The contribution of the computer science as well as the information and communication science approaches for the editorial function of the territorial information systems.

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Abstract: This collaboration focuses on the data-processing software evolution which implements an editorial function in territorial information systems in various using contexts. It results from collaboration between humanities, social sciences, computer science and information and communication science researchers, and which has been established since 2000 within the ISTI[21] and the MSH LEDOUX[22] framework.

In a previous paper, we summed up the research activities about territorial intelligence since the seventies'. Essentially, it was a friendly data processing solutions development: PRAGMA for quantitative data analysis; ANACONDA and NUAGE for qualitative data analysis.

Thanks to computer science researchers collaboration, the SITRA[23] research action allowed the completing of statistical analysis data by spatial analysis and cartography tools. Then the ICASIT[24] started updating and making the statistical data and spatial

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[23] Territorial Information Systems for Actors Network (2002-2004), a research action of the Information Sciences and Technologies Institute of Franche-Comté (ISTI).

[24] Analytical Chain integration in Territorial Information Systems (2005-2006): Another research action of the ISTI.

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analysis software, previously developed to evolve within the networks and Internet framework.

Progressively, we became aware of the editorial function importance of this analytical chain, directed towards an online results edition.

This paper deepens the specific added value of computer science as well as information and communication sciences to the design and the territorial intelligence systems modelling.

1. BASIC MODULES OF THE TERRITORIAL INTELLIGENCE COMMUNITY SYSTEMS PLATFORM

A territorial intelligence community system (TICS) is a territorial information system (TIS): a tool used by the territorial actors.

In a previous article (GIRARDOT, 2007), we defined the specifications and general functions of the territorial information systems.

An information system is the databases structured integrity which gathers a defined set of information and functions. It allows their connection establishing it, defining these relations direction or measuring them.

In a Territorial Information System (TIS), the information concerns a territory, that is to say a geographic space and its community. They are referenced in space and time. The aim of the Statistical and spatial analysis functions is to help territorial actors by producing knowledge on this territory. A TIS allows:

- Gathering information;

- Analyzing them according to scientific protocols, especially in a spatial prospect;

- Interpreting these analyses results;

- Representing the information and the results;

- Drafting decision-making scenarios;

- Managing and valuating policies, programs, devices, projects and actions that result from the decisions.

The fundamental analysis modules of the territorial structure information systems we recently used were initially developed as complementary software:

- The PRAGMA software was created in 1991 to make a statistical data qualitative analysis in order to make the data tables drafting easier for qualitative processing.

- ANACONDA (GIRARDOT, 1982) was published before to diffuse the use of the data qualitative analysis methods (factorial analysis and classification) in Humanities and Social Sciences. They are multi-criteria methods that allow analyzing statistical individuals described by a multidimensional characters set. The factorial analysis determines the structural factors or trends of an important data set. The classification dissociates its main classes. They are very important

methods to understand the complexity and diversity. It was completed in 2003 by NUAGE to represent simultaneously the Factorial Analysis results of the Correspondences and the Hierarchic Ascendant Classification in three dimensions.

The friendliness concept, which is fundamental in their conception, implied the ideas of economy, simplicity in the use, accessibility, sharing and cooperation.

Diagram 19: Basic modules.
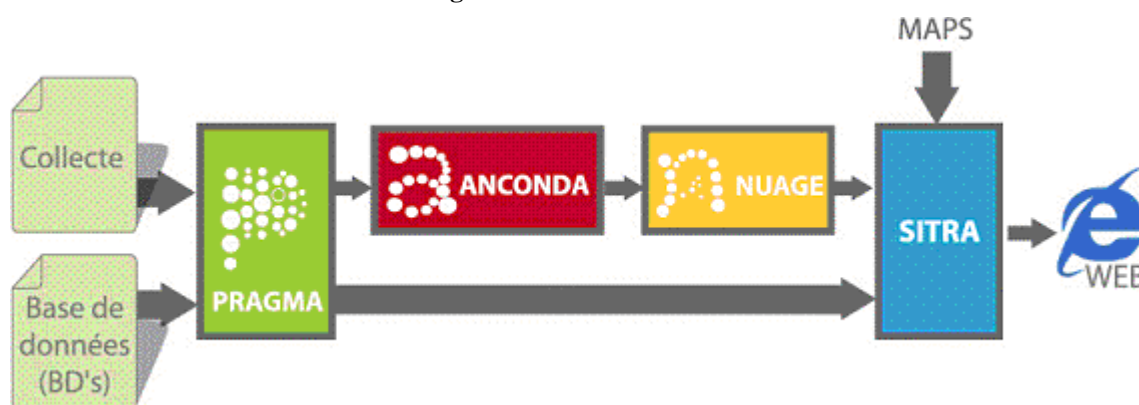
The first versions of these pieces of software proposed to users, a convivial and easy for use "TIS" draft because of the complementarily which existed between them (and above all the complementarily with the space analysis). That "TIS" draft took into account the humanities, social sciences specificities; it was appropriate to multi-field uses and allowed gathering collectively a great set of data. The success of this solution led users to wish using it in various contexts.

