STeMA: NEW METHODOLOGICAL RULES IN ORDER TO MEASURE THE SUSTAINABLE TERRITORIAL DEVELOPMENT

Maria Prezioso, Vittorio Ottaviani
University of Rome "Tor Vergata", Rome – Italy

maria.prezioso@uniroma2.it, ottaviani@disp.uniroma2.it

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[1]

Abstract
In order to obtain a territorial sustainable vision of development, we need to perform a planning act and relative governance' rules. It means to build a 'machine' or a 'process' which produces Territorial Impact Assessment (TIA) and Strategic Environmental Assessment (SEA) at different geographical scales. In a territorial dimension this could be used to assess the current and future regional or local capability to be competitive in sustainability (Prezioso, 2006, 2007).
The following process has been standardized on a specific methodological approach, *Sustainable Territorial Environmental/Economic Management Approach - STeMA*[2], and transformed into logical passages (steps), so to be applied at national (macro), regional (meso) and sub-regional (micro) scales.
It is useful to clearly list some *axioms* explaining why STeMA is the best approach
to analyse the "competitiveness in sustainability", making this procedure smoother and more *user-friendly*.
At the moment, this contribution is a voluntary and pro-active choice; its implications and responsibilities are evident from a political-administrative point of view. In fact, STeMA could assist policy makers in choosing appropriate regional policies, assessing these choices *ex ante*.

1. *Introduction and main concepts*
To introduce the STeMA methodology, we should list *axioms* we talked about:
- STeMA is a multidisciplinary and interdisciplinary methodology, therefore it requires supports from a knowledge and an amount of disciplines larger than competitiveness and sustainability's traditional studies;
- STeMA works with a systemic-qualitative and quantitative logic, in a *total quality management's* perspective;
- STeMA integrates competences, knowledge and languages using tools of complex knowledge;

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[1] Authors have written this paper together. However, M. Prezioso gave a major contribution in 1 and 4 paragraphers and Vittorio Ottaviani in 2 and 3.
[2] STeMA was conceived by Maria Prezioso in 1983 and for the first time formalised at regional scale in 1995. At this moment, it is *All copyright reserved*.

- STeMA pursues strict adherence both to the sustainability goal and to territorial 'bottom-up' development;
- STeMA allows continuous adaptation to data updating.

Planning a competitive in sustainable assessment STeMA:

- fixed and shared a common lexicon (common language-glossary);
- defined modalities of certified data's acquisition at national, regional and sub-regional levels;
- established a new list of Policy Strategy indicators and the territorialisation procedure of statistical data;
- set the general architecture to apply the systemic method, fixing contents and procedures to express ex ante judgements;
- defined contents of territorial policies applied to Funds' planning;
- designed TIA starting from a SEA experience and inserted TIA itself in the information and management system, to express ex post judgements through a dedicated GIS project.

To compare regional backgrounds - to enable the Fund Plan's design - was also necessary to build a conceptual scenario. It had to be conceived according to both European and international directives and through indicators and determinants' definition, whose selection was based on criteria and parameters assigned to calculate their functionality towards goals of this project.

Each determinant outlines the logical procedure of information and judgements that reverberate on their initial territorial dimension.

In the STeMA approach, ex ante assessments are defined through a set of indicators that concur to the determinant's definition, as described in the "logical procedure" (Fig. 1).

The regional level of experimental exercises is at NUTS2 (according to the European statistical administrative organisation); it includes territorial typologies, ESPON 2000-2006 produced. Results are presented in this paper.

Linking determinants to territorial typologies – which comes, in turn, from a specific weighing process – it was possible to specify the *Territorial Capability to be Competitive in Sustainability*.

STeMA doesn't consider the final regional results of capability, but it relates them to Funds with regard to political Lisbon/Gothenburg objectives.

The choice of indicators for each determinant is made through environmental/territorial, technical, social and economic criteria. The first ones reflect physical/natural aspects; instead, latter parameters depend on the type of plan carried out. In general, objectives condition them and design's standards, the plan requires.

Funds inputs are identified, quantified and correlated with the 2005-2006 European Commission Proposal and with the managerial assessment that makes them feasible.

A core issue is to recognise the effect potentially generated by political actions planned in Lisbon/Gothenburg strategies. Effects of designed plan's actions measure the impact value.

