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Compilation of Supply and Use tables and Input-Output tables in Albania

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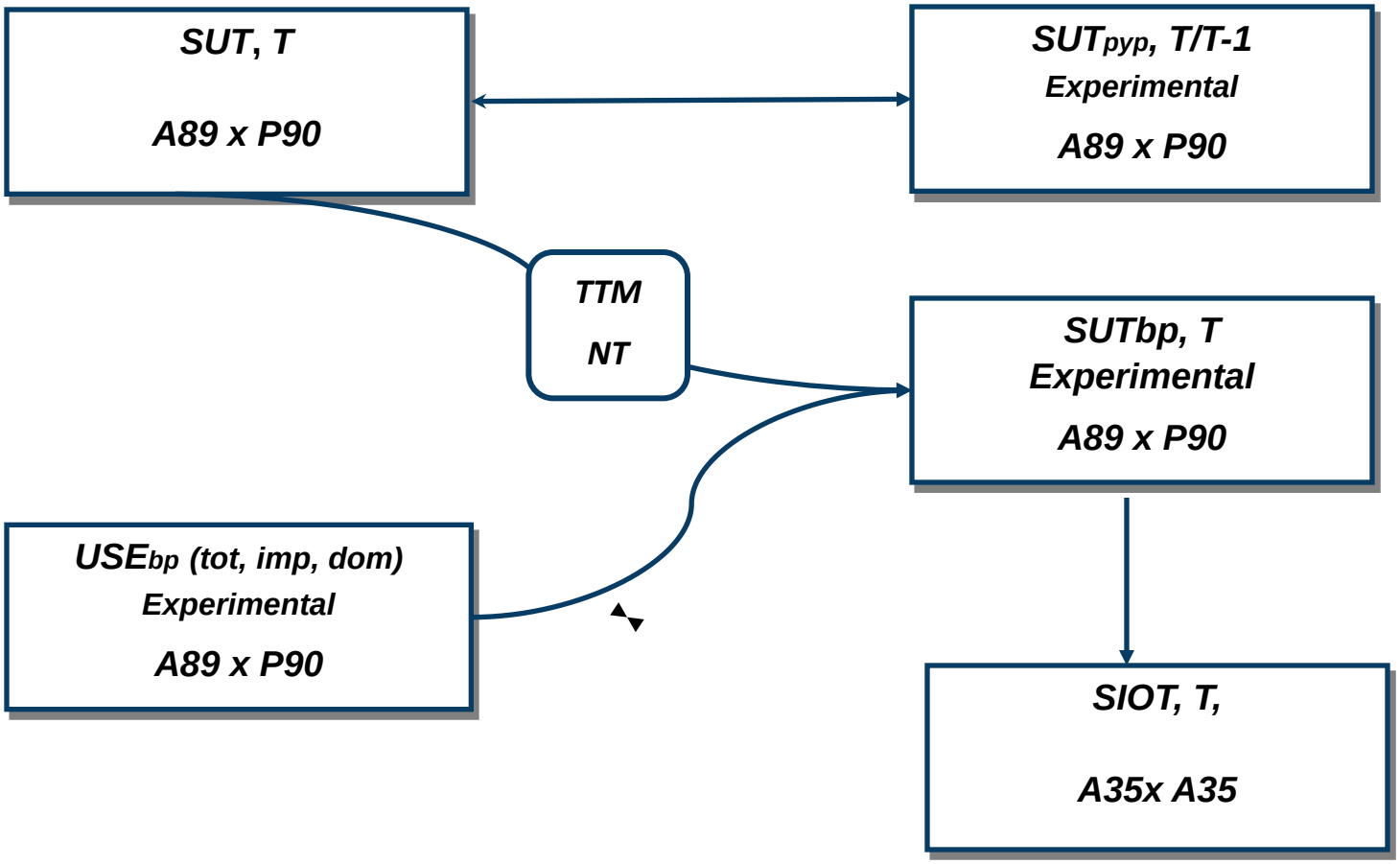
State of play SUT/IOT