However, these pieces of software only allowed the use on a working station. As distant partners who belonged to different bodies and worked in network mainly used them, the need to integrate these pieces of software and to make the output and input files compatible and available at a distance, quickly appeared.

At this stage, the collaboration with computer science researchers has become a need, since the NUAGE realization. The TIS has to be usable on potential users' machines. These machines can have only few resources (software, memory, Internet connection, etc.) and can function with various operating systems. In order to allowing these pieces of software functioning on different platforms, the first stage consisted in rewriting them by using the Java language.

In addition, following the Internet development, users wished to have an online TIS version.

The Internet presents the tool's distant use, but also a possibility of more stronger communication between different TIS actors.

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This last possibility drives us to one fundamental TIS evolution towards the Territorial Intelligence Community Systems (TICS).

The software transfer from a mode mono - user to a mode multi – user, presented some computer sciences problems, such as the security, data share and applications development based on the multi-level architecture.

Thanks to computer science researchers' collaboration, the SITRA research action allowed completing:

- The NUAGE software in a multi-platform version in Java language

- The data statistical analysis by SITRA tools of spatial analysis and cartography.

ICASIT started updating in multi platform Java versions and integrating the data statistical and spatial analysis software. There was a communication of these works during the ICTAMI of mathematics and computing conference in ALBAC (Romania) in September 2005 (GIRARDOT 2006), and a paper was presented in the annual International Conference of Territorial Intelligence in ALBA IULIA (Romania) in September 2006 (GIRARDOT 2007). There were been another two presentations in Taiwan, November 2006.

The initiation on the TICS's basic module data-processing evolution completes these presentations and opens perspectives on TICS evolution in the computer science domain.

During this research, we became aware of the editorial function importance of this convivial analytical chain that is directed towards online results edition. In the context of the territorial intelligence systems, this editorial chain concerns production of digital documents that should be shared within an actors' partnership. It is also a work flow, which can not be organized only according to data analysis technical protocols, but also to allow participation within the partnership, but above all beyond it, within the territorial community. That is why we call them Territorial Intelligence Community Systems (TICS).

Deepening and exploring the TICS editorial function is our present research prospect, following the next diagram:

Diagram 20: Territorial Intelligence Community System.
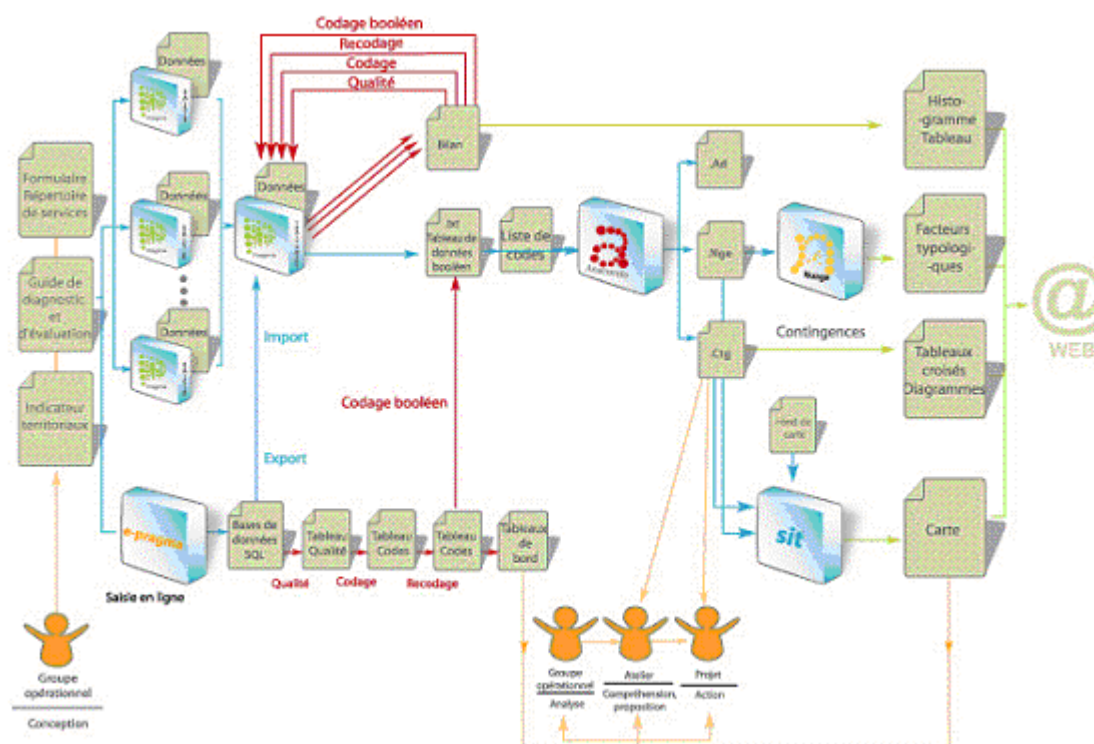
The research actions on the TICS modelling now concern:

1. The statistical and spatial analysis functions integration (blue)

2. The analysis protocols modelling (red)

3. The documentary and editorial chain specifications (green)

4. The social uses modelling and integration (orange).

2. TICS BASIC MODULES' DATA-PROCESSING EVOLUTION

The previous PRAGMA and ANACONDA versions, which have became now the basic territorial intelligence system modules, aiming to propose users a user – friendly, economic and simple software. At the beginning, they were conceived in order to work on microcomputers mono- posts.

The evolution and the diversification of the data-processing post, the user's materials diversity, the network and the Internet have rapidly requested computer science knowledge highly specialised in order to develop free cross platform solutions and to make them available online.

An important work was completed between socio-economic and computer science researchers, within the multidisciplinary research projects framework, in order to develop the probability of software features and to conserve their use simplicity in spite of the

increasing interface human-machine complexity. These tools' integration, which gradually became the TIS basic modules, was committed and multi-user accesses solutions were equally developed within the collaboration framework, which now is directed towards the basic data processing transport on line.

2.1. TIS portability and facility of use

The TIS must be usable on the potential user's machines and must be installed just as it is, without requiring any tools or individual configurations. Indeed, user's machines can have only few resources (software, memory, Internet connexion, etc) and functioning with different exploitation systems.

The basic modules have been gradually rewritten in Java, in order to obtain a TIS multi platform, based on free software tools, which can be installed and used as simply as possible.

In the first TIS version, the produced matrices by the ANACONDA application were represented by the software Mac spin, specific to Mac/Os system. To be able to make the data representation on various types of platforms, the Nuage application was developed by using the Java tools during our collaboration. It provides the same features as Mac Spin.

Different functionalities were added to the ANACONDA software, rewritten in JAVA. Particularly ANACONDA worked with parameter settings corresponding at 99% of the uses. It is now possible to parameter the application during its launching. This parameter can be carried out manually by modifying directly the parameters into a file or by using a graphic interface (ANACONDA Control Panel). Furthermore, functionality of file's contingency creation per class was added.

The PRAGMA software's rewriting in JAVA is in progress. This application's rewriting is the occasion to reorganize the aspect about data storage, to design the manipulated data by TIS software set. Previously, PRAGMA saved polls' data into a text files. From data-processing point of view, the database used for information storage is the appropriate solution. As PRAGMA must be able to be installed as simply as possible (complete PRAGMA installation starting from CD), an embarked database manager – SGBD allowing its manipulation from JAVA programmes was chosen. The database introduction put in evidence the need to design the totality of the handled data by the TIS. An HCI (Human – Computer Interaction) easy to use based on Swing was developed. The software's trade part containing the treatments is realised into a separate package. This PRAGMA software's structure corresponds to layers: presentation, trade and data of three levels architecture (see Diagram 1).

Diagram 21: Three thirds architecture.
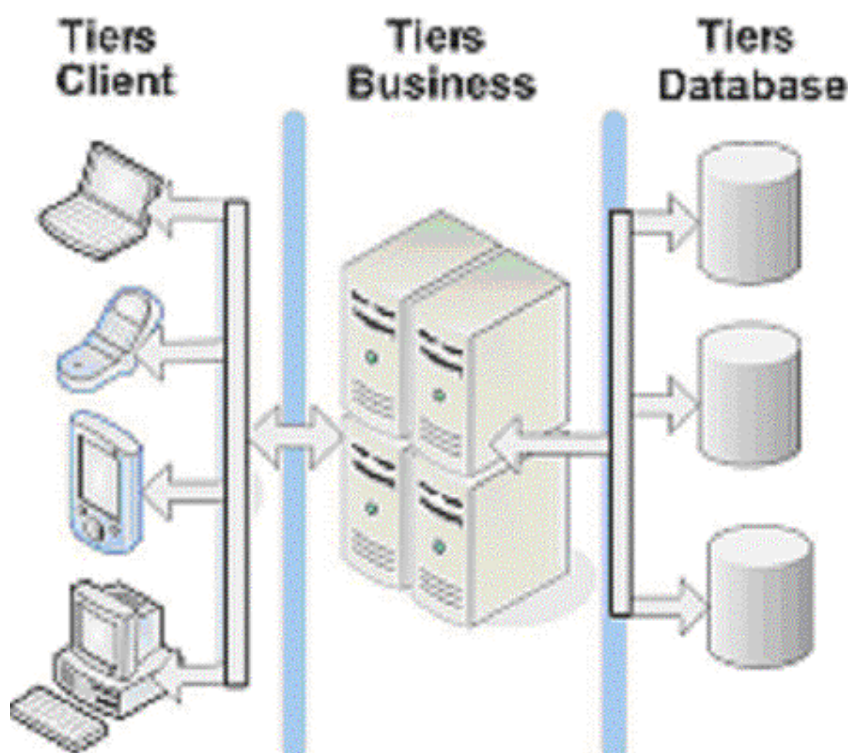
Originally, the TIS was conceived from three distinct software. In order to realise a complete study, the user was supposed to know how to use each one of this three applications and particularly to know how to transfer results form the one like a data from the other. This operational chain was restrictive for the user and could induce it in error. To easy the TIS's use, it was decided to fuse these three applications leading it to a unique operational chain.

