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A GENERALIZED EXPLORATORY METHOD FOR MANAGERIAL ANALYSIS AND BUSINESS COMMUNICATION

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Key words: information, language, communication, message, decoding/encoding, negotiation, the method of the four "E", efficaciousness, degree of economy, efficiency and effectiveness.

Abstract: Contemporary managerial processes are focused on communication and negotiation, where efficiency acquires an essential importance and its variation related to the managerial programme, with its time or space details, respectively related to the effectiveness of management, statistics, mathematics, etc. All these sciences and their methods meant to identify regularities and to generalize the alternatives, emphasizing their fundamental contribution to the majority of the results of the organizations, regions and national economies. This paper illustrates cybernetic communication's theories based on information (with special stress being laid on the notions of data, language, message and decoding/encoding), and also underlines the functions and models of communication, the kind of form, and expression relationship human communication intends to achieve, the types of information with relation to communication, knowledge and creation, semantic, statistical and mathematical aspects woven into communication, the levels of theoretical approach of communication (with respect to the accuracy of symbol transmission, the accuracy of signification conveyed through symbols, and the efficacy of its influence on the recipient). The latter analysis (belonging to Warren Weaver) is specifically dwelt on, with special emphasis on the managerial activities. Initially the author proposes six solutions of using some methods of analysis, out of which one is strictly logical, then four distinct methods mainly statistical and mathematical in nature, and, in the end, one that is mainly sociological (the method of the flattened networks of internet type). The methods briefly presented easily characterize the communication, negotiation, and, finally, the decision-making processes, but especially their aggregation in an ample process, the managerial one. The frame method of the four "E" becomes the expression of the statistical way of thinking through effects and efforts of the economic activities, but it does not exclusively belong to them, it initiates a chain of efficaciousness-degree of economy-efficiency-effectiveness type, a chain that allows the interpretation, the placement in hierarchical order and the comparison of the processes and systems, whereas mathematics through the richness of the solutions, from using the probabilities of occurrence of the effects, to the informational energy, complete and generalize the entirety. Thus, there results a new economic paradigm of Homo Effectus, able to substitute the already contested Homo Rationalis.

1. INTRODUCTION

In a concise and reductive manner [1], the main communication theories can be reunited in *rhetoric* or the practical art of speech, *semiotics* or the inter-subjective mediation through signs, *phenomenology* or the experience of alterity or otherness through dialogue, *cybernetics* or the processing of information, *socio-psychology* or the reunion of articulation with interaction and influence, and *critical theory* or the discursive reflection, to which contemporary solutions are added, more and more numerous and varied (*analytical, pragmatic, cultural theories,* etc.). In the cybernetic theory or the processing of information, is emphasis of communication is on the significance of knowledge and creation. There is no communication without knowledge or creation and there is no knowledge or creation without communication. The simplest model of representational communication is that of Karl Bühler[2] synthesized by the first variant of the sender-message-receiver type:

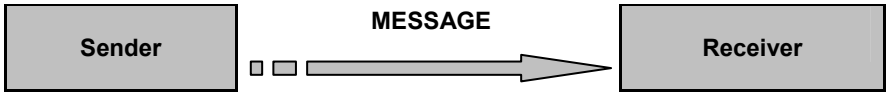

Fig. no. 1. Karl Bühler's communication model, sender-message-receiver

In Roman Jakobson's intermediary variant there appear three other elements, code, channel and context (referent), offering the possibility of outlining, through pluralism, a potential model with six components: sender-code-message-channel-context-receiver [3]:

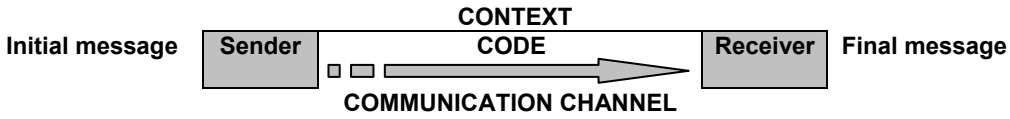

Fig. no. 2. Reunited model of communication (Karl Bühler - Roman Jakobson)