STeMA assesses:

- the difference between initial and final states of regional capability (correlation matrices);
- the improvement of performance and competitiveness produced by actions scheduled in Funds plan.

The alternative political choice is posed to the policy makers' attention through logical and deductive criteria, using systems which describe those considerations about problems that determine choices at regional level (NUTS2).

The reference scenario's formulation ends this *phase* of STeMA procedure. It defines the whole field of relations within which could be taken into consideration several hypotheses about the development of the territory and possible alternative political choices.

2

It is necessary to refer to a given historical moment (time t0), when indicators were detected, to formulate the current scenario.

To this final stage, functionalities and sub-objectives, constituting the procedure, were identified; each of these functionalities was measured depending on its localisation (territorialisation) and it is susceptible to acquire different aspects and values.

In this type of procedure, the hierarchical, vertical classification of problems and the increasing number of functionalities analysed at low structural levels (indicators), determine a graph characterized by an *upside-down tree* configuration.

Basic indicators were defined as well as corresponding possible connections of mutual relation.

Then, indicators' studies results (first step) were correlated to the best achievement level of Lisbon/Gothenburg objectives (i.e. the implementation of initial resources levels).

Regarding to *generation of policy alternatives*, the operational procedure, embodied through GIS, enables policy makers to choose the desired objectives of Lisbon/Gothenburg Strategy. Therefore, it optimises and highlights several alternatives that could be suggested, depending on problems related to the European regional structure.

The application of STeMA's technical procedure implied the realisation of an *appropriate GIS* in order to collect, to process and to communicate information, starting from data acquisition.

This plan could have effects in short, medium and long terms so the monitoring has to be *durable.*

STeMA implies continuous confrontation and updating to increase awareness levels and participation to development choices.

On this way, STeMA:
- defines the "playground" for every indicator/determinant of the political Strategy and contributes to determine

some *judgements*[3] and to calculate their states;
- applies a SEA/TIA procedure to calculate the impact risk of the system/determinant referring to the Funds plan and policies;
- selects trans-national/regional zones for a cooperative Funds' use.

To attain this, it is fundamental to understand the answer indicators brought (aiming at the best possible significance) or, in other words, to exactly define the phenomenon, indicators should explain. We defined four synthetic indicators that answered to the Lisbon question; *"if and how is a given territory able to generate/develop competitiveness?",* not in absolute terms but relatively to what Amartya Sen calls "capabilities"**.** In our case, they became "**territorial capabilities**". This kind of approach has two fundamental strength points:
- initial resources play an important role; those countries with a smaller amount of resources, take smaller handicaps;
- the capability concept should be connected to the "use function/functionality", which allows an estimation of realizations achieved and carries also out a monitoring over the time.

Theoretical choices and methodological approaches, discussed below, are strongly dependent on previous points and results, they try also to combine a rather simple procedure with the topic complexity. This requires to make an acceptable compromise between more advanced and sophisticated procedures and a methodological approach concerning a sufficient scientific agreement, innovative in some parts, but at the same time easier to run.

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[3] Status Quo is the state of the determinants (the critical elements to be competitive) and is defined by state indicators. Vulnerability is the description of the effects of the determinants and is defined by process indicators.

To achieve this goal, a synthetic measure is required (technically a composite index - CI).

The TC of CiS and CI are determined to the occurrence of several elements ("driving forces"); they could be grouped into fundamental aggregate sets (in our language determinants), which are generated in turn by the combination of other sets less aggregated, in accordance to a hierarchical structure: determinants from typologies, typologies from sectors, sectors from categories, to end with the elementary information, categories from indicators.

Interactions between indicators, in synergy or in reciprocal prevalence, define a 'domain of interaction', that allows each competitiveness's component or determinant to be defined and to assess the potential impact, coming from the realization of a Funds plan or part of it.

This framework is largely adopted in literature; it concerns the development of aggregated indices, which summarise the information contained in different elementary indicators. The aggregation process and the introduction of an innovative territorialisation procedure, differ from the usual methodology in producing aggregate indices.

The strength of this methodology is in its capacity to combine very different elementary information (quantitative, qualitative - these latter also transformed into quantitative) and in the phenomena reference (economic, social, environmental etc.); it could hardly be treated with an identical model.

The aggregation process and the ranking choice, that allows the "pair to pair comparison" between indicators, is the weak point of this methodology.

Anyway, limitations and criticisms would accompany choices to the aggregation function and to the weighing scheme, to a more conventional methodology.