This work is under development. Firstly, the ANACONDA and Nuage modules were united. Initially, to obtain a space results representation, a user is provided to launch ANACONDA with a file issued from PRAGMA and than launch Nuage with files obtained after the ANACONDA's treatment, as shown on Figure 2. Now, a unique software is placed at user's disposition: ANACONDA/NUAGE (see Figure 3), which using a file issued from PRAGMA directly carries out the space results' representation.

Diagram 22: The initial operation chain of ANACONDA and NUAGE software Diagram.

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Diagram 23: The current operational software ANACONDA/NUAGE chain.

2.2. Multi users access

The TIS can be used within the collaboration's framework on one same machine or online. This introduces the TIS multi-users access. Several users can handle the installed TIS on a machine in turn, as for example; users cooperate for the poll's input and the results' treatment. Several users can access the TIS online at the same time. The TIS multi – users' access poses the classical confidential problems about data, TIS security access and data's competitor access.

The TIS use by various user groups allows the realisation of different surveys using the same tool, but each group should dispose its own data and makes them available for each user group. That is why we introduced into the TIS traditional data – processing concepts such as user's privileges and groups. A user belongs to one or several groups. The groups' members dispose privileges defining theirs access rights to certain data, for example read, add, modify or delete these data. A particular user called administrator manages information concerning all groups and theirs privileges. This administrator creates users and awards them an ID and a password. It creates, modify or delete groups and theirs specific data privileges as well as the groups' member list (set of users).

The TIS initial version generated a certain number of text files. A simultaneous TIS access by several users, posed data coherence problems: what is happening when several users modify at the same time the same file? The text file replacement by databases permits to hand on the adequate tools, the Database management system, and the competitor data access problems.

2.3. TIS online installation

Thanks to the Internet evolution users wished to dispose online TIS.

The TIS installation online happens through the web – page conception. The principle TIS concerned part is the PRAGMA software. Indeed, this application allows the poll's creation and the response input and should be able to be used at distance by many users. Since 2002, using Php/MySql made a first web-service HMI version. In 2006, a PRAGMA rewritten in Java was started. This new version uses the MySql database in order to store somewhere the information.

3. COMMUNITY AND COMMUNICATION SYSTEM

The social actors implied in territorial intelligence observatories, using this TICS (GIRARDOT 2004, BERTACCHINI 2004 and DUMAS 2004) lead to the need of

quantified and qualified information producing, first of all bearing in mind, theirs actors' orientation in function of the population. Rapidly appeared a sudden question to put into relation this built information with other actors, closer or distant (GIRARDOT 2004, MASSELOT 2006). The territorial intelligence's used method has than imagined to convene reflections that ICS carry on for a long time, an informational process into the communication process, without forgetting the uses allowing the *direction's materialisation* (MUCCHIELLI 2003).

According to the MUCCHIELLI communication cycle (cf. the figure below), the Catalyse method is interested initially in two very precise methods approached to ICSs concepts.

- The sense production, which takes place during data treatment into information.

- Communication development strictly speaking, in function of the initial data and the produced information.

It is thus advisable to structure these steps into a communication aiming, without omitting the forth usage dimension.

Diagram 24: The Communication cycle of A.MUCCHIELLI 2003.
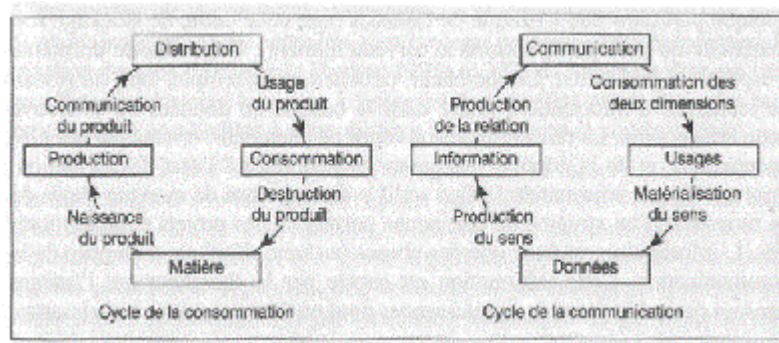
3.1. The sense production

The first step, called the sense production, should be in function of various necessary communications.