In the cybernetic model of communication of Claude Shannon and Warren Weaver the contextual component is missing, the model avoids the semantic information, in favour of the selective one, and it additionally contains three new components, the transmitter, the receiver and the noise, and in order to constitute itself statistically and mathematically, that is to submit its object to measurement one resorts to a special characteristic of information, the fact that it benefits from an invariance all along a series of reversible operations and for this reason it quantizes in bits (which thus became units of measurement) [4-6]. Warren Weaver, through a relevant question, regarding *the exactness with which the symbols of communication can be transmitted* generated the complex (classical) system of communication:

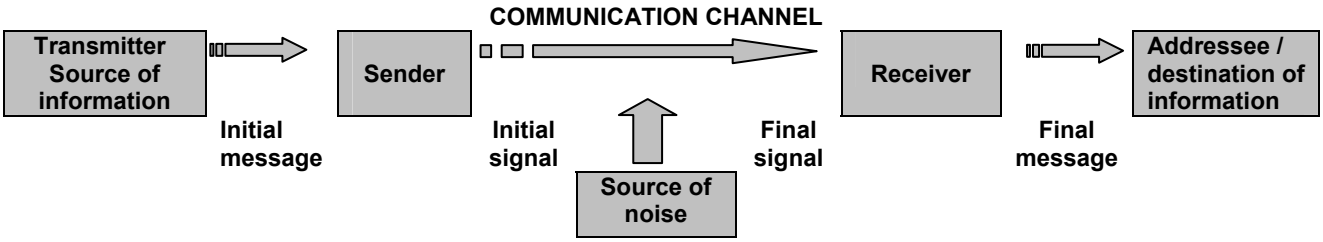

Fig. no.3. The systemic model of communication (Claude Shannon-Warren Weaver)

The fundamental theorem of the statistical-mathematical theory of communication, considered valid for *a channel without noise* and for discreet signals, refers to the channel of communication having the capacity of C bits per second, receiving symbols from a source with the entropy of H bits per second (the information communicated) and it states that, thanks to the procedures of coding adequate to the sender it is possible to transmit symbols through the channel with an average debit close to C/H, but this debit, regardless the inventiveness of the coding, cannot exceed C/H. This theorem emphasizes the totally special significance of the coding process and the need of finding an optimum solution that can correlate the technical aspects with the informational ones. The maximization of the relation C/H becomes a first aim in communication. This fact, based on the background of the similarity with economy (production-exchange-consumption) reduce communication to an exchange of messages, just as economy is an exchange of merchandise, which also allows to attach to the process of communication one of the six methods of multidisciplinary analysis, considered as possible solutions of the method of the four “E”:

a) a chain of *logical approach* of the type: efficaciousness-degree of economy-efficiency-effectiveness;

Efficaciousness in the model of communication: message and noise; Degree of **economy** in the model of communication: the C/H relation or the limit of the resource of h type; **Efficiency** in the model of communication: maximization of the C/H relation for a given level of H; **Effectiveness** in the model of communication: monitoring/controlling the communication channel.

b) a *statistical evaluation of indexes* of procedural transformation through the law of equivalence and the dynamics of the factorial asymmetries (*the index-numbers method*);

c) a *delimitation of the informational transformation* thresholds, of the maximum and minimum type, with the help of the law of the minimum and the law of the maximum (the method of the smallest squares through the use of the partial derivatives);

d) a mathematical and physical interpretation of the economic relations centred upon the principle of losses, successive inequalities and of *the inclinations of the slopes* of effect and cause or of the angular coefficients of the $m = (Y_1-Y_2)/ (X_1-X_2)$ type;

e) a determination of *the informational energy* ($S = \Sigma p_i^2$);
f) a modern sociological vision with the help of the *new organizational solutions of network type* (having as model the internet or the intranet) and of the shared trust networks described by Francis Fukuyama in the work called "*The Great Disruption*."

Claude Shannon and Warren Weaver's model of communication has become the canonical scheme of communication (the founder model of communication and information sciences), and it was extended with the feedback component from the receiver and thus the permanent adjustment of communication is accomplished:
- if the reaction of the cause's effect is positive, the message's transmission is confirmed;
- if the reaction is negative, the resumption of the integral or partial transmission of the message is imposed through its correction or elimination of a part of the noise of the channel, going as far as changing the channel.