To give a comparison between indicator and indicator into determinants, STeMA provides *the construction of several qualitative interaction matrices,* which, on the base of reliable scientific theories or of reasonable demonstrations, gives a value to each single indicator (I_1 or I_2) and outputs the qualitative value of the corresponding synthetic/composite indicator (I_x).

The following matrix is an example of qualitative interaction:

Table 1: Example of qualitative interaction matrix between indicators

I_1 \ I_2	a	b	c	D
A	Aa	Ab	Ac	Ad
B	Ba	Bb	Bc	Bd
C	Ca	Cb	Cc	Cd
D	Da	Db	Dc	Dd

With $Aa>Ab>.......>Ba>Bb>.....>Dd$; rearranging RESULTS ($I_x$ value) in the following way

I_x = Aa, Ab = high value = A
I_x = Ac, Ad, Ba, Bb, Bc = medium high value = B
I_x = Bd, Ca, Cb, Cc, Cd, Da = medium low value = C
I_x = Db, Dc, Dd = low value = D,

each indicator is combined with another to answer specific questions presented by European documents (ICT, R&D, Innovation, Human capital, Age, Poverty, Climate, etc.)[4].

The approach combines heterogeneous indicators, mixing matrix rankings with weighted performance analysis.

Referring to the scientific indicators' cross, each determinant is calculated by this methodology in the following way:

- *status quo* and *vulnerability judgements*, e.g. state and risk of a wrong access to Funds plan;
- territorial base, using some typologies taken from ESPON results (Urban/Rural typologies + MEGA + FUA);

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[4] At this scope, Porter's Diamond was revisited and integrated with four Lisbon/Gothenburg new determinants.

- *capability to be competitive in sustainability* at sub-regional, regional and national levels;
- assessment of this territorial capability to correctly decide and to choose policy sectors, in which these Funds might be used with better results;

To obtain the requested measure some steps need to be performed;
- proposal of "core" indicators,
- grouping of data,
- definition of aggregation criteria (connected to a weighted schema)
- definition of the next level (category, sector, typology, determinant).
- definition of the territorialisation procedure and of the rule able to compare performances (*ex ante* and *ex post*).

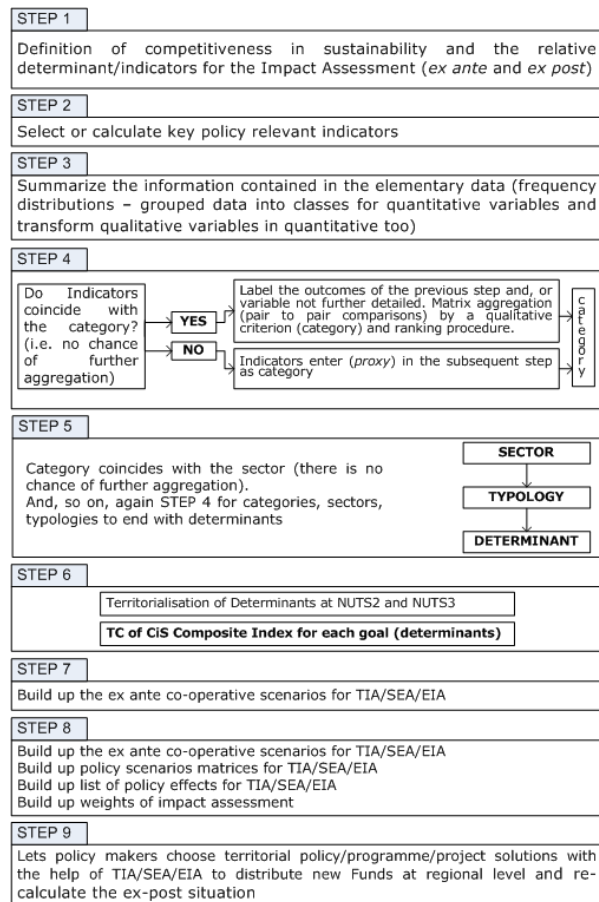The nine steps (Figure 1) are linked, so that the output of the previous is the input of the subsequent.