- Interns to the team that are carrying the project: the treatment must be as much as possible complete, advanced as possible, and authorizing for example multiple statistical explorations at the end of produced knowledge improvement. It is here that we produce at most the frequency table (from gross statement up to qualified statement, after that to a statement correlating to the characters selection, including the calculated classes), cross tabulation (allowing to understand better the quantitative as well as qualitative phenomena), response indexing, graphs illustrating the results … This team acquired here a detailed comprehension of the initialized data, as well as one previous result's vision to communicate, allowing it one first semi – public modelling, still at the working papers' state.

- Interns to the Operational Group (cf. TICS scheme): a selection between the previously produced elements must be done in order to conserve the most

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interesting ones and to become a subject of a broader discussion. These results "pre – mâchés" (French expression meaning: to prepare the results in order to achieve without any problems), allowing to participants analyze together the obtained statistics, without any need to return backwards many times. The research must be avoided at this level in order to guarantee the communication process effective, on each background experience. This level really produces the territorial intelligence useful for the observatory.

- External: this stage permits to the Operational Group to organise one public publication, thus one communication which recipients are less known and for which we can less control the waiting horizons. The objective is to establish final documents to give an account about these quantitative as well as qualitative results to the general public and especially to sponsors.

The goal here is to exceed the first mission of an observatory, where it is a question above all to collect data in a structural manner. The agencies majority, which carries out this type of study traditionally, organize their intervention like an external project's expert. When a territorial diagnostic is entrusted by a structure that is elected by an institutional legitimacy like a local community, or by a socio – economic preoccupation for example ONG, the installed procedure calls upon the existent official data on the concerned territory: census (Padron in Spain, data from INSEE France or INS in Spain and Belgium); official studies by statistic administrative services etc. This data is than treated, commented, interpreted, and charted. The obtained result is rather a consequent report, written by these experts, which lecture is very rough and mostly requires an explication written by the same experts in order to understand its contents. Also, it is not rare, beside its difficult accessibility due to this studies' prose aridity, not to understand the used approaches, methods and scientific tools in order to achieve the already presented results. Concretely, the territorial descriptors chosen by these experts cannot prove to be pertinent for field actors confronted to one reality in motion, which is not clarified by the global statistics' at the state of a territory on superior level.

Thus it is evident that the observation manner influences this stage of information production. The fact's and reality's approach, consists thus a filter which experts, although being aware of this phenomena directing the analysis, accept in order to obtain a final product, the study's report. The real diagnostic's objective is unnatural: it is effectively about actors to discover one population's and territory's need; for the experts it is about to produce a report… The waiting horizons (JAUSS 1978 and ISER 1985) activated by these two professional categories are not in phase.

Only at this stage the information's production starting from existing facts, the Catalyse method clarified in the TICS scheme enable to modify this observation's approach.

- Descriptors and modalities allowing to structure facts into data, and than data into information, are collectively constructed by the territorial actors accompanied only by the experts.

- Experts follow the initial observation objectives that is to say the field's action installation with the aim to improve the situations of the users' structure (institutional or not).

- The collection, an important structuring moment, is also carried out by actors, aware of the double transforming process in progress and possibilities for different point of views (possible interpretative skews).

- This collection, organised collectively, on its own at the same time is a communication process with users and an intern: the formulary permitting to unroll in time this process and is equally a product allowing the exchange between users (it can be indicated in several meeting, progressively with the individual projects development and its follow-up) and to help the stakeholder to structure the matter according to socio-economical needs, more like a maintenance guide than a questionnaire's abrupt. We can see than the global objective where the communication process is in service to help the decision and the territorial action contains another internal "cycle" where the relation's production is an issue.

- The collection is a lean production process, contrary to the photographic type's study, the observation has being permanent by the definition. The territories situation's evolution is however visible by series of statistic treatments operated at various moments "T", generally to a semi-course and for example at the end of the civil year. Daily, weekly and monthly instrumental panels are also available, in order to have a synthetic and global vision on certain key indicators for a given territory. Furthermore, the objective is that these statistical or quantitative as well as qualitative treatments are carried out by actors themselves, accompanied by the university experts. Thus, they are the selected data's masters and they control the information's creation process.

The informational process described above is to be considered as an incontrovertible governance element: actors write themselves the indicators permitting them to control the territorial intervention, the set up actions, to reformulate or to re-qualify. The experts have a scientific accompaniment role (essentially tested), but also a transfer role, thus a formation one's. They are no more traditionally external to the procedure, but really implied to various observation moments.