- 2015 – first release of annual SUTs in current values and derived SIOT, for years 2009-2011 according to NACE Rev. 1 (25 products, 25 activities),
- 2016 – published SUTs in current values and derived SIOT, for years 2012 and 2013, according NACE Rev. 2 (35 products, 35 activities),
- 2017 – published SUTs in current values, for year 2014. Experimental compilation of SUT in pyp,
- 2018 – work is ongoing for SUT 2015 in current values, SIOT and development of the compilation of SIOTs for domestic use and imported

State of play: SUT/IOT framework



State of play SUT/IOT

- SUT compilation and release after annual estimates, not fully integrated in estimation of production approach and expenditure approach
- Third quadrant of SUT (income approach) is not compiled
- Output is not breakdown in sub categories P11, P12 and P13 (market output, output for own final use, other non-market output)
- Cif / Fob adjustment included in products and not as total required from EU transmission programme
- Not estimated transactions for non-residents in Albania, transactions for residents abroad

Data sources for SUTs and IOTs

Supply table

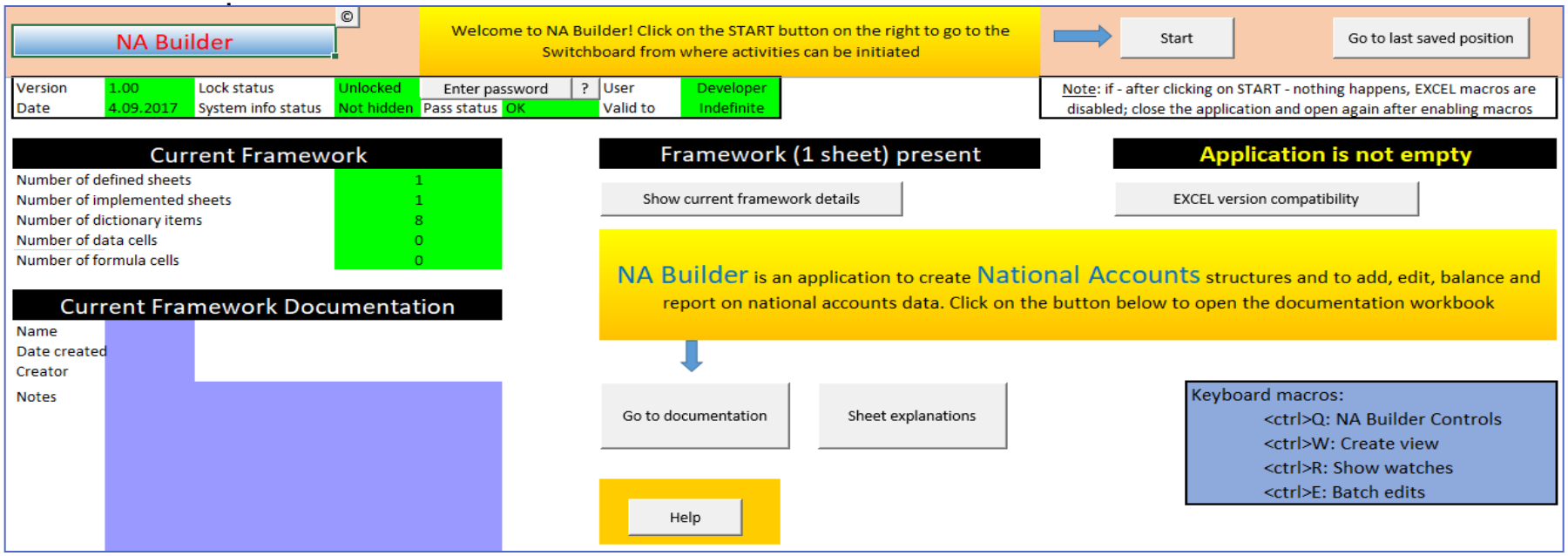
- Production approach database at enterprise level,
- List of industrial products from Structure Business
- Survey (SBS), FTS and Custom data, Bop data,
- Agriculture data,
- Financial institutions data, Government.

Use table

- Cost structure (SBS),
- Annual accounts estimation on HFCE and Household Budget Survey (HBS),
- Government final consumption expenditure,
- GFCF estimates for expenditure approach,
- FTS and Custom data.