Figure 1: STeMA process and work steps

This approach faces the challenge of adding

the "territorial dimension" to peculiarly *economical-political* objectives (**competitiveness and sustainability**). The main operational problem is about a large part of indicators, because they describe *socio-economical* phenomena that are not completely "territorialized", caused to the statistical relevance of data, both in terms of survey and geographical level. (Figs. 2-4).
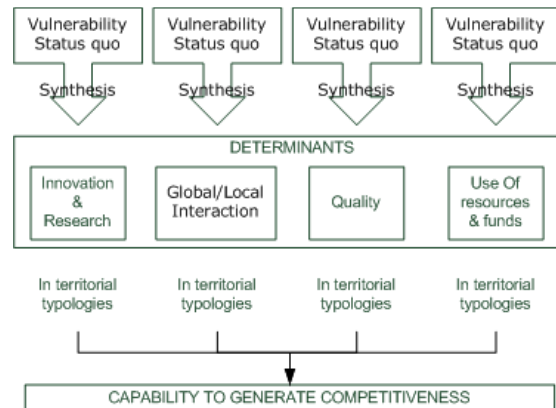

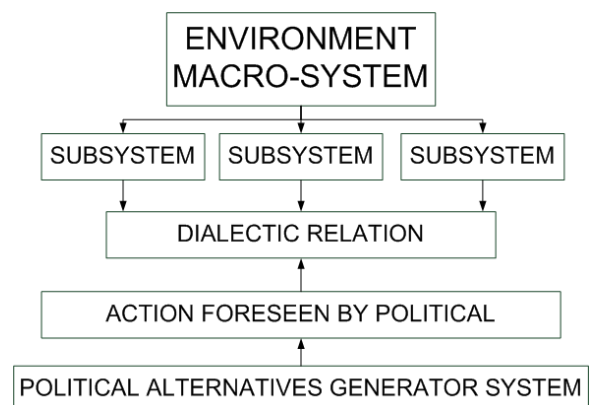**Figure 2:** The connection of determinants to territorial typologies

Figure 3: Relational scheme in Strategic/Environmental/Territorial Impact Assessment tree, system dialectic
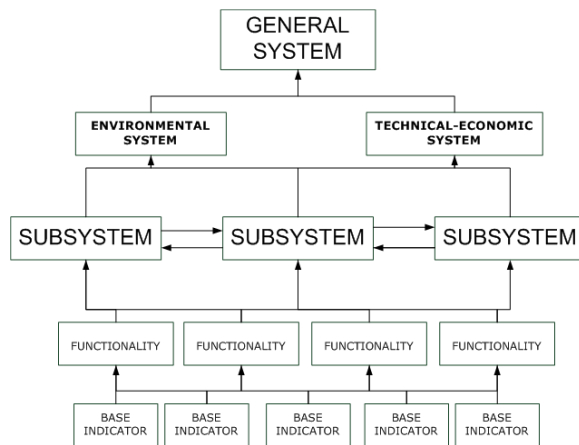
Figure 4: Relational chart of integrated planning process systems

The final step of this methodological process is the recognition of effects potentially generated by policy actions.

This process could be considered as evolution of an economic/territorial/environmental impact assessment (SEA DIR CE/42/2001); it becomes a first example of Territorial Impact Assessment (TIA).

The value of the impact is produced by policies' effects on indicators, using *correlation matrices* to assess the risk degree of overtaking capacity threshold and the improvement in performance and competitiveness.

At the end, it is possible to start building scenarios of Funds allocations, according to indications provided by the Capability Framework.

2. *Methodology for the choice of planning and project*

Studying the Lisbon/Gothenburg Strategy, the ESPON 3.3 project developed a dedicated part of the model, named STeMA, for the calculation of territorial capabilities to be competitive in sustainability; in order to apply the '*revisited*' Lisbon/Gothenburg Strategy at European regional level, this procedure could help European policy makers to make appropriate decisions regarding the new Funds regional distribution.

To obtain both Lisbon/Gothenburg territorial objectives and a sustainable vision of competitiveness, we need to perform a planning operation. It means to build a '*machine*' or '*process*' (which produces TIA) useful to assess the current and future regional capability to be competitive in sustainability in a territorial dimension.

Thus, TIA is an assessment procedure built into STeMA. Through a GIS project and some special/dedicated coaxial matrices - one for each determinant of the Lisbon/Gothenburg Strategy - STeMA works to:
-   connect different calculations of territorial dimension of Lisbon/Gothenburg Strategies, weighing indicators and their combinations;
-   complete calculation of the territorialised synthetic index (territorial initial value of capability - TIVc) for each determinant (see Scheme in Figure 5, zone '**E**').

