SUT EQUALIZER
A NEW GENERATION TOOL FOR THE PRODUCTION OF SUT AND IOT

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1. The methodology
2. The IT architecture of the tool
3. The implementation of the solution

CONCLUSIONS
Which methodology?

We compile Supply-Use tables, split to domestic production and imports

- at basic prices and
- at current and previous year prices?

CLEAR STEPS FOR A SECURE RESULT
MOTIVATIONS: WHY the SUT-Equalizer?

- The SUT, as a synthetic tool for convergence between expenditures and production (combined with income) approaches, either in values and in volume
- The disaggregation becomes a necessity now-a-days (in the ESS ~ 300 products even more)
- Disaggregation is often synonym of lack of quality. A mechanism should be invented to help going through it (sources, corrections, balancing)
- The IOT in current prices, as an analytic tool for economic studies, on a 5 years basis
- Often uneasy to solve IOT after the end of the NA computation
REMINDER: WHAT is a SUT and/or an IOT?

- Read horizontally by product the expenditure approach
- Read vertically by industry the production approach
Production approach / sector accounts provide exogenous data. The upper side of the cycle transmits this information to expenditures approach by products. The lower side brings back information for the production approach / sector accounts (prod., GFCF, stocks, IC, VA...).
KEY TARGET: Guaranteeing the accuracy

For this, SUT-Equalizer is

- **INTEGRATED**: expenditures approach v.s. production and income approaches are in the same solving process.

- **ITERATIVE**: each product is capturing updated information, then each IS / operation ... Loop after loop the values are converging to the consistency.

- **SIMULTANEOUS**: Current and previous year prices are solved within the same framework at every step (Val$_{n-1}$ if necessary, the VAL$_n$, then VOL$_n$).

- **STRUCTURAL**: The commodity flows are compiled « decentralized » (spread in the team), while IS and operations are « centralized » (by the coordinator or few persons).
Many concepts for the exhaustiveness

The SUT-Equalizer is hosting:

- Decentralised objects
  - The Commodity Flow (as many as products)

- Centralized objects
  - The MAKE matrix describing the output [Product x Industry]
  - The IC matrix describing the intermediate consumption [Product x Industry], distinguishing DEDEductible and Non-DEDuctible
  - Both organised in Process Tables, transitions from ‘source’ to ‘final’
PLUS A SHARED CONCEPT: The MODEL

It is a set of variables, some provided (EXOGENOUS) others calculated (ENDOGENOUS) interconnected by relationships (EQUATIONS).

- The target is to calculate all ENDOGENOUS
- And sometimes
  - Perfect match
  - Over-representation (conflict of values)
  - Under-representation (need more exogenous)
Translated in the SUT-Equalizer paradigm, there are:

- **Automated models;** all variables are calculated straight;
- **Semi-automated models,** i.e. as many patterns of equations which are focussing on the properties of a product and on the reliability of the exogenous.

For example, a focus may be on the trade margins, whether PPI, XMPI exist, if FC or IC is the main use, etc.
Which IT solution?

- A comprehensive information system
- A user-friendly interface
- The tracking of all your changes

SUT-Equalizer has its own IT environment
**DESIGN:** Balance between Ms-Excel and a Tool

- The SUT equalizer has been originally developed in Excel.
  - Flexibility, easy dialogue with sources and clients
  - But important limitations
  - Risk in formulas with large amount of cells, of sheets, of files
  - 300 CPAs ... A pool of at least 600 files for each iteration

- Need of the implementation of an Information System
  - Robustness, safe recording of various sources and versions

- 2 classes of users: one Coordinator – National Accountants

Ms-Excel alone is not the sustainable solution
SUT-Equalizer and Ms-Excel is relevant
**ARCHITECTURE:** The functional (IT) cycle

- **S1** and **S2:** Create a set of exogenous variables
- **S3:** Import Final: Load the set of exogenous in the database

**Coordination cycle:/**

- **S4:** New or EDIT any CF
- **S5:** CF checked – A CF is balanced
- **S6:** Save to DB – A CF dataset is saved in the database
- **S7:** Recap – Populate individual balancing equilibrium

**User cycle:**

- **S8:** Build – Check the overall equilibrium (Make, IC, Other Exog)
- **S9:** Update- Checks on the convergence procedure
  
  *Once fully validated*

- **S10:** publish – Prepare the standard ESA 2010 tables
ARCHITECTURE: The Production cycle
ARCHITECTURE: A sophisticated database

- A relational model and a database
  - Usage of standard database management system (Ms-SQL in the demonstration)
- A system compatible with Data and Metadata concept (SDMX)
- Many groups of fields and tables:
  - Data
  - Versions for complete tracking
  - Dimensions and codelists (SDMX compatible)
  - Formulas
  - Etc
The last generation of Ms-Windows objects
And comprehensive IS functionalities

- A monitoring frame,
- Mimic of Ms-Excel everywhere a sheet is manipulated,
- Workspace and dynamic toolbars,
- Docking station effects,
- Eight statuses in the progress of the convergence of commodity flows towards the convergence,
- Full access to the compilation of models
- Integration of the DISSEMINATION module
- Visualisation of the historical data at any time
FUNCTIONALITIES: A spreadsheet approach

- Mimic of Ms-Excel for a user-friendly environment
- Interaction with sheet in a workbook
- Full compatibility with Ms-Excel
  - Very fast learning phase regarding IT manipulations
- Flexibility in the manipulation of the sheet
  - Formulas in Ms-Excel format and through variable names,
  - Editable formulas
  - Coloured and locked cells,
  - Integrated balancing as a sheet in the workbook
- Status of the balancing by layer of SUT
FUNCTIONALITIES: Others

- A toolbar for each profile, the Coordinator and the National Accountants
- Immediate access to the actions by steps, in proper order
- Mutual exclusion on forbidden actions
- Contextual menu (right click)
- The historical view: retrieval of all actions through commenting areas
- Coming: a manager for the implementation of CF standard models
How comprehensive is the project?

- The tool
- The training
- The coaching
- The follow-up

Are in a single package

SUT-Equalizer is a capacity building project
THE TEAM: Pluri-disciplinary and adequate

From Hendyplan:

- Through the intervention of a Field Expert
- Assisted by:
  - Statisticians,
  - IT specialists to customize the tool,
- Coordinated by a Project Manager

Plus the local team at the NSO
THE PHASES: Standardized

- Kick-off meeting
- Analysis of existing materials, choice of initial year,
- Analysis of available indicators,
- Definition of the main dimensions and their code-lists,
- Identification of the standard models by product,
- Initialization of the tables, the tools, the models, …
  - The tool is available
- Implementation of the tool and first data at your premises,
- Agreement on a coaching agenda,
  - Ideally during a 2-year period
And finally …

SUT-EQUALIZER PROJECT IS THE SUBSTRATUM FROM WHERE THE CAPACITY BUILDING WILL BE EFFECTIVE
Conclusions about SUT-Equalizer

- Capacity to compute the SUT before the GDP is known
- Creates a dynamic in the National Accounts department through an organisation of statisticians (eventually from different departments) around a coordinator
- Forces accuracy in the knowledge of the National Accounts data
- Guides the users and forces the methodology to be applied properly
- Implements a comprehensive information system guaranteeing the data consistency and keeping the track of the changes.

✓ SUT-Equalizer carries the knowledge you accumulate over the years
Contact us ...

THANK YOU

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