Way a National Accounts (NA) automation

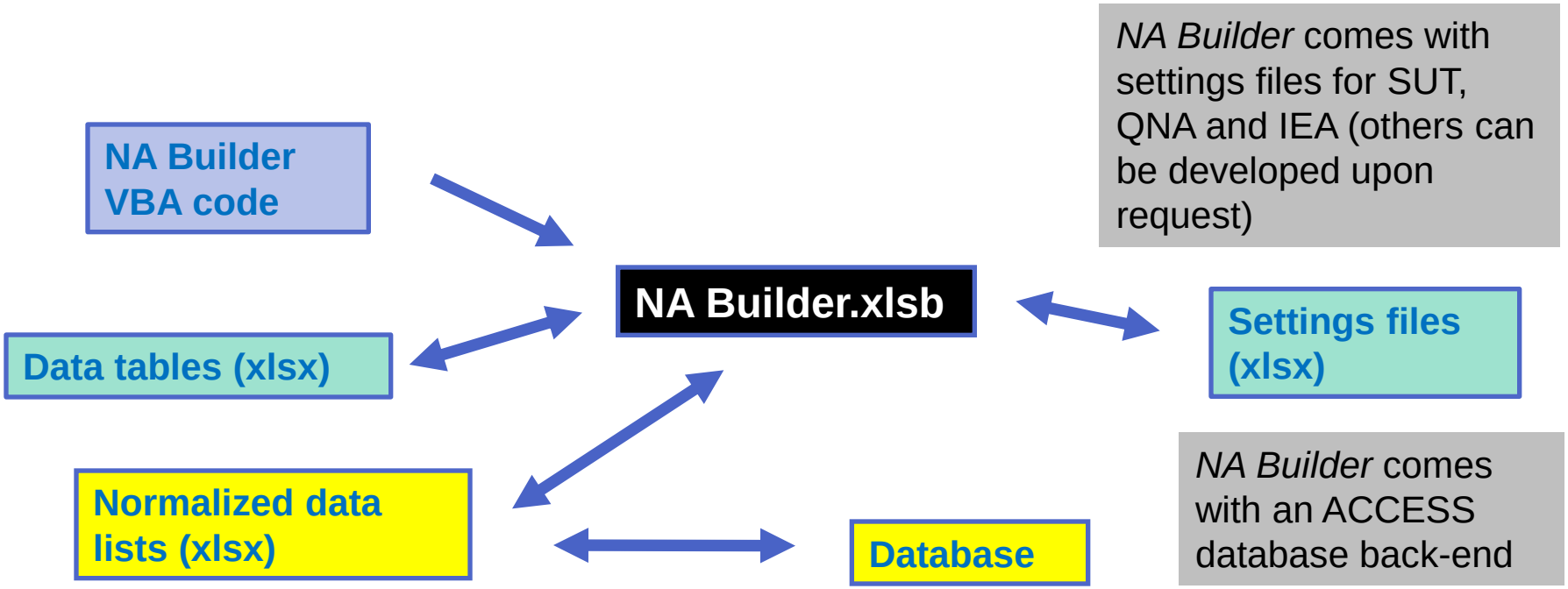
- **Major challenge -** to design an IT system in which:
  - data are stored in databases
  - NA compilations take place in spreadsheet structures
- **This is what *NA Builder* aims to achieve:**
  - EXCEL application
  - sets up complex tabular structures in a simple, intuitive way,
  - refers to NA classification codes, rather than EXCEL column letters and row



What is *NA Builder* ?

NA Builder is an application to:

- Build National Accounts **tables**, using **classifications**
- Add data to and take data from these tables using **normalized lists**
- Change data in these tables, using a variety of tools (manual edits, batch edits, view based edits, edit **rules**)
- Build and subsequently carry out compilation strategies as **scripts**, containing rules



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Classification = List of codes

Partition = Elementary table with one classification at the stub and one classification at the header

Template = table of partitions

Correspondence = “n to 1” mapping between classifications

Bridge = Set of correspondences

Rule = Action on a range of cells

Script = Set of rules

Table sheet = Template with classifications attached set up in an Excel sheet

Sheet cell = Quadruple {sheet name; partition name; row clas. item; column clas. item}