Then:
-   from ESPON and EU projects' analysis, a list of general and sectoral policy recommendations is built and inserted in four matrices (see Scheme in Figure 5, zone '**A**'), one for each determinant;
-   each policy list is weighed (gravity value) introducing these values in relation with each single determinant (i.e., I&R, G/L Interaction, etc.) into a dedicated matrix (see Scheme in Figure 5, zone '**B**');
-   for each determinant there is a list of positive effects that the Lisbon/Gothenburg Strategy should produce; this list is different for each determinant and is introduced into single appropriate matrices (see Scheme in Figure 5, zone '**C**');
-   each single effect is weighed in relation to determinants/indicators (quality value) to fix the desired policy (see Scheme in Figure 5, zone '**D**') and to calculate the relative impact (or territorial final value of capability – TFVc).
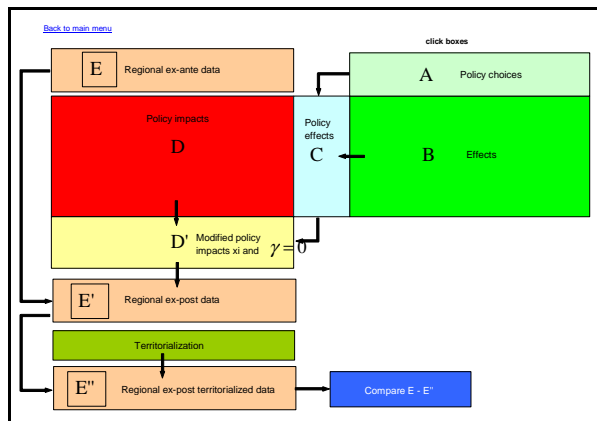
Figure 5: TIA matrix scheme of correlation (The toolbox design and the related theory were developed in the University of Rome "Tor Vergata")

A = list of *policies/actions.* $a = 1,...,h,.....l$.
This list covers all actions that a policy maker could follow in relation to Lisbon/Gothenburg strategies. This list is equal for each of the four determinants (matrices)

B = contribution of the single action to obtain the correlated effect (actions contribute with different weights; it could be that some actions don't contribute to produce a certain effect)

C = list of *policy effects.* This list covers effects correlated to different determinants. This list is different for each determinant (matrix)

D = impact of effects on indicators

E = list of *indicators*. This list contains indicators used to calculate ex ante (E) determinant and ex post (E') value and new territorialisation (E'')

Then:

- policy makers could choose the Lisbon/Gothenburg sectoral or general policy (one or more) that they think is more appropriate to apply this Strategy;

- STeMA, by GIS, calculates effects and impacts with regard to this choice and could suggest and sustain final decisions about the use of Funds;

- some territorialized scenarios (maps) of these future hypothetical choices will help policy makers to better examine results.

In the following section the TIA procedure followed by STeMA, is explained in details.

Symbology
Different colours and different geometric figures indicate three weights, which are preliminarily assigned to policies (B) and impacts (D) into the matrix.

△ Low value = 1
■ Medium value = 2
● High value = 3

Values in matrices should be considered as the starting point.

Figura 6: Example of TIA Matrix for I&R Determinant

3. *Operational procedures*

Below, we present the operational procedure applied on each matrix, to build the TIA process.

Step 1

Calculate the 'B' area in the matrix (Fig. 6)
$\forall j$

$$\sum_{k=1}^{m} b_{jk} = B_j$$

with:

B_j = sum of values for each row, corresponding to red, blue, green symbols and related values for the whole of policy choices;

j = policy choice (0 = non choice; 1 = choice)

Red= 3

Blue= 2

Green= 1

Example: first line of the R&D matrix for effect "Innovative capability improvement"; if a policy maker should choose all defaults to obtain this effect, bj (with j = 1 ... n) should be: 6 x 3 (= 18) + 4 x 2 (= 8) + 2 x 1 (= 2) = 28

Put 28 = 100% = maximum potential effect if our policy-maker choose all policies in the list to have this effect.

Step 2

The choice of actions:
A button was created to let the policy maker choose actions (a_h) he wants.
If the policy maker would like to choose only some policies, the formula that GIS should use is the one at STEP 3.