From the functionalist or expressive (organic) perspective, the act of communication, in Harold Lasswell's view, can be described through an ample process of analysis:

Who? - Control analysis **Says what?** - Content analysis **In what channel?** - Media analysis **To whom?** - Audience analysis **With what effect?** - Effect analysis

Analysed with the help of the information-decision function, *negotiation* can be defined as a decision-making process, through which the parties try to reach together a solution, materialized in a contract or agreement, the partners pursuing the maximization of their results (obtaining a more advantageous situation than in the absence of the negotiation), either a communication process between the people involved, or transfer of information and their understanding (to negotiate being equivalent with to communicate in the hope of concluding an agreement) [7]. In a fundamental typological approach of the negotiations one can distinguish among the three classes considered classical, placed between the pure conflict and its solution: *integrative* negotiation (the result being victory/victory), *distributive* (the result mathematically corresponds to the game with naught sum, in the final transaction it is not possible for a party to win without the other one losing) and *rational* (the partners do not only want to obtain concessions, but they rationally try to solve the important long-term litigations from an objective position).

An interpretation of the *integrative* negotiation centred on the principle of the slopes' inclinations of effect and cause or of the angular coefficients of the $m = (Y_1-Y_2)/(X_1-X_2)$ type is interesting through the simple and prompt evaluation of the differentiated effectiveness of the negotiators, even in the specific context of the *victory/victory* result. In order to exemplify this one resorts to the simplest formalized model [8] of the equilibrium in the economic negotiation, redefined through other elements, in order to concretely determine the inclinations of the slopes and the angular coefficients (Y and X appear as p and q):
1. a pair of variables defining the points announced in negotiation $P_1(p_1q_1)$ and P_3 (p_3q_3), representing tow negotiators' requests regarding the value of a sale or of a delivery (p_1 and q_1 being the price and the quantity announced by the seller and p_3 and q_3 being the price and the quantity announced by the buyer);
2. a state of balance of the final agreement that will coincide with the point of agreement $P_2(p_2q_2)$, situated on the disruption threshold of the negotiation, but internal to the environment of the negotiation, both as announced environment and as reserved environment, that confirms the *victory/victory* result (p_2 and q_2 defining a price of agreement and, respectively, a quantity of agreement);
3. two angular coefficients as expressions of two inclinations in approaching victory in negotiation, one of the seller as price and quantity, detailed either as announced or

maximum level or as reserved or minimum level, in relation with the point of agreement of the negotiation: $m_V = (p_1-p_2) / (q_1-q_2)$ and a similar one of the buyer: $m_C = (p_3-p_2) / (q_3-q_2)$;
4. generally, the two angular coefficients will be different ($m_V \# m_C$) and underline different degrees of effectiveness in negotiation, the identity condition being generated by equal inclinations and by median position P_2, as compared with P_1 and P_3, rarely met in reality.

Another established theory, theory of games tries to elaborate the optimal rational strategy in negotiation, from a mathematical point of view, with the aim of completing a game (simply as a game, with no reference to the "real world"). The theory of the games[9] considered an interactive variant of the theory of decisions benefits from the analysis of the behaviour of some independent decision-makers (the players), whose decisions mutually influence. The difference between the two theories is given by the fact that in the theory of decision the decision-maker acts in relation with the nature, that is in a context deprived of interactivity (he/she makes decisions and evaluated their effects), whereas in the theory of games the context is interactive (in the terms of the minimal mathematical model of the economic or commercial negotiation the request is immediately followed by a counter-request). The similarity between the two theories is that both of them impose that the analysis be made based on rationality criteria and not out of psychological or sociological motivations.

