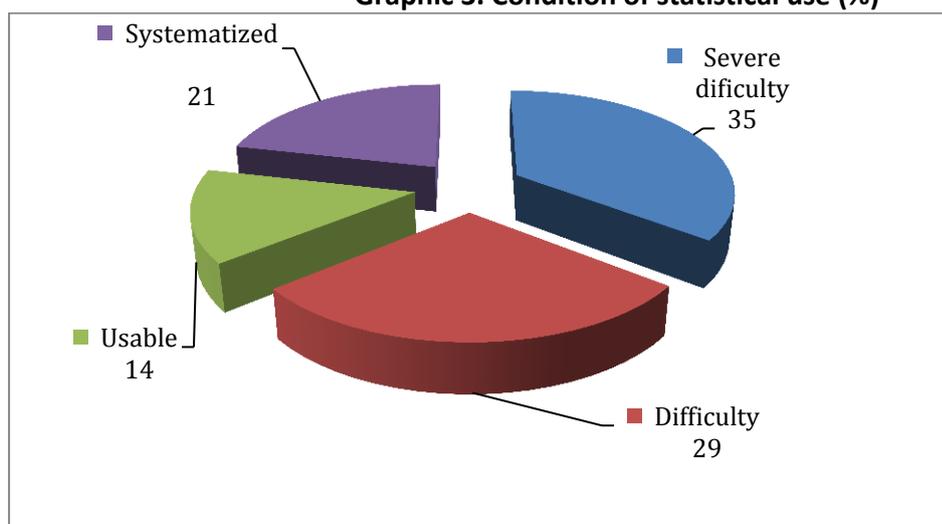
Difficulty
29

Note:
1. **Severe difficulty.** Paper forms.
2. **Difficulty.** Spreadsheet with no classification and key variables.
3. **Usable.** Organized in a systematic way in electronic files with elements of identification and security.
4. **Systematized.** Information system with database.

Appendix 1. Quality elements, attributes and indicators of the HECRA.

Quality elements	Quality attributes	Quality Indicators
Administrative data source	1. Relevance	1.1. Utility
		1.2. Intended use
		1.3. Demand for information
		1.4. Satisfaction of primary users
	2. Information security and limitations on the information.	2.1. Legal framework
		2.2. Personal data protection
		2.3. Limitations due to confidentiality regulations
		2.4. Confidentiality agreements
		2.5. Secure data transfer
		2.6. Confidentiality, integrity and availability of information
		2.7. Data protection
		2.8. Data backup policies
	3. Data delivery commitment.	3.1. Costs associated with the delivery
		3.2. Delivery agreements
		3.3. Frequency of deliveries
		3.4. Dates of last five deliveries
		3.5. Punctuality
		3.6. Risks due to lack of data
		3.7. Alternative method to replace the lack of information
		3.8. Means of data delivery
		3.9. File format
		3.10. Data selection
	4. Control and continuous improvement.	4.1. Data collection
		4.2. Consistency control
		4.3. Change control
		4.4. Continuous improvement
	5. Data treatment.	5.1. Control of objective units
		5.2. Control of variable content
		5.3. Control of Outliers
		5.4. Changes
		5.5. Reasons for not changing
		5.6. Changes according to procedure
		5.7. Use of Database Management System
		5.9. Database documentation
		5.10. Database integrity

Metadata	1. Metadata documentation	1.1. Metadata documentation
	2. Completeness and clarity	2.1. Definition of population units
		2.2. Description of variables
		2.3. Communication of changes in definitions/concepts
	3. Use of unique keys	3.1. Identification keys
		3.2. Comparability of identification keys
		3.3. Unique combinations of variables
	4. Comparability	4.1. Comparability of the objective unit definition
		4.2. Comparability of variable definitions
Data	1. Technical controls	1.1. Readable data
		1.2. Redefinition of concepts and metadata in case of more than one data source
		1.3. Correspondence between data and metadata
		1.4. Record linkage method
		1.5. Verification of effectiveness of the record linkage method
	2. Coverage	2.1. Over coverage
		2.2. Classification errors
	3. Record linkage	3.1. Rate of record linkage
	4. Completeness	4.1. Rate of unit non response
		4.2. Rate of item non response
	5. Measurement	5.1. External control (audit)
	6. Identification keys	6.1. Rate of records with unique key
	7. Data processing	7.1. Data editing
		7.2. Imputation
	8. Data accuracy	8.1 Data accuracy
	9. Coding	9.1. Use of standard coding
		9.2. Verification of coding
		9.3. Rate of coding errors
		9.4. Rate of records without code
	10. Data freshness	10.1. More than 90% of the objective units created during year t have been registered before the end of the year t+1
	11. Multiple records	11.1. Rate of multiple records of the same unit
	12. Other controls	12.1. Rate of units with valid values into identification keys

		12.2. Tables of the statistical operation have been validated through automatic procedures
Statistical product	1. Comparability	1.1. Length of comparable time series
		1.2. Comparability of microdata along the time
	2. Relevance	2.1. Identification of users
		2.2. Information about users
		2.3. Rate of final user satisfaction
		2.4. Utility (intended uses)
	3. Coherence	3.1. Coherence of statistics with different periodicity
		3.2. Coherence of statistics with the same socio-economic scope
	4. Availability and clarity	4.1. Accessibility by Internet
		4.2. Rate of completeness of metadata
	5. Accuracy	5.1. Coefficient of variation
		5.2. Rate of unit non response
		5.3. Rate of item non response
		5.4. Rate of imputation
		5.5. Rate of editing
		5.6. Rate of over coverage
		5.7. Rate of classification errors
	6. Timeliness and punctuality	6.1. Punctuality of statistical product dissemination
		6.2. Length of time between its availability and the event or phenomenon it describes
		6.3. Freshness of statistical register

Appendix 2. Main failures by quality elements and quality attributes.

Economie/Tourism			Healt			Agriculture and livestock			Education		
Quality elements	*Quality attributes*	*% of RA*	*Quality elements*	*Quality attributes*	*% of RA*	*Quality elements*	*Quality attributes*	*% of RA*	*Quality elements*	*Quality attributes*	*% of RA*
Administrative data source	1. Relevance	100	**Metadata**	1. Metadata documentation	100	**Administrative data source**	2. Information security and limitations on the information.	62.5	**Administrative data source**	1. Relevance	100
	2. Information security and limitations on the information.	75	**Data**	4. Completeness	37.5	**Metadata**	1. Metadata documentation	87.5	**Metadata**	1. Metadata documentation	100
Metadata	1. Metadata documentation	100		5. Measurement	50	**Data**	3. Record linkage	50	**Data**	8. Data accuracy	62.5
Data	9. Coding	37.5		12. Other controls	37.5	**Statistical product**	3. Coherence	50	**Statistical product**	2. Relevance	87.5
4. Availability and clarity	4. Availability and clarity	100	**Statistical product**	4. Availability and clarity	87.5		4. Availability and clarity	75		4. Availability and clarity	100