Step 3

So it is possible to use the STEP 3 formula in each case.
If a policy maker would like to choose only 2 policies (e.g. "Bridging digital divide" and "Supply of education"), their potential effect should be =3 + 3 =6, and the sum into STEP 3 should be = 6

Taking into account only actions (a_h) chosen, now you have to calculate
$\forall j$

$$\sum_{k=1}^{m} b_{jk} = B'_j$$

Note that $B'_j \leq B_j$

Step 4

This formula enables the policy maker to calculate chosen policies' impacts.
Example from STEP 3: 100/28 x 6 = 21,43 %. This the real effect

$$c_i = \frac{100}{B_j} B'_j = \%$$

Step 5

On the left side of the matrix, looking at the indicator column (e.g. "R&D expenditure"), the red, blue and green values in the column should be summed; in fact each column represents the sum of indicator's impact effect (without territorialisation, to simplify the operational procedure). Then, put indicators at the base of the matrix.

Example: The "R&D expenditure" indicator receives the 1 effect "Innovative capability improvement" at 100%, if the policy maker chose all recommended policies.

$\forall q$

$$\sum_{p=1}^{t} d_{pq} = D_q$$

Step 6

If the policy maker chose to realise the effect as in the previous example (= 21,43% for one line, <u>it should made this calculation for all lines effects</u>), red, blue, green values reduce their initial value in percentage terms (according to the value of c_i).

Then:

$d'_{pq} = d$ x c_i (or ci/ah as you called c_i)

9

STeMA called columns red, blue, green with symbols **D**

Step 7
Now sum all d'_{pq} of the column;

$$\forall q$$

$$\sum_{p=1}^{t} d'_{pq} = D'_q$$

Note that $D'_p \leq D_p$

This is the sum of potential decrements for each indicator.
Example: if c_i =21,43% and d=3, d'_{pq} = 0,6432

Step 8
calculate how this new value is moved away in % from the total decrement calculated in the original matrix (values put on the left side)
Use the following formula:

$$x_i = \frac{100}{Dq} D'q = \%$$

Example: if Dq was 14 (as initial total value), $x_i = \frac{100}{14} 11,6432 = 83,17\% = +3$
Because:
$\gamma = 0$ if $0 \leq x'_p \leq 24$
$\gamma = +1$ if $25 \leq x'_p \leq 50$
$\gamma = +2$ if $51 \leq x'_p \leq 75$
$\gamma = +3$ if $75 \leq x'_p \leq 100$

where $+\gamma$ is the increment that the indicator assumes for (positive) effect of policy choice.
Example: if your determinant final value for region AT11 Burgerland is C, C+3 is > than A (max limit) and the policy maker must choose less policies (see STEP 9).

Step 9

Look at the initial value of indicators (e_u). This value comes from the *ex-ante* calculation (see DBF files, we have to map). This original value e_u will change, according to the effect of formerly calculated impacts and it will become e'_u.
Indicators' initial (ex ante) values are A, B, C, D, and so their final values will be:
$$e'_u = e_u + \gamma$$

with
$\gamma = 0$ if $0 \leq x'_p \leq 24$
$\gamma = +1$ if $25 \leq x'_p \leq 50$
$\gamma = +2$ if $51 \leq x'_p \leq 75$
$\gamma = +3$ if $75 \leq x'_p \leq 100$

All the theoretical possible combinations are presented as follow:

D+3=A D+2=B D+1=C	C+3=more than A **(choice minus policies)** C+2=A C+1=B	B+3=A2 **(policy not needed)** B+2=A1 **(policy not needed)** B+1=A	A+3=A3 **(policy not needed)** A+2=A2 **(policy not needed)** A+1=A1 **(policy not needed)**

If $e_u = D$ and $\gamma = +2$ so $e'_u = D+2 = B$, the impact overcomes the A value, that becomes $e'_u = A1$ if $e_u = B$ and $\gamma = +2$.

Step 10
Re-calculate the determinant value (according to old matrices and processes)

Step 11
Territorialize this new determinant value (by territorialisation Table). Please note: the matrix should be used in the same way as before.