2. THE PRIMACY OF EFFICACIOUSNESS AND THE TRADITION OF ECONOMICS

Each science defines and is defined by a certain type of thinking. The logical thinking, maybe the only type of thinking present in all the attempts of human cognition, proposes the solution of the direct definition, but it also capitalizes in frequent situations the one of the denial of the negation, by defining the opposite and then „per a contrario," of all that is not the opposite thus confined. In the case of a presentation about efficiency and effectiveness, two concepts which have a visibility out of the ordinary in the contemporary economy and in the management specific to it, must be defined, first, the economic thinking or that of the degree of economy whose fundamental products certainly are both the one and the other. But in order to define the thinking of the degree of economy, we should get down one more step from the high tower of logical thinking and begin with what is defined as human activity, next to the notions of its immediate results or effects, in other words with the primacy of efficaciousness. There certainly was a thinking of the efficaciousness, easier to be defined by opposition with the thinking of the non-efficaciousness. The thinking of the non-efficaciousness precedes the organization and the institutional. The thinking of the non-efficaciousness remains that type of thinking which is able to establish the existence of a result without obtaining it in an effective way or to record the presence of an object with certain properties, respectively without being able to identify it. A number of two limit-situations, in which the human beings and their natural way of cogitating are involved, become illuminating examples:

(a) an odd number (2n +1) of messages is communicated to "n" receivers (obviously in positive whole numbers), but it cannot be clearly individualized nor specifically named how much has each received, although it results nevertheless that one of the receivers has received at least 3.

(b) an arbitrator (an observer) in an extended multilateral negotiation finds out that he/she has an unopened envelope left, representing the anonymous request of a negotiator, when all the parties have gone, after having practically concluded the agreement, and he/she assumes that one of the parties is in the situation of a round in which his/her own conditions do not appear in the final signed agreement (the arbitrator not being able to identify the negotiator nor to stop him/her and return the envelope).

The different degree of non-efficaciousness of the exemplified situations (a) and (b) raise an essential problem of the thinking of the non-efficaciousness, respectively the

possibility of the clear delimitation of the principle non-efficaciousness from the practical non-efficaciousness[10]. Another important type of non-efficaciousness results from the contrast between the accuracy of the effects as information estimated with global character and those with local character (individual, spatial or momentary). On a general economic level, the thinking of the efficaciousness dominates, as a simple consequence of the observation that all the activities manifest themselves through effects whose huge diversity always has a well-individualized owner. One can unconditionally state that the primacy belongs to efficaciousness. Analogously, both the economic and managerial thinking are always identical through their common origin in the sphere of efficaciousness. As a consequence, the manager also, as possessor of the thinking of efficaciousness will be the owner of some effects or results and will design effects of the organization's activity, as an expression of the efficiency and efficaciousness of his/her management.

3.STATISTICS' CONTRIBUTION IN EVALUATING EFFICIENCY AND EFFECTIVENESS

Practically any managerial team or any solitary manager will have a managerial programme, which efficaciousness will transcribe into a matrix of the designed effects. The announced matrix model is achieved starting from the hypothesis that the management of the organization will identify, name and draw up the main effects that give content to its managerial policy in hierarchical order as compared to the estimated probability of their occurrence or production (the sum of the probabilities being equal to 1).

The managerial programme as a matrix of the designed effects and placed in hierarchical order according to their occurrence probability

Table no. 1.

The designed effect and placed in hierarchical order according to the occurrence probability	U.M. (unit of measurement)	The designed level	The estimated occurrence probability of the effect
- A -	- B -	- 1 -	- p_a -
E_1	RON		0,20
E_2	%		0,12
E_3	tons		0,10
...	...		...
E_n	hours		0,01
Total			$\Sigma p_a = 1,00$

The specificity and originality of the managerial strategy finds its expression in a second matrix, which multiplies the estimated occurrence probability of the effect with its impact as such and generates a new hierarchy of the effects according to the explanatory factors.

The matrix of the prognosticated and re-placed in hierarchical order effects according to the final importance

Table no. 2.