Formula = any valid Excel formula defined in terms of cells

Framework = Set of sheets and formulas

View = Row / column / sheet summary of cells

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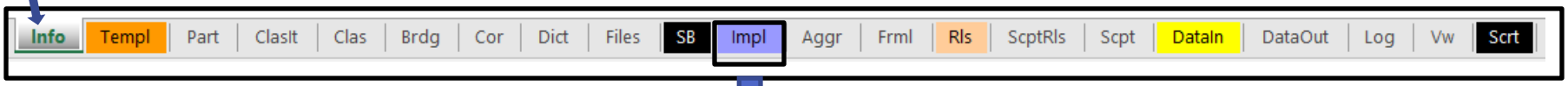
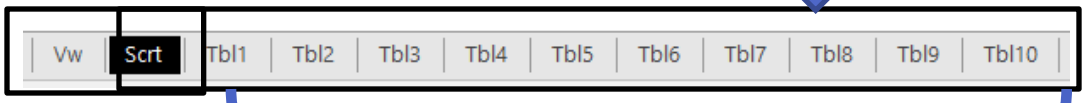
- NA Builder is an application stored in an Excel .xlsb workbook (xlsb = binary xlsx)
- It consists of a 21 application sheets, of which:
  - The sheets *Info*, *Dict*, *SB*, *Aggr*, *Log*, *Vw* and *Scrt* are the **program** sheets
  - The sheets *Templ*, *Part*, *ClasIt*, *Clas*, *Brdg*, *Cor, Frml* are the sheets where **structure** information is stored (on respectively: templates, partitions, classifications, bridges, correspondences and formulas)
  - The sheets *Files*, *DataIn* and *DataOut* are the sheets where **data** are specified and stored
  - *The sheet Impl* contains the table definitions (to be implemented)
  - *The sheets Rls, ScptRls and Scpt are the sheets where **rules** and **scripts** are specified and stored*





Framework (can be exported to a separate workbook)

Data storage in *NA Builder*

Excel addresses
<sheet>!<column letter><row number>
are “translated” as 4-tuples:
{<sheet name>;<partition name>; <row classification code>; column classification code>}

Tabular data in sheets …

	A	B	C	D	E	F	G	H	I
1	Template	tTbl_1	# of rows	6	1	2	3	4	
2	Template	Template	# of colum	5	C_1	C_2	C_3	C_4	Total
3	Implemer	Table capt	# of data c	4					
4	Implemer	Data	# of formu	10					
5	1	R_1			1	3			4
6	2	R_2			2				2
7	3	R_3				4			4
8	4	R_4							0
9	5	R_5							0
10		Total			3	7	0	0	10

… are stored in “normalized” form in sheet “DataOut”

	A	B	C	D	E
1		4		10	
2	Sheet	Partition	Row code	Column code	Value
3	Tbl_2	Data1	R_1	C_1	1
4	Tbl_2	Data1	R_1	C_2	3
5	Tbl_2	Data1	R_2	C_1	2
6	Tbl_2	Data1	R_3	C_2	4
7					

… and data from sheet “DataIn” can be inserted in the tables

Database architecture

In the database each dataset in *DataIn* or *DataOut* is assigned:

- *User*
- *Type*
- *Framework*
- *Revision*

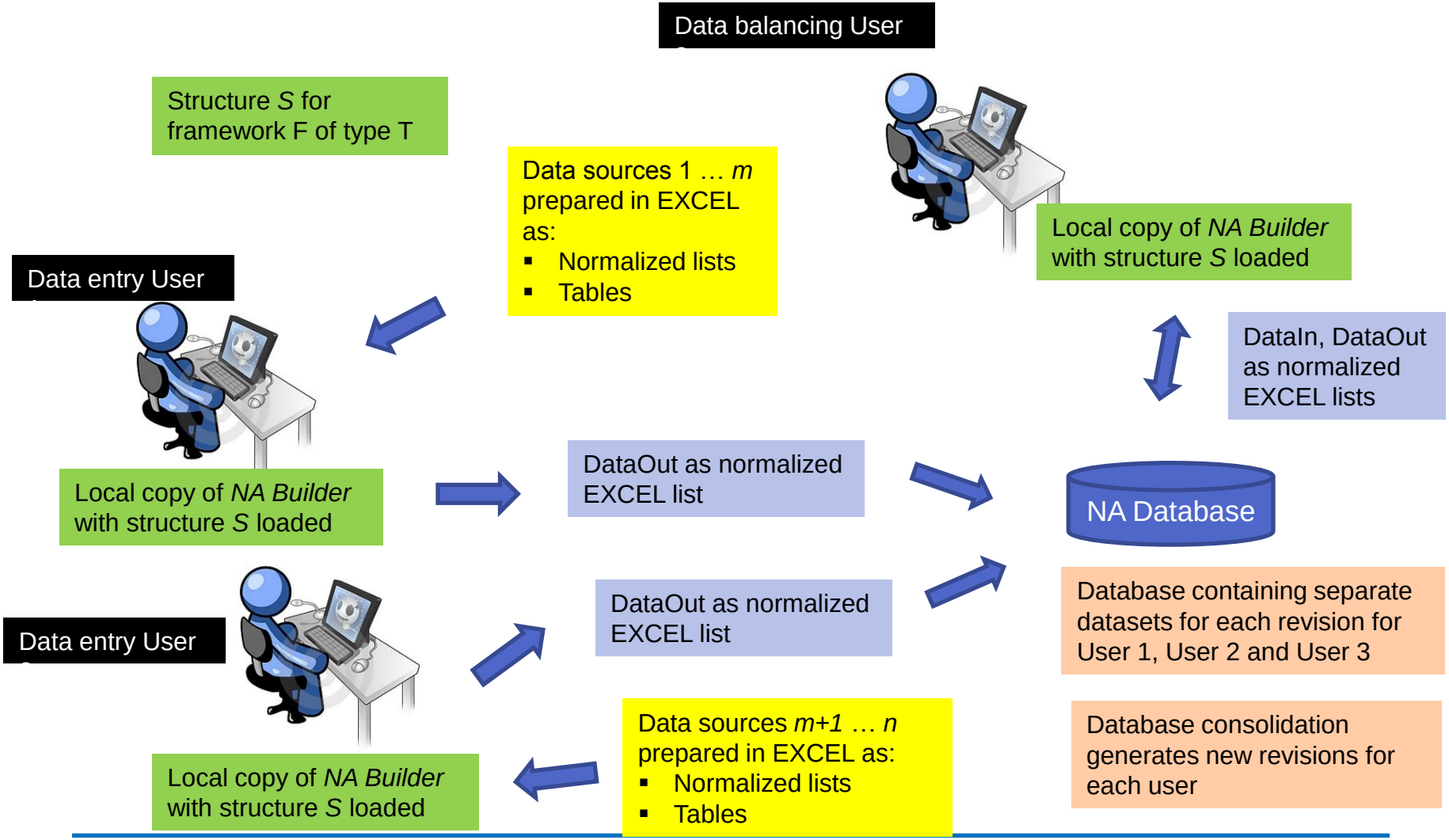
NA Builder comes with an ACCESS database implementation (other databases are possible as well)

Database fields				NA Builder fields			
User	Type	Framework	Revision	Sheet	Partition	Row code	Column code

Example:

Database fields				NA Builder fields			
CBS	SUT	SUT2012	3	NFC_Data	P1	DA	C_1.211

Multi-user aspects



Rules

- Rules are mini programs contained within NA Builder to carry out particular tasks
- Each rule has a particular syntax
- Script = list of rules in a particular order

Reclassification rules

COPY
DIAG
PROJECT
RECODE

Balancing rules

ABSORB
DISAGGR
PRORATE
RAS

Time series rules

COMPARE
CROSSCUT
DENTON
DISTRIBUTE
FOLD
INDEX
UNFOLD

Calculation rules

ADD
CALCULATE
DIVIDE
FORMULA
MULTIPLY
RAISE

Rule syntax

<RULE NAME> <Arg(1)> <Arg(2)> ... <Arg(n)>

for the EMPTY rule

EMPTY <Range(1)> <Range(2)> ... <Range(n)>

Input Output Table rule

IO, allowing:
Product table, product technology assumption
Product table, industry technology assumption
Industry table, assumption of fixed industry sales structures
Industry table, assumption of fixed product sales structures
Product table, hybrid product technology assumption
Product table using Almon method

