THE MANAGEMENT OF THE INFORMATICS SYSTEM PROJECTION

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Abstract

The technological evolution involves an infrastructure that must have hardware and other information products and systems. They are based on the new management systems of databases or on the broadcast through the national date networks with great transfer rates; the work places at all operational levels in a society (interactive systems person – machine).

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The technological evolution involves an infrastructure that must have hardware and other information products and systems. They are based on the new management systems of databases or on the broadcast through the national date networks with great transfer rates; the work places at all operational levels in a society (interactive systems person – machine).

The economic domains must adapt quickly at these technologies which involve high costs for elaborating and maintaining the informatics products and the high difficulties to maintain at the standard of the users' needs.

The necessity for adapting comes as important in the financial-accounting field which refers at the changes in time like a protection of the investment.

The continuous developing of the informatics technology field imposes the elaboration of the new methodologies for realising the systems of the informatics application, based on the analysis and projected two types of the used methods: traditional (structured, oriented on the function/data, systemic methods) and the object oriented methods.

Each method has a common language user-computer expert and it is manifested during the whole process with his appearing and being the validation points.

The method, a production of the permanent reflection, is a rational and empiric, deductive and inductive demarche. In concordance with some specialists the method is "an assembly of the industrial accessories put in practice for a production organization" or an

"assembly of rules, principles which correspond to the education, practice and art". It is applied at all the concepts made by a technology which observes and analysis the nowadays practice from the organization. Retrospective it is observed that the evolution of the informatics technology has an important impact over the producing methods of the informatics systems.

Another aspect which I must remark is that a method can't serve to fundamental divergence scopes. A large variety of available soft (logical systems, management systems in a real time) and developing of the software production activity lead me at the idea that isn't possible to be in informatics a universal method.

Any conception method of an informatics system must consider technical and socio-economical factors. In the *technical domain* must permit the activities progress in a real time, using the database, of a mini and macro informatics instruments on the material and human background which are existed or attracted.

In the social and economical domain*,* the method must integrate the objectives of some agents' categories which follow the decentralization of the operative decisions; reducing the tasks and ameliorate the ergonomics at the work place; security and confidentiality; developing the management processes through increasing the supervising possibilities at the different levels, the technical, commercial or structural supplying strict necessary in fusions and extends.

The method refers at the efficient association of the organizational and informatics aspects; increasing the quality of the relations between the users and the computer experts, being a common way to study, conception, dialog, formalization of the decisions and preventive control. In other words, the method in the economical domain *must be a precise, supple but not a rigid way.*

The qualities of the information determine the performance of the financial-accounting compartment, reaching the objectives which had proposed by the firm before. There are two approaches of the performances: one which develops a stabile situation of the system and other which put the dynamism in evidence, the news in the considered domain. In case of especially changes, it appears the problem to determine the value of the new information; defining through the decision effect which is possible for adopting. When there is the stability in the informational medium there are induced the global appreciation of the trump sums of the financial-accounting informatics system (S.I.F.C.).

For an efficient control of the realization mode of the proposed tasks, I appreciate there are two solutions: the function of the management intern control; reconsidering the board table and the budget.

It is considered that the most important objectives of the one method are:

- The system flexibility;
- The users satisfaction;
- The quality of the financial-accounting products.

The flexibility represents the adaptation capacity of the informatics accounting structure at the environment. An open system with numerous ”listened” points and with a special care for communication (oral, written or electronic) will quickly react at the opportunities and will care about the restrictions. The flexibilities will appreciate through the reporting at one objective fixed in the “historical” evolution frame. The open system will consider the economical practice of the agencies.

Satisfaction of the users' decedents represents the appreciation criteria of the social performance fixed by the “actors” who participate at the creative productive process.

The quality of the financial-accounting products is appreciated *subjective* by the different beneficiaries: clients, bank, managers etc, but and *objective* – through deducting the “informational garbage”, of the errors etc. It depends very much by waiting of the different consumers (from the internal or the external firm), but and the financial-accounting production system in “assembly” (including the control ways).