The effect designed and re-placed in hierarchical order according to the final importance	U.M.	The designed level	The estimated occurrence probability of the effect	The estimated strategic impact	Final importance (OEp)
-A-	-B -	- 1 -	- p_a -	- p_i -	(p_a x p_i)
E_1	RON		0,20	0,10	0,0200
E_3	tons		0,10	0,15	0,0150
E_2	%		0,12	0,08	0,0960
...	...		...	...	...
E_n	hours		0,01	0,01	0,0001
Total			$\Sigma p_a = 1,00$	$\Sigma p_i = 1,00$	-

The presented probabilities can be subjectively or objectively determined in relation to the use of a single criterion or through the mean or average of more criteria, the sum of these averages being obviously equal to 1. The criteria through which management evaluates the occurrence and even the strategies that generate a certain impact are the

criterion of the expected value (of expectancy), the criterion of rationality (the Laplace criterion, applicable to decisions under conditions of uncertainty), the criterion of maximum probability (based on which the state of nature with maximum probability is chosen). A solution that benefits from an increasing utility but also from a real capitalization both of the information managerial system and of the complete communication of the necessary and possible level of the objectives or of the negotiation within the team, which subsequently ensures homogeneity for the entire managerial team and also higher perspectives of putting a common managerial strategy into practice is constituted by an average evaluation based on a scale of report in the generalized Fishbein-Rosenberg variant with the constant sum (but not in its classical form, in percents, but in coefficients, expressed with two decimal fractions), briefly described [11-12] in the following chart:

The evaluation of the average coefficients given by the managerial team's members

Table no. 3.

Number of managers	Coefficients given by the members of the managerial team / effect			
	E_1	E_2	…E_j…	E_n
Variant I = k_1	E_{11}	E_{21}	Ej_1	E_{n1}
Variant II =k_2	E_{12}	E_{22}	E_{j2}	E_{n2}
…	…	…	…	…
Variant "i" =k_i	E_{1i}	E_{2i}	E_{ji}	E_{ni}
…	…	…	…	…
Variant "n"= k_n	E_{1n}	E_{2n}	E_{jn}	E_{nn}
Average coefficient $Em_{ji}=(\Sigma E_{ji}k_i)/(\Sigma k_i)$	$Em_1=(\Sigma E_{1i}k_i)/(\Sigma k_i)$	$Em_2=(\Sigma E_{2i}k_i)/(\Sigma k_i)$	$Em_j=(\Sigma E_{ji}k_i)/(\Sigma k_i)$	$Em_n=(\Sigma E_{ni}k_i)/(\Sigma k_i)$
Hierarchy of effects	It is established according to the final relationship ">" or"<" type among all Emj_i			

The solution for measuring the degree of economy resumes the procedure already mentioned and presented, including here a larger spectrum of analysis of the efficaciousness and the degree of economy (than the usual one in the audit of European economic projects, where the efficiency and effectiveness of the project and its management are reference points of the whole in the analysis of the project), inventorying the efforts, in direct dependence on the effects already designed with specific units of measurement, but also potentially detailed or multiplied as compared to the effects placed in hierarchical order as estimated occurrence probability, according to the following matrix:

The matrix of the efforts (consumptions) necessary according to the risk of non-degree of economy of the effort

Table no. 4.

The designed effect and re-placed in hierarchical order	U.M.	The designed level	The necessary effort (consumption)	U.M.	The necessary level of effort	The risk of non-degree of economy of the effort
- A -	- B -	- 1 -	- Cnj-	- D -	- 2 -	- pCnj -
E_1	RON		C_{11}	RON		0,08
			C_{12}	RON		0,06
			C_{13}	RON		0,04
			C_{14}	RON		0,02
E_2	tons		C_{21}	tons		0,10
...	...		...	....		...
E_n	hours		C_{n1}	hours		0,01
Total						$\Sigma pC_{nj} = 1,00$

The matrix instrument identifies in an associated way the main efforts (consumptions) in parallel with the effects re-placed in hierarchical order. The value of the aggregate of the risks of all effort (consumption) components, reunited on the level of distinct category of designed effort, coincides with the estimated occurrence probability of the category of effort ($pC_{11}+pC_{12}+pC_{13}+pC_{14}=p_a$ for E_1 and $pC_{11}+pC_{12}+pC_{13}+\ldots+pC_{nj}= \Sigma p_a=1,00$). The managerial strategy in the field of efforts (consumptions) is to be found still in a matrix

capitalizing the multiplication of the risk of non-degree of economy with its impact and without generating a new hierarchy of the effects, but only a re-placing in hierarchical order of efforts within the classes of effort afferent to a distinct category of effect:

The matrix of the prognosticated effects and of the necessary efforts (consumptions) re-placed in hierarchical order according to the final importance

Table no. 5.