Step 12
Insert a pop-up, comparing old and new values for each determinant

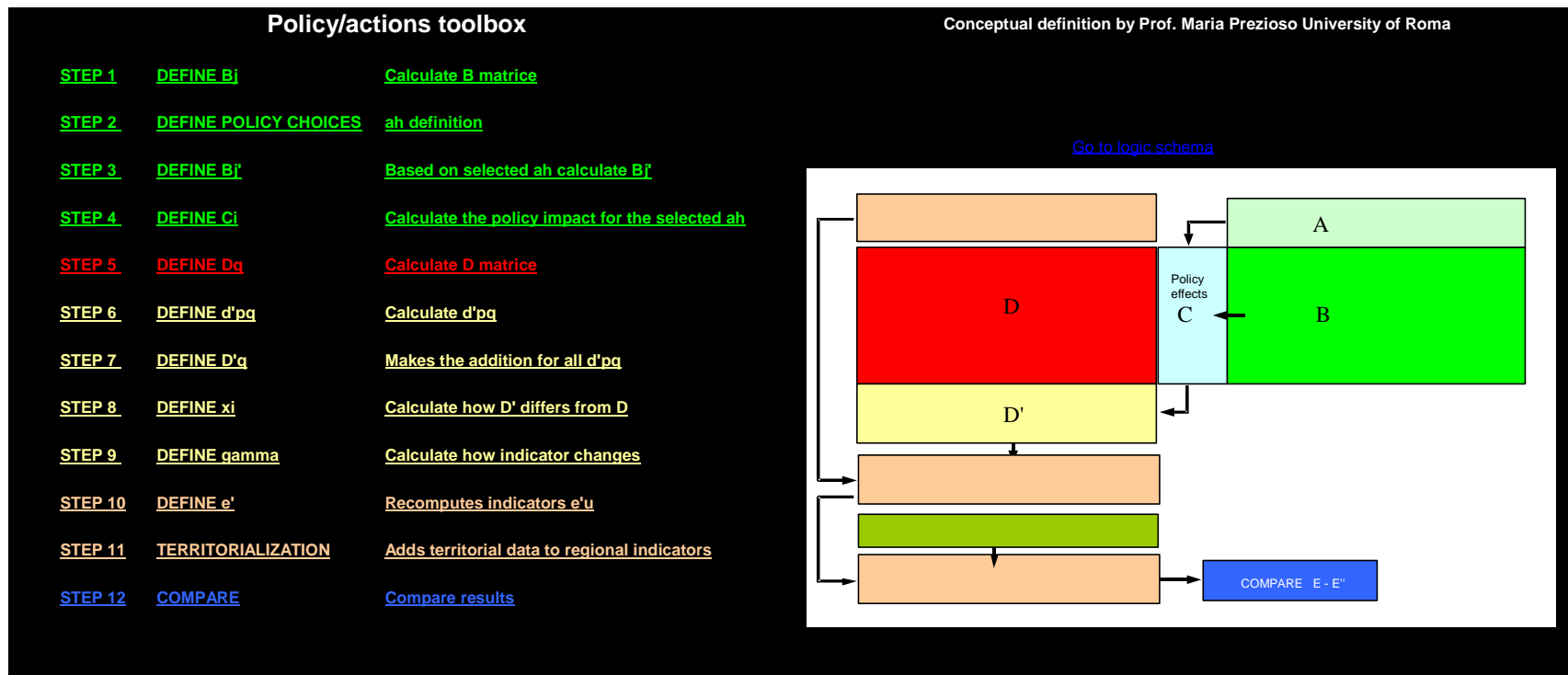Now you can play the TIA game changing policy value from 1 to 0

Figura 7: 3.3 final TIA toolbox

To see the whole regional list of ex ante, ex post, spatial, territorial data and values and the list of policies, please, open EXCEL files TIA I&R.xls; TIA G&L.xls; TIA Quality.xls; TIA R&F.xls

4. *Conclusion and open questions*

The STeMA Approach (Prezioso, 2003) seems have anticipated the goal declared on June 2005 (European Commission, 2005: *Within the framework of the Better Regulation package and the European Sustainable Development Strategy*), because the Commission outlined several concrete actions to improve the way it designs policy. One of these tasks is the impact assessment and the Commission had already introduced a new method in 2002, integrating and replacing the former single-sector type of assessment.

Studies and researches carried out on Spatial Planning issues (ESPON, ESDP, CEMAT and practical INTERREG III trans-regional projects) suggest analytical readings and logical-critical interpretations at regional, national and European Level, to re-interpret indications in territorial sustainable government to be competitive.

