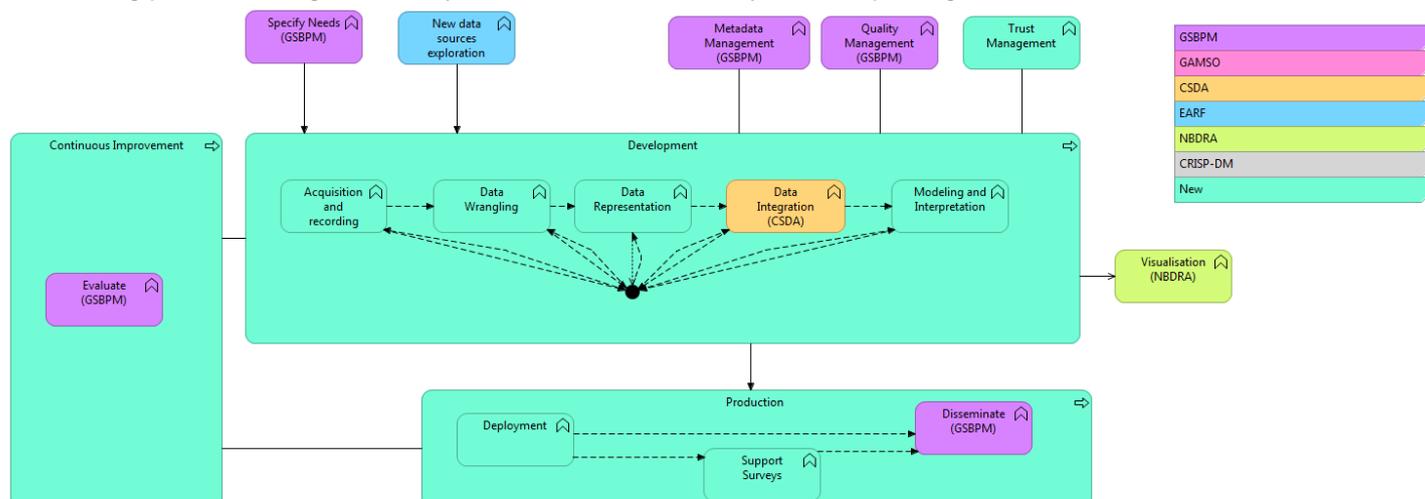


The starting point is the big data life cycle as it was described by the workpackage F till now.



Actors are often considered as external to the NSIs but they are surely also internal to the NSI. I'd rather think about actors regarding to the functionalities or to the steps of the life cycle, instead of using the intern/extern prism.

| Actors | Aims / Actions | Examples | Capabilities |
|--|---|---|---|
| data providers (Business and companies – private data holders) | Partnership and contracts | Phone operators Supermarkets | |
| Data providers (National authorities – public administrations – public data holders) | Protocols, partnerships, close cooperations | Smart cities initiatives | |
| computer scientists (internal to NSI or to the ESS) | Acquisition, recording, wrangling, representation | In web scrapping (Istat), all the stuff to determine the official URLs of the enterprises. Or the whole stuff to collect datas on the enterprises' sites. AIS data or satellite image on the Big Data Test Infrastructure of the European Commission | Databases (SQL, NoSQL...) programmation languages (R, Python, Java...) ETL (Extract Transform and Load) |
| data scientists (internal to NSIs) | Modeling and interpretation | | |
| Scientific and academic community | Mutual exchange of knowledge and expertise | Cryptography, Image processing etc | |
| CDO | Trust management | GPDR, individual privacy, and so on | |
| Lawyers ? With CDO | ?? | Contract between NSI and the data furnisher | |
| Evaluators | Evalate | Lawyers, other NSIs, IT corporation, other administrations | |
| Citizens (citizen science data) | Research collaborations between scientists and citizens, collection of "objective" data from passive sensors, etc | Studies with Strava and similar apps and data, atmospheric data, etc | |

| Actors | Aims / Actions | Examples | Capabilities |
|--|---|---|---------------------|
| Media | Intermediary between statistical offices and the general public | Experimental statistics | |
| Other statistical institutions (othe NSIs, ESS, central banks) | Synergies and collaboration | European system of central banks (ESCB), study of financial data through Google search data | |

Questions still open :

- what about the new data sources explorations ? How can the NSIs be aware of new potential sources ? How NSIs can be proactive on this subject and which kind of profile can do this ?
- Data integration : computer scientists ? Data scientists ? IT ops ?

Remarks :

- for needs specifying, I'm not sure that actors are different with Big Data. The needs should be the same : collect data to compute CPI, collect data to....

In more details

Data providers : they use a lot of data for their own goals (supermarkets, phone operators, transports....). NSIs have to make an agreement with them to use their datas. This could be done with a law in some cases as in France.

Computer scientists : in my opinion these kind of actors have to put in order technical methods from the arrival of the data till it is given to data scientist in a way the data could be analyzed. That includes formatting, corrections and so on.

Data scientist : hat's the next step of te process. They act in order to analyze the data for interpretation and modelisation. They act also in the visualisation step.

CDO : a very huge actor. Without him/her, no big data life cycle ! He/she is responsible for the trust management. He/she has the ability to give orders and not only advices, even in a technical way to ensure ther's a secure mutliparty computation or that GPDR is applied. He/she's the figure of the NSI's capacity in personnal privacy.

Evaluators : in implementing such a life cycle, the evaluation is one of the keys (the most important one ?) of the success. The life cycle should be asked on different ways : personnal privcay, technical way, methods of analysis... Actors for this point must include external people.