The designed effect replaced in hierarchical order	U.M.	The designed level	The necessary effort (consumption)	U.M.	The necessary level of effort	The risk of non-degree of economy of the effort	The estimated strategic impact	The final importance (OCp)
- A -	- B -	- 1 -	- C-	- D -	- 2 -	- pC_{ni} -	- pj -	- pC_{ni} x p_i -
E_1	RON		C_{11}	RON		0,08	0,04	0,0032
			C_{12}	RON		0,06	0,03	0,0018
			C_{13}	RON		0,04	0,02	0,0008
			C_{14}	RON		0,02	0,01	0,0002
E_2	tons		C_{21}	tons		0,10	0,15	0,0150
…	…		…	…		…	…	…
E_n	hours		C_{n1}	hours		0,01	0,01	0,0001
Total						ΣpC_{nj}= 1,00	Σp_j= 1,00	-

The presented risks and probabilities can be determined analogously, starting either from the same subjective or objective criteria, recorded in the case of efficaciousness or from a generalized Fishbein – Rosenberg scale of report. The two results of the products between the occurrence probability of the effects and their impact and between the risk of non-degree of economy of the efforts and their impact defined as informational energy of the designed effect (OEp) and informational energy of the designed effort (OCp), through analogy with the Onicescu informational energy defined as product of probabilities can be considered as essential indicators in the analysis of efficiency and effectiveness in the general plan of the organization and, especially, in the organizational managerial plan.

The conclusion of the degree of economy brings along a rendering relative of the importance of the effect and an emphasis of the significance of the balance between results and resources or between effects and consumptions (E > C), as well as of the absolute change (Δ = E-C or Δ = ΣE – ΣC). One can thus appreciate that the degree of economy of an activity, exclusively in the situation in which there appear economies determined as positive difference between effects and efforts (E – C > 0).

Out of the distortion or non-observance of the degree of economy there appear the economic anomalies and errors of the organizational management. The thinking of the degree of economy being also characterized by realism in the simultaneous design of the effects and efforts, the occurrence of excess materialized in the exaggerated level of the surplus has serious consequences in the future (E being much higher than C), defining squander and its chronicized forms, such as overabundance, over-production, hyperinflation, over-valorising, exaggerated credit, excess of circulation or of capitalization, etc., and the supremacy of the extreme deficit (when E is much lower than C), generate the maladies of the deficiency, just as penury is concretely delimitated, through its limiting expressions as under-consumption, under-valorising, under-crediting, under-capitalization.

The analysis of the relationship effect-effort or consumption-result practically defines the essence of the management of the organization. The manager is bound to analyse which is the minimum combination of efforts (inputs), for a designed level of the effect (the output), or, disposing of some limited efforts or fixed inputs, which is the maximum output, the one that can be obtained through their use. The managerial programmes that apply this analysis permanently are obviously called expressions of the efficient managerial thinking. A more profound level of thinking thus starts from efficaciousness and degree of economy and evolves towards a paradigm based on the principles that correctly delimitate

their existential environment and the real relational one of the effect-effort or consumption-result effect. This approach based on principles is founded on the new thinking of the organization's efficiency and its management. The efficiency expresses the relationship between efforts and effects, through specific indicators resulted from abstracted and evaluated associations, such as the association of the efforts (consumptions) of the resources as designed and accomplished level, in parallel with the association between the level of the designed and accomplished effects, the temporal (chronological) association or the spatial one of the effort/effect or effect/effort type. In practice two *criteria* of efficiency are attached: the criterion of saving through the relation to effort and the criterion of intensification, through correlation with the effect. Approached from an applicable point of view, efficiency is defined through two methods, respectively through the direct one as relationship between any of the values of the effects or of the results (E_1, E_2,…, E_n) and any of the values of the efforts or consumptions (Cn_1, Cn_2,…,Cnj), or through the indirect method, respectively described as relationship between efforts or consumptions (Cn_1, Cn_2,…, Cnj) and effects or results (E_1, E_2,…, E_n).

The determination of the efficiency of activity in economy

Table no. 6.