Currently, some regions and sub-regions (namely Italy, Slovakia, Slovenia, Greece, Bulgaria) are experimenting STeMA into EU 2000-2006 INTERREG III co-operative projects.

From these applications, the most important help comes from the development of a "user friendly" version of STeMA.

In fact, some questions are still opened:

- where certified data needed to make sure STeMA results, are from;
- how to confirm data's structures (indicators) that we need in form crossed fields (sectors, typologies, etc. into columns);
- how to suggest that National/European Statistical Offices should make available all needed data at different NUT levels,
- how to explain to assign a value to the entire census section when we do not have specific data. For example:
  - if an area with residential destination represent over 50% of the section surface, these section will be labeled as "residential";
  - if a section contains 23% of agricultural area, 41% of residential area and 36% of old town, this section will be labeled as "residential" (this is a rare case because of census tracts (sections) are normally created considering land-use and buildings typology).
- how to obtained territorial typologies for the data territorialisation and their classification with land-use data as described by STeMA model. This is a necessary step to construct basic reference units and environmental cognitive frame about settlement system. To build these, you could use geographical territorial typologies or
  - Areas and centres with diffuse and continuous urbanization
  - Mesh structure
  - Node/Line structure
  - Isolated and scattered settlements
  - Non manmade landscape

  On this way, the most depopulated areas are separated from those rural areas where medium-sized cities are located with regional/local economic bases.

  Reminding that main analysis's arguments are:
  - identify the most competitive and dynamic territories based on the knowledge and the innovation, and relate them to urban and regional characteristics;
  - know if urban centres and metropolitan agglomerations are crucial in providing framework conditions for a knowledge-based economic development;
  - understand the polycentric model at different scales; it includes dynamics of urban growth centres and link peripheral and disadvantaged areas with urban centres.
- how these information (spatial data collection) have to be collected in few maps.

A best practice to performed two experimental exercises is to divide the whole data range in two different ways of mapping: *equal interval* (where the distribution of values is divided into intervals of equal width and classes are accordingly determined) and *Quantiles* (where the distribution of values is divided into intervals of different width in

order to equalize the numerosity of each class). The *Quantile Interval classification scheme is the class breaks' final choice*. It is different for each indicator.

The "Quartile approach" leads to a complementary of information concerning the alteration and it is also useful to analyse the distribution, disregarding good or bad situations (Quartiles are not influenced by atypical extreme values).

To transpose the above consideration into "maps readability", Quartiles tend to highlight the contrast between regions, because the classification is managed to equalize class width.

Anyway, the rank A to D is associated to the Quartile class breaks according to its own meaning: "A" means "best performance" either when the indicator gets its lower value or its higher one.

In this methodological and operational proposal, some matrices define combinations and the subsequent class reduction. They are explained in other Scientific papers.

The general role of indicators was based on:
- literature review suggestions;
- factors classifying numerical indicators. They are selected with the purpose of catching immediately both the mode and the position of frequency distributions (in this case Lisbon/Gothenburg objectives);
- the prevailing dimension, as well as the dimension that could be associated at least to a quarter (or a half) of a region (both in relation to a specific indicator). They are useful as tools for political requests and inherent co-operation goals;
- empirical experience and experts' assessment (Delphi Method).

Each dataset has then been arranged and linked to geographical subdivisions; qualitative variables or metadata are transformed in quantitative ones through weighted assignments. These sets of quantitative values are summarised, making frequency distributions with closed and non-overlapping classes.

In parallel, a Database/GIS tool to automate the combination, starting from basic indicators according to the methodology, was developed as an added specific offer, came

from the research. It could be used by policy makers as a tool to easier readout and to choice.

In order to provide a territorial typology useful to data territorialisation, following aspects were considered:
- the population structure and its incidence in areas with urban and rural characteristics (via typologies referring to Functional Urban Areas and to urban-rural relationships);
- relationships between urban and rural areas (via typology referring to urban-rural relationships);
- cities' growth dynamics (via typology referring to Functional Urban Areas/MEGAs) and accessibility/connectivity. This typology also shows the spatial integration capacity (via typology of FUA), that represents different competitiveness profiles and distinct patterns of social cohesion and environmental sustainability.

This type of approach allows the construction of an indicator which includes information on the current situation (according to its own specificities) and real dynamics of actions that enable the achievement of a given goal: in this case we turn from the simple territorial competitiveness to the *capability of generate territorial competitiveness in sustainability*.

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