Next, I'll present some criteria of appreciation of the informatics accounting performance which I consider essentially:

a) *The technical criteria* consider the system contains; its capacity to do specifically functions. It will take in consideration both aspects by production of the useful information and the others about the management of the system and the firm.

b) *The organizational criteria* reduce incertitude of the financial-accounting informatics system and permit grafting on its structure. Increasing its capacity for adaptation or its grade of opening will determine the structural changes which are imposed to be entire leaded. I appreciate like necessary the evolution analysis and the adaptation viewing through the next structure conditions:

- Specialisation – the grade when the financial-accounting activities are divided on the specialised “role” function of the decedents users training;
- Standardisation – the measure when are fixed the general rules and procedures to define the tasks and control their applied. The accounting informatics leads to create new procedures and eliminate other redundant and unused;
- Formalisation – isn't tided by the new technologies depend sometimes by the level of the training of the decedents users.
- Centralisation – refers at the importance of taking the decisions by a manager, considering not accentuating the bureaucratic phenomena. In the category of the organizational criteria for appreciating the performance of the informatics financial-

accounting segment, I think that impose to be included measuring of the change grade. In the same time it is important to know the attitude of the decedents' users so that to anticipate eventually repulsed reacts.

c) *The economical criteria* – their using consider the type of the project and the period of the decisional process. In my opinion there are two categories of the component to fix the informatics accounting dimensions: some which propose to follow the cost and advantages (methods of the posterior) and others which wish to do everything for a complex analysis for choosing the investment.

1. Methods of conception and realization of an informatics system

The methods of conception can be classified in three categories: the structured methods, systemic methods and object oriented methods.

A. *The structured methods* use the "top-down" progressive descendant decomposition, they are Cartesians. The conception consists in creation; it begins from the specifications of a unitary assembly in interaction and each having a very clear function. The data flux diagrams describe the logical processing of the data and show how the entered data are changed through some functional transformers to get the exit data. The most known methods of this first generation are: SADT (Structured Analysis and Design Technique), JSD (Jackson System Development), Yourdon etc. All are based on the enterprise functional analysis. The structured diagrams permit visualisation of the hierarchic structure, describing the program or a module being established on the more levels through successive refinement.

The SADT method proposes an assembly of diagrams ordinate hierarchic where every can be considered or like a diagram – parent (a synthesis of its diagram son), or like a diagram –son (a developing of one part of the parent one). In the SADT method case the data and the processing are examined together define actigrame (or diagram of the activities) and datagrame (the data diagram).

The advantages of the hierarchic methods consist in simplicity and a good adaptation at the users requirements. *The disadvantages* start from the concept of the informatics system in concordance with the functional analysis requirement, which determine the concentration of the effort for analysing and designing over the processing, in condition when these are the most changed in time, the data modelling being in the second plan.

The proliferated of the applications create their own files leading at the redundant and incoherent of the data in the informatics system of the organizations.

The structured methods were registered in S.G.B.D. through the language for data describing.

B. *The systemic methods* permit visualisation and understanding the data organization. These methods are composed from the abstractive that present the real world like a collection of the entities and links, established between them. The majority permit to define the restrictions describing the static, dynamic or temporary aspects of the entities. In this quality, they constitute the legible formalisms in the specification of the needs. Two methods are the references for semantic representation: the individual method which will be registered MERISE and the entity-relation method.

I remember between systemic ones from the conception methods in a real time which assure the correct function in concordance with the resulted through the system and the moment when they are produced. These represent a system of the stimulus /answer; the stimulus being generated by the collectors or by the interacting. When the stimulus are aperiodic, it can concept a system like an assembly of the parallel processes which cooperate so that to transfer the control of the component from the reception of one stimulus. There are distinguished two active classes in a real time:

- The followed-control systems;
- The data cumulated systems.

The followed-control systems permanently research the number of the collectors and function of their value unleash actions which efficiency the shareholders (for example the antitheft alarm system in the immobile).