Direct method (Effect / Effort)				
Effect / Effort	E_1	E_2	…	E_n
C_{1j}	$e = (E_n / C_{nj}) \times 100$			
C_{2j},				
…				
C_{nj}				

Indirect method (Effort / Effect)				
Effort / Effect	C_{1j}	C_{2j}	…	C_{nj}
E_1	$e = (C_{nj} / E_n) \times 100$			
E_2,				
…				
E_n				

No matter how modelling and methodical, the thinking of efficiency still remains a static and purely observing one. The need for dynamism is related to and even imposed by the performance analysis in time and in space of the organization's management. Thus, there appear the options between the variants designed by efficiency, in the logical length of the efficaciousness-degree of economy-efficiency-effectiveness chain, between the level of losses, of the successive inequalities, between the inclination of the slopes of the ramps of effect and cause, between the thresholds of informational transformation, of the maximum and minimum type, with the help of the law of the minimum and the law of the maximum, but also between the slopes of the multiple efficiencies designed in a modern sociological vision with the help of the new organizational solutions of network type (having as model the internet or the intranet) and of the networks of shared trust. *At this stage one can appreciate that the whole defines a new method, simply called the method of the four "E" that will impose the final appreciation of the management of the organization*.

The thinking of effectiveness detaches from the thinking of efficiency, re-interpreting it in time, in relation to the level of the effect and of the effort, both designed and effective. The effectiveness of communication and of negotiation as bilateral or multilateral type of communication successful and accomplished through common agreement becomes instrument of appreciation of the whole management of the managerial team. The statement according to which the decision of a managerial team is much more effective has more chances of being correct in relation to the idea that the individual manager's decision is the expression of the maximization of the same effectiveness. Communication at the level of the managerial team does not generate totally new information, although it could be possible to identify in the communicated message a series of knowledge that initially has not been taken into consideration. In the managerial team through double communication, specific to the negotiation within the variants of design of the effects and efforts, a better selection can be made between the examined alternative projections, but it is also possible to have a loss of information and precision as well (it is true, not as high as

the loss in case of a unique point of decision presented and accepted). But according to the observations from the statistics of the managerial teams there are quite enough cases (approximately a third), in which the team's final decision is weaker than the best variant of the top manager's unique initial decision (thus individual). This takes place only in the hypothesis in which the knowledge is fragile and there are many pieces of erroneous information (the difference between the designed and the effective informational energies being much above the 5%, limit frequently accepted in the economic decision), the decisional communication of the team of managers having high chances to lead to cognitive performances inferior to the individual ones.

In conclusion, among the six methods of analysis, considered as possible solutions of the method of the four "E," only four are the result of the direct contribution of statistics:

I. The statistical evaluation of the procedural transformation indexes through the law of equivalence and the dynamics of the factorial asymmetries, respectively through the method of indexes which has the Walsh index as adequate solution, applied to effects and to efforts both in their temporal evolution and in relation to the initial managerial plan.

Walsh index used for effects with emphasis on the		Walsh index used for efforts with emphasis on the	
$\frac{\sum_{i=1}^{n} p_{j1}\sqrt{p_{a1} \times p_{a0}}}{\sum_{i=1}^{n} p_{j0}\sqrt{p_{a1} \times p_{a0}}}$	$\frac{\sum_{i=1}^{n} p_{a1}\sqrt{p_{j1} \times p_{j0}}}{\sum_{i=1}^{n} p_{a0}\sqrt{p_{j1} \times p_{j0}}}$	$\frac{\sum_{i=1}^{n} p_{j1}\sqrt{(p_{Cn})_{j1} \times (p_{Cn})_{j0}}}{\sum_{i=1}^{n} p_{j0}\sqrt{(p_{Cn})_{j1} \times (p_{Cn})_{j0}}}$	$\frac{\sum_{i=1}^{n} (p_{Cn})_{j1}\sqrt{p_{j1} \times p_{j0}}}{\sum_{i=1}^{n} (p_{Cn})_{j0}\sqrt{p_{j1} \times p_{j0}}}$
impact	occurrence probability	impact	risk of economy's non-degree

II. The delimitation of the informational transformation thresholds, of maximum and minimum type, with the contribution of the law of the minimum and of the law of the maximum (the method of the smallest squares by using the partial differentials);