Security issues

NA Builder can be obtained in three versions:

- *Unsecure* = Unlocked, not hidden, settings files unprotected, help unprotected
- *Weakly secure* = Partially locked, hidden, settings files unprotected, help protected
- *Strongly secure* = Locked, hidden, settings files protected, help protected

Version	1.00	Lock status	Unlocked	Enter password	?	User	Developer
Date	4.09.2017	System info status	Not hidden	Pass status	OK	Valid to	Indefinite

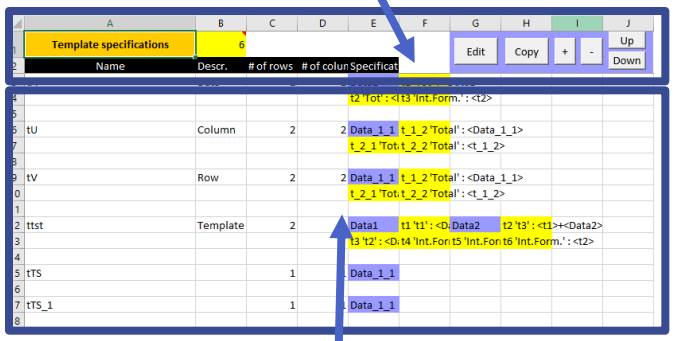
System info status:

- *Hidden* = columns Z:DC, DM:DT, EA:FB of sheet *SB* hidden
- *Not hidden* = columns Z:DC, DM:DT, EA:FB of sheet *SB* not hidden

Lock status

- *Unlocked* = interface unprotected, settings unprotected
- *Partial locked* = interface protected, settings unprotected
- *Locked* = interface protected, settings protected

Interface



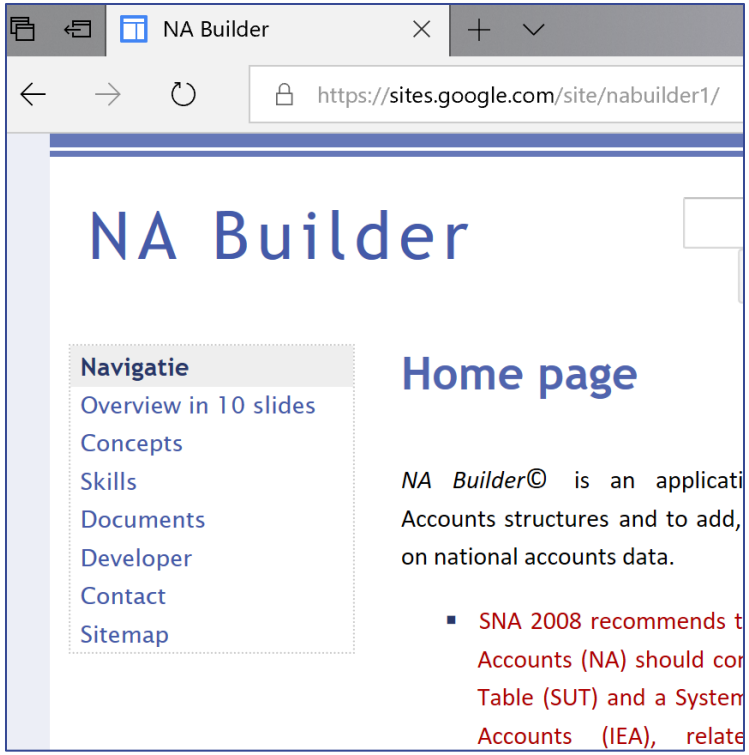
Settings

Obtaining *NA Builder*

The aim of *NA Builder* is to aid small NA Departments with little or no IT support in their full implementation of SNA 2008 using modern IT techniques

More information on this website

https://sites.google.com/site/nabuilder1/



- *NA Builder* is freeware, i.e. it can be used by the institution to which permission of use has been granted by the copyright holder for an unlimited period of time free of charge
- It is forbidden to pass on the application to another institution or person without written consent of the copyright holder
- *NA Builder* may not be used for any commercial (consultancy or any other) activity

This EXCEL application has been developed by:
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Thank you!

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