The data cumulated systems pick the collectors data for processing and analyses. The periods for acquisition and the processing process aren't in harmony. So, it appears the speed differences because of a stock way (tampon). The system is organised after the maker-consumer with the extinct mutual mechanisms for avoiding the case where the data maker and consumer access in the same time at the tampon element. These methods use different formalisms, remarkable are the Petri network for the dynamic aspect which was developed by the specific formalisations.

The systemic methods contain in a global manner the informatics system and represent the second generation of the design methods. The representatives are Information Engineering, MERISE, AXIAL etc. The approaching is realised at the conceptual level and four levels of abstraction are distinguished.

1. *The conceptual level* expresses the management options, asking the question: What are we doing?

2. *The organizational level* expresses choosing the enterprises for human and material resources. Are these integrated at the level of the time notions, of the actors places and it is asked the next questions: who, where, when and how?

3. *The logic level* permits choosing the means and informatics resources without their

techniques characteristics.

4. *The physic level* is represented through technique choosing following their specificities. At each level of abstraction the informatics system is represented by three models: data, processing and communications.

What is specific to these methods is using the systems theory in the enterprise's analysis. The informatics system is accessible after two complementary aspects, data or analysed processing independent modulated with their reunion how later is possible. Different by the hierarchic processing, the systemic methods give "priority to the data opposite to processing and respect the three levels of abstraction entered by the ANSI/SPARC rapport: conceptual, logic and physic". The advantages of the systemic methods appear after promoted the technology of the data base. The disadvantages are owned by the deficiencies which can appear in modelling the processing and the possible discordances between the data models and processing.

C. *The object oriented method* is characterized through the attention given in the same time with the data structure and the functional structure. This vision permits building a stabile base in the developing process of a model and using unitary the object concept during the whole life. All other concepts: functions, association, events gravitated around the objects, so that it isn't necessary to pass at other notes or semantic interpretation in different developing periods. The object oriented method is characterised through defining of three models:

- *The object model* has the role to describe the objects which are in the problem for solving and relation between them. The object model represents describing the static structure of the object, the object classes, the operations, the attributes, the linking and the relations between them.
- *The dynamic method* has the role to describe the state which can have an object and the events at the passing from a structure to another. The dynamic model describes the interaction between objects and it is focalised on the aspects which are changed in time because each object has a life cycle with a start point and a finish one. The dynamic model describes this life cycle, what is happened along the time and how is influenced the object.
- *The functional object* has the role to describe the processing and data fluxes. The functional model presents the changing of the data values giving the source and their destination.

The advantages offered by OMT method are improving in processing and realising the informatics system which must response to the new requirements like:

- The complex representation of a reality (firm, clients, products, services etc.);
- The managed information in an informatics system has tendency to increase in

complexity and its manipulation must be in an easy form for perception by the final user;

- The realised informatics system must be flexible reported to changing the data structure and must evolution in time, following the evolution of the economical entity, banking, financial that are deserved;
- The informatics system evolution is to multimedia tackling which combine a text with calculated sheets, graphics, animated and voice.

Majority of the object oriented methods used rules or semantics operations: generalisation/specialisation, aggregation/decompression, combining with successions and encapsulating.

2. The characterisation of the MERISE method

The MERISE method assures the designing of the management system which permits the duality between the treating the past events and the producing of the prevision elements applying at the responsibility centres. It disposes by all the instruments which permit periodically realisation of an informatics system with a high grade of integration starting from the placing a representative subassembly. The name of the method is abbreviation from "Methode d'Etude et de Realision Informatique par le Sous – Ensemble representatif".

Using the MERISE method must do possible decompressing the problem of work organization. The practice in this field developed considerable passing a thinking current called systemic or in past named the systems theory. From didactic reasons, during the learning the systemic method can figurative associate with the following statement: "to rise for a good viewing …. to understand….for a better action". This thinking current which enclose and other researching objects offered the stability guarantee and evolution of the method being the MERISE philosophical base and all the concepts of the systemic operators for the organizational science are assimilated and in this method frame. "To understand isn't enough for action, it must and to… decide" is the second "support" of the MERISE philosophy. It can be the important consequences tided by this course because, the most time, the solution for bringing the information in a given domain is a problem for taking an adequate decision.