III. The statistical interpretation of the differences of slope of the effect and effort ramps or of the different angular coefficients of $m = (Y_1-Y_2)/ (X_1-X_2)$ type;

IV. The determination of the informational energy, but not in the classical formula ($S=\Sigma p_i^2$), but either as informational energy of the designed effect ($OEp_0=\Sigma p_{a0} \times p_{j0}$), compared to the informational energy of the achieved effect ($OEp_1=\Sigma p_{a1} \times p_{j1}$) or as informational energy of the designed effort ($OCp_0 = \Sigma pC_{nj0} \times p_{j0}$), compared to the informational energy of the achieved effort ($OCp_1 = \Sigma pC_{nj1} \times p_{j1}$). The differences higher than 5% become relevant to the analysis of the effectiveness (effective value being below 95% of the projected one).

The other two methods, a chain of logical approach of the type: efficaciousness-degree of economy-efficiency-effectiveness and a modern sociological vision by means of the new organizational solutions of network type (having as model the internet or the intranet) and of the shared trust described by Francis Fukuyama in the work "The Great Disruption" under the result of the contribution of logic and psycho-sociology. In essence an effectiveness measured this way can be detailed on three degrees of importance: 1st degree effectiveness, that will compare the efficaciousness (the effects), 2nd degree effectiveness, that will compare the degree of economy (effects and efforts, but also the difference between them) and 3rd degree effectiveness that will compare the efficiency.

4. CONCLUSIONS

The first theoretical premise, which certifies the necessity and the importance of the four "E" becomes obvious in the practice of project management and it is related to a totally new conceptualisation in this field of efficaciousness, degree of economy, efficiency, and effectiveness in the managerial process as such, the performance of the project management already outlining three dimensions apparently contradictorily shaded:

I. The efficiency of management and even of the project manager, for all those present in the project team, become exclusively synonymous to the minimization of the

efforts and the elimination of the losses, the prognosticated effects being limited or narrow, the project once auctioned and won, and the resources limited by budget.

II. The effectiveness of management and even of the project manager are defined starting from the duality of the performance criteria in the project, respectively the quality criterion as well-specified threshold but minimum and that of the maximization of the managerial instruments of collecting information about the project (carefully monitoring efforts/costs, time and area) also redefining at the same time the degree to which effects and efforts respond to the prognosis or anticipation that is the very drawn up project.

III. The adaptability of management and of the project manager, defined by the reaction to change, actually considered the hardest to evaluate from the three dimensions and almost always exclusively post-project, the adaptability that tends to permanently be in conflict with efficiency and effectiveness through communication and negotiation processes that tend to sacrifice the other two dimensions.

The compensatory principle of the economic and ethical pragmatism proves to accomplish a partial balance, between an inefficient communication and a fully effective negotiation. The wearing down of the performance caused by the confused communication or by the extensive development of the negotiation as a formula of ethical compromise is nevertheless recovered by the favourable evolution of the social efficiency and of the managerial effectiveness. The systems of the European funds, programs and projects, as European integrated systems of development, financing and especially of optimisation and expansion of the impact of development, also constitutes a valuable example through the dismemberment of the communication and negotiation of the funds policies and of the programmes of projects efficiency and the effectiveness of the project management. It is a very interesting case of temporal and institutional fracture or break of the two main categories of concepts, with the purpose of maximizing the final impact on the population's welfare in the European area. But even more important proves to be the construction of this system of economic, social, cultural and educational convergence, a system based on the action of simultaneous financing of the European fund for regional development with that of the European social fund, next to that of the cohesion fund. From the competition or confrontation through diverse projects, financed and programmed on European level, the effects can only be advantageous both for the communities and regions administratively delimitated and for the promoter firms and institutions and their organizational cultures. Communication and negotiation versus efficiency and effectiveness become thus a *modus vivendi*, a European compromise by definition between apparent adversities, although communication and negotiation belong exclusively to the managers of the fund and of the program, and efficiency and effectiveness characterize the project manager and its team, a compromise that if well negotiated can allow a maximization of results, a way of social and economic life with high performances.

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