3.2. Relation Production

The conceptual analyze of all communication products, prerequisite essential for any realization, imply a certain number of reflection, which is advisable to bring it to a successful conclusion to produce the relation between the created information (where one part of the sense is constructed) and the reception actors:

- The public target identification must give a clear framing of the communication act's complexity in itself: will proceed from this analyze a series of recommendations at the same time strategic and ergonomic. To address to pairs whose thematic culture is equivalent comes to call upon the shared knowledge,

which can economize didactic explications into the scientific communication domain (mediation, popularization…). The TICSs having an important role into the Territorial Intelligence, addressed to decision makers (politicians, sponsors) as well as to general public (interested or not in the themes set).

- This first stage has an immediate consequence on various issues that are taken into account: operational objectives from the territorial action, local politics influence, and activity (so structure) duration, justification of the private and public funds use… Not all of these issues have equal influence according to the enunciation moment (in connection with the temporal but also spatial context according to the 7 contexts definition about communication processes by Mucchielli, 1996). By identifying the importance into these contexts is thus the determining element of the communication quality.

- The objectives' and communication intentions' conception and the concretization lead us to a pragmatic awareness-rising of "what we want really to say". To pose these reflections black on white and than, confront them to public and identified issues draws a logical evaluation of the possible communication in the stated context, and take a part in the communication plan's elaboration including different stages in time, places and possible relations between receivers – recipients.

- The TICS communication approach specificity lies mainly into the paramount transfer and formation function. The communication objectives consider that any communication act in the Territorial Intelligence intrinsically contains one didactic transposition part desired or not, related to the new systemic territory's approach and its components innovation. The human phenomena's explication cannot be resolved with only one factor, a simple idea that is a question of clarifying, particularly in the social domain. The used methods and tools require pre – requisites with the risk to be unintelligible, therefore to cause reaction of rejection… Theses analyses precisely make it possible to identify what it is advisable to clear up or not, and especially in the manner of relating individuals with this knowledge.

- We can improve the possible waiting horizons (JAUSS 1978 and ISER 1985): which ones will be activated by these actors since de reception, how they modify the communication incidence angle, which decisions to take before to realise concretely the objects and services of communication?

- The relation's production can usefully rest on the networks construction of significance, isotopes, with a principal communication objective (the sense is built progressively during the consumption, by significant redundant units relieving the same isotope) and with a human network's consolidation objective, demonstrating by this significations' deconstruction that the public really share, contrary to received ideas, the same cultural and relational contexts, because they understand the same components and in the same manner.

The relation's production is co-built and then between the emission actors and the reception display prominently the project's community reality, strong condition of the process appropriation.

3.3. Two dimensions' consumption

All the communication issue is concretized in the use, and so in two dimensions' consumption in direction of the product (information) and the created relation (communication).

The produced information's usage covers, according to what we have written above, several encased processes, each one adding by definition a new value to the transformed object.

- From facts to data: the observation process is organized according to the Catalyse method and structured by its composing tools, it is led by the Operational Group actors (c.f. TICS diagram), since the connexion stage. Thus, it is question of an internal process to this actors' group, which is also a measure of crossed formation, where actors and guides (university experts, experienced actors …) exchange the knowledge on territories and humans. The raw material (the observing facts) is composed from humans mainly, services and territorial actions, economical activities, spare time … everything that composes the life on one given territory. In order to establish data from this raw material it is necessary to observe it, and to describe it … It is not enough to look at a fire and produce the sense that wee see it; a first informational process must extract from it as much formless as possible by the PERRIAULT (2003) sense through semeiological encoding (where the sign is composed of significant, signified and referent union, the whole into a system S= ((Sa+Sé) +R) making it possible from a referent to deduce a valid signified, than a acceptable and usable significant. The process already produces one part of the informational sense, but we do not have the information yet insofar as the data is still without any real form.

- From data to information: this formalization will be reached by the collection guide's structuring (for example questionnaire) and by the data gathering practical organization (process which will be necessary to analyze in a later research in order to incorporate internal and overlapped of communication process…). The collection procedures have largely gave place to research on the communication place like an improvement or disturbance vector of the sense production. A discussion which cannot be closed quickly and which remains open in the Territorial Intelligence (cf. on this subject, the research undertaken in Caenti, http://www.territorial-intelligence.eu/). The pragmatic need to obtain decision-making indicators help to act on the territories with the citizens obligates to work out a consensus on the sense creation process, validated by the produced information evaluation proving that they are usable with the Catalyse method. This validation stage gave a place to the Europeans' guide co-operative confection about diagnosis and evaluation, which consensus contents are mainly used to structure this sense creation process, the other elements make it possible

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to consolidate the comparison. Thus, we refer to the first part of the TICS diagram:

Diagram 7: From data to information.