The base of the method is using the means of the cumulative representation of the economical structure correlated with the owner activity domains.

MERISE is a method which helps to define, to analysis and realise a project which cover the activity of one definite domain. It based on the proper philosophy for unreeling the whole project, following the details of each period of study and applying some specific

instruments.

The designing and realising an informatics system are difficult operations because they oblige for taking in consideration all the factors of the human-machine system. If we accept the ideas that are more modalities for delimitating the study domains, that are many documentary ways, that are many methods for conception and putting in the current exploitation result that more of these can use in a combined or complementary mod.

I remember in this context two great conceptions viewing of the informatics systems: the ascendant tackling is known like *bottom-up* and descendent tackling like *top-down.*

The ascendant tackling has like a start point of the operational system (placed at the hierarchic pyramid base) and with the informatics realisation at each level it can reach at an extreme point of the pyramid in the informatics system. It is a consolidation of a project which permits us to have in the final phase, the entire information of an informational-organizational system, specific at an economical organism that is analyzed. The believers of this tackling argue that is better to action progressively than bet on an unrealistically conjecture that a global project can be kept daily.

The descendent tackling is decreasing on the hierarchic pyramid stairs until the base and in the same time is realized an analyses. This point of view considers that a type of domain is composed by the correlate parts in concordance with the exterior; a characteristic with all the informatics systems.

It is better to create and realize from the beginning an informatics system which consider by the planned objectives, approached in a global manner then trying to integrate the independent informatics subsystems. MERISE is a conception method of the informatics systems which can subscribe in this descendent tackling.

Essentially, the MERISE philosophy can constituted under a tackling guide of an informatics system which is evidenced in a synthetic form using a semantic based on the keywords more suggestive. MERISE can realize the informatics systems from more perspectives:

- MERISE *a systemic perspective*. In this case there are interested all the problems before giving the global solution, so that an integral is other than the parts sum;
- MERISE *the parallel perspective* data- processing. Beside the other methods which treat data or processing in a preferred mode, MERISE consider in the same mode about the data and the processing. Data are stabile elements in an organization being taken in consideration in a "static optical" and the processing are all the time dynamic and represented in MERISE through synchronization instruments.
- MERISE *the perspective oriented on the levels.* There are the levels of abstraction in

the method which correspond with the principal domains and what determine the descriptive visions. The levels of abstraction are hierarchically beginning with the conceptual or physical situation until the organizational or logical one. This vision permits fixing the management options at the conceptual level, the organizational options at the logical level and that technique at the physical level.

- MERISE *the global vision* over the representative subassembly. In the most cases it can consider a domain to be the most important. The care not to long too much the study of the domain and the pretension of this study to be exhaustive are often controversy. The representative subassembly (SREP) is the solution offered by the MERISE method to conciliate these two contradictory nuances. The representative subassembly assumes a preliminary study;
- MERISE from the *extern perspective*. The data – processing tackling are felt from the beginning of the project and put in evidence the checking obligation of the coherence between data and processing. These "reconciliation" between data and processing is done through the extern methods.

The method demarche is in concordance with this word definition from the provenience zone of the method (Larousse – France) which means: "A manner to manage a reasoning, to progress towards a scope". In the MERISE method there is a decompression in the periods like: the precursory study, detailed study, realization and putting in the work. A period can be decompression in sub periods; each is finished with taking the decisions, a selection of the possibilities being visible.

The method's demarche can be synthetic realized:

- *What must be done?* - Period
  - Sub period
- *How is it done?* - (Links, Rules)
- *Who is it made with?* - (Participants)

The realization of a precursory study and of a detailed one doesn't presume creating new elements, the only efforts being to adapt the methods for realization which have already been used at the proposed periods.

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