- From data-processing to knowledge: the majority of the produced information from initial data gave place to new treatments, quantitative and qualitative, aiming to generate new knowledge starting from this information. Each descriptor can gave place to a quantitative statistical exploitation which result will be a figures table (the frequency, i.e. the number of times where such method was answered) with the percentages calculated on the population's and the given answers' totality. This table can be decorated by a graph (with bars, histogram or circular according to cases). These results will give place to comments and interpretations. Starting from existing information, cross sorting will take place (for example the most known between them being the population's pyramid), encryption and re- encryption will create synthesis variables (for example age groups coming from dates of birth)… as many cases as new information is created coming from built information. Other surveys also took place: qualitatively, analysis known as data in statistics (in fact we should say information) utilized correspondences factorial analysis (CFA) and hierarchical ascending clustering (HAC): continuous sense production in "pummelling" raw information, which has its own existence, but which gives place to additional treatments. Let us not forget, even if we will speak about it thereafter that the outputs are explained and interpreted, confronted with the territorial resources and contextual indicators, as many acts, thus creating new information. Thus, we refer here to the second part of the TICS diagram:
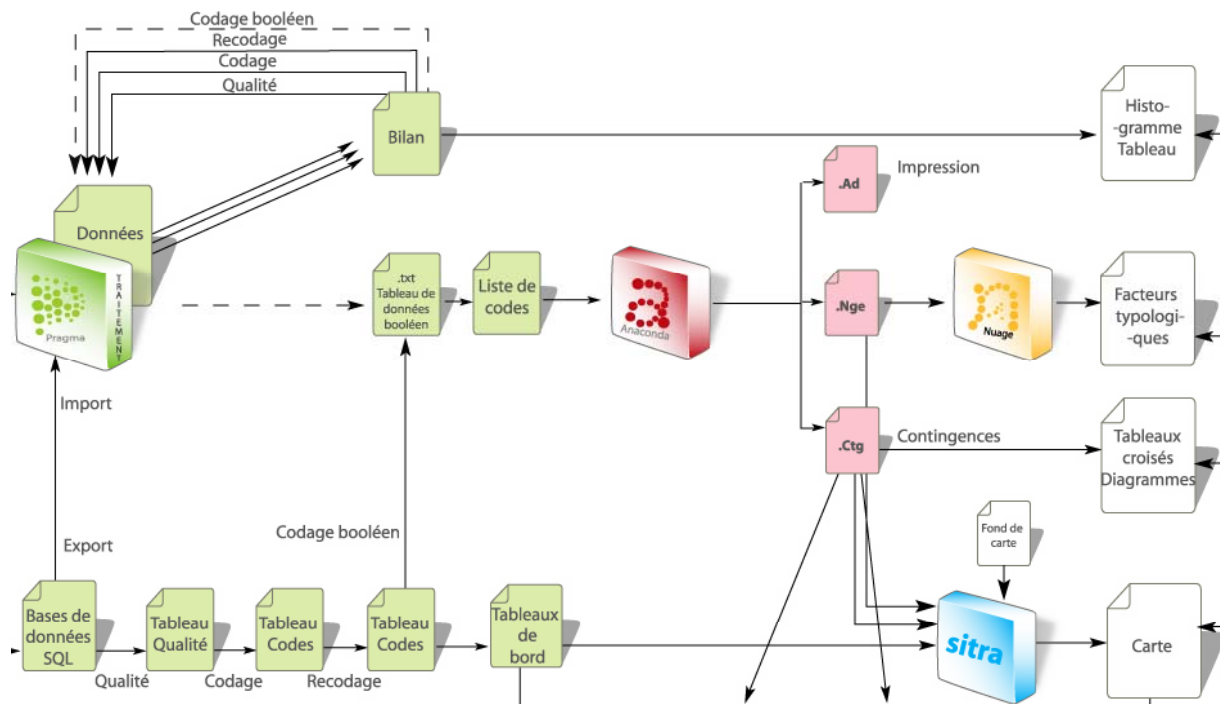
The relation creation's usages are the most complex and require a broader research, of which we draw up a rapid panorama:

- The information's creation process convene equally the communication, as we have suggested above , because by definition they are operated by actors and have often various internal communication objectives in the knowledge development.

- Thus, there is a first internal stage where the Catalyse method put into relation the information in different stages, with a restricted actors group, those which are concretely in charge of the daily observation. Many exchanges take place, bound here in particular to the data treatment, where the interrelation exceeded the informational framework to modify and transform purely human relations.

- Usages known as "second circle" take place and than it is the question of widening the lead work during primary information productions into results' interpretations. The first observatory's restricted group executes several statistical task series, examined by the operational groups order: this test is built from a communication acts series where the information is one more time treated and especially interpreted. These communication instances are to be organized at the same time under the production protection of the new sense to the existing information and under the communication one's, which issue control must support the professional act. The objective than lead to the workshops themes' sets installation, which will decide concrete action projects, illustrated on the TICS diagram below:

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Diagram 9: TICS uses.
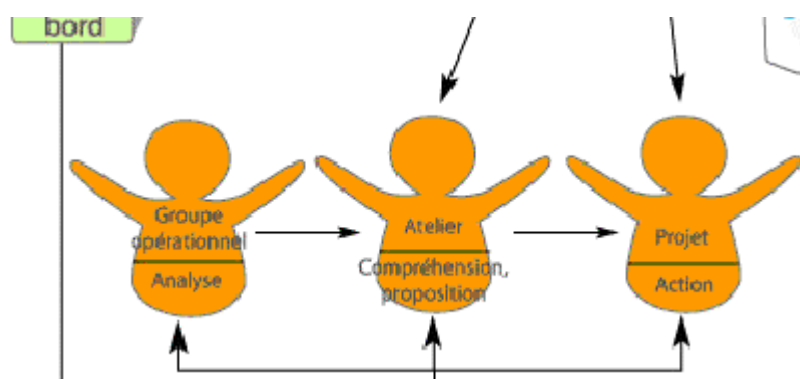
- This diagram stops when we consider that the out of the observatory diffusion really intervenes (what is represented by "@", covering the publication and results edition idea). However, the communication phases are not completely finished for the Catalyse observatory, because it left us to take into account uses that are going to be executed by other public categories, like political decision makers, sponsors and supports (territorial authorities, states, Europe …), the social actors able to profit from the already worked themes about process, methods and existing tools, or simply from the general public. Here, various considerations get involved, which are linked to worked principles in communication with scientific, such as mediation and popularization, a concept already mentioned in the previous point, because the first Catalyse objective as we said is the territorial actions' installation. The information treatment, such as the communication process, is consequently conceived as a service of this operational objective.

3.4. Sense materialization

The last part of the communication cycle intends to rebuild the sense of observed facts, data, built information and elaborated relations, backwards the diffused results and thus consumed. These observatories have one particular characteristic on the majority of traditional studies: their durability. This diagram has no sense if it is conceived into a poor temporality, i.e. in a purely linear and acyclic vision. The various stages take all the interest from the moment when the given results are confronted to a new data, new information, new relation establishment, which equally permits to evaluate carried actions.

Inner the observatory, we can say that the informational and communicational phenomena's comprehension gives a new actions sense and that knowing the territory permits to materialize these "facts" about which we spoke above.

For the operational team, the both dimensions' consumption allows a considerable retreat organizing a new territorial approach, identification actions, structuring the decision making and actions' evaluation help, which is equally useful for evoked decision makers and sponsors.

Finally, for the most distant recipients from the observatory, these surveys are many examples calling to self - reflection.

4. CONCLUSION

In term of computer science, the Internet introduces the tools' distant use but also one collaboration possibility much stronger between different territorial information systems' actors. This last possibility meets the user's wish to work together and to be associated at all process set which goes from the information's definition to the results publication on the Internet, through the analyze, interpretation and elaboration results' spaces.

This conjunction between the technology's evolution and the actors need lead to a fundamental evolution towards the TICS.

Various perspectives open in the computer science plan. The software's transfer of the mono-user mode to a multi-user mode introduced the data-processing problems by taking into account the security, data sharing and the applications' elaboration based on the multi-level architecture.

Currently, two principal system versions coexist, one online remote version and another local version. A modelling work is in process in order to define the unique database model allowing into the future a concerted development of both TICS versions.

In long term, the objective is to offer to users one remote TIS according to ASP (Application Service Provider) approach. Thus, via the Internet the user has the possibility to use the entire TIS functionalities without any local installation.

The TICS use will have as a consequence considerable documents' production number. These papers were provided to authorize the multi –user consultation, so a document research problem appears. We consider proposing one document description for a meta-data set of type Dublin Core.

The TICS architecture will be still deeply modified by the information's treatment protocols' modelling. The led survey and the ACCEM migrants' observatories show that the protocol is refined with the analytic phases in order to converge towards stages in connection with the users' participation, in the analytic process and with the intermediate and final results communication.

It is consequently essential that various actors intervening into these stages are aware of the communication's systemic approach, seen like an interactive process.

Thus, a specific communication plan is set up, following the MUCCHIELLI diagram basis and the TICS one's, integrating at the same time various moments and communication levels (intern, widened intern, sponsors and general public), aiming a two dimension consumption (of use) : informational and communicational. Indeed, the method and results use is in the middle of the process and it will condition the transfer from one to another stage: here it is a question of evaluating each instance and each communication object in order to rebalance the following phases, from the data treatment point of view as well as from their consumption one's.

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