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The Economic Intelligence process :

*A study according to the point of view of the infomediary and of the information retrieval
problem*

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Key Words : decision maker, documentation, information retrieval, infomediary, process of Economic Intelligence, user model, watcher.

Abstract

The information universe from a company point of view has changed in the last fifteen years. In fact, companies are many that are aware of the strategic information dimension. Thus, some years ago, when we talk about information management in enterprise, we talk implicitly about the documentation chain. Nowadays, many others information approaches can be identified as intrinsically linked to information. In this paper, we try to clarify the distinctions which exist between these approaches and the actors. In addition, this study is a conclusion of

some investigations realized about Economic Intelligence, particularly on the Lorraine project: DECiLOR™, in which one of our researchers contributed and we have interviewed a lot of the other actors of this project.

Firstly, in this paper, we analyzed a new information discipline, infomediary discipline, we defined it, compared it to the intelligence cycle and another information discipline, the watcher. Secondly, we study the distinctions which exist between Documentation, Watch and Economic Intelligence, from the information retrieval problem (IRP) approach used. We use this last analysis to complete our first definition of the infomediary.

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General Introduction

The Economic Intelligence (EI) is a strategic process which its ultimate objective is to lead to a decision making, at the right moment. This process takes shape by a whole of coordinated actions, implementing human and material means within a company. Thus, some years ago, when we talk about information management in enterprise, we talk implicitly about the documentation chain. However, In a strategic dimension that we know from now on companies, the functions of information – documentation were reconsidered according to a culture of the intelligence. The functions of watcher, in charge of the economic intelligence, information system consultant, etc...appeared. The objective of our study is to allow a better clarification of the skills implemented in a EI process and to identify those which would necessary for a better application of the process. In a first part, we evolve the concept of the infomediary based on the literature and on our study of experts working in the field. This work is particularly placed in the continuity of our preceding observations (cf for example [Knauf 04]). Thus, we propose our point of view of the role of the infomediary in the EI process : his status, his missions, his place and his influence on the other participant in the process. Following our report and our proposals, we will consider in a second part a complementary definition of the infomediary in the treatment of the information retrieval problem (IRP). We will take the opportunity to present a substance to distinguish a watch (monitoring) process from a EI process.

Part I : the infomediary and the economic intelligence (EI) process

Introduction

We will begin this part with the definition of the EI process by relating each stage of the process to the actors concerned and to their function. The skills and tools used required will also be defined. We will then analyse the concept of infomediary from European authors' points of view and those of Americans authors. Finally, we will report on our study of experts working in the field. Based on from these observations of the constituent roles of the EI process on the one hand and the literature on the other hand, we will propose a description of this new kind of work indicating its status, its missions and its place in the EI process

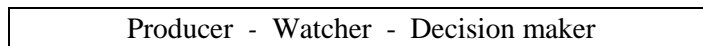
1. The EI process and its participants

To date, we can observe four components integrated into the EI process:

- The world of information (it can be a producer of information or supplier: an organization, a person, a support).

- The intermediary (the watcher is in charge of the information chain: analysis of the needs, identification of the sources, selection of information, treatment and distribution).
- The end-user (in other words, the person who has asked for information whom we will call the decision maker: a legal entity or body).
- The protection of inheritance (this concept will be the subject of future paper)

Diagrammatically:



Amongst the new kinds of jobs which have come into being in recent years we find that of infomediary. This neologism derived from the fusion of the words information and intermediary suggests the existence of a link between the world of information and the end-user. However, we have pointed out above that this role is already being played by the watcher. The objective of our study is thus to clarify the major role of the infomediary (his functions and his skills).

We will describe in a simplified manner in the table 1, all the essential stages of the EI process. We will also describe the participants in the process and the skills they need to perform their functions. After this evaluation, we hope to understand on the one hand if the participants' roles are played by persons possessing the necessary skills and on the other hand, if any roles and skills are missing. This will allow us to raise the question of what the infomediary might do to improve the implementation of the EI process. We will then try to clarify the roles and skills of the infomediary not only with respect to the EI process itself but also with respect to the better characterised roles and skills of the watcher and the decision maker).

Stage of the EI Process	Role	Participant	Skill	Tool
1	Definition of the decisional problem	Decision maker ¹	<ul style="list-style-type: none"> - He knows the environment in which he works - He is competent in his field - He detects the risks and threats for his company or his service. - He appreciates what is at stake. 	<ul style="list-style-type: none"> - Analysis method SWOT and Ishikawa diagram

¹ Model N. Bouaka, DMP

2	Transformation of the decisional problem into information retrieval problem (IRP)	Watcher ² and Decision maker	- Strategic methodology. (setting up of indicators) -Task Analysis (understanding the request, what is at stake and the context) - Operational Task - Task methodology	- Audit management tool - Project Structuring tool or subject management tool « mind mapping » -..
3	Identification of the relevant sources	Watcher	- Identifies and evaluates the sources of information and ensures their follow-up - Selects the sources most adapted to the request	- Automatic source - Monitoring software - Intelligent Agents - Metabrowser...
4	Relevant information retrieval	Watcher	- Ad hoc or periodical extraction of information - Verifies the information collected	- Browser and specialized portal - Written documentation -
5	Information processing	Watcher	- Intellectual treatment of information: content analysis - More elaborate editing of information : summary, press review, bibliography ...	- Tool for categorization, summarizing and automated translation - System of content management, of text mining - Interpretation tool (cartography of participants, concepts...), - Statistical Tool...
6	Interpretation	Decision Maker	- Relative to the description of the initial problem	- Tool for collaboration, sharing and distribution of information....
7	Decision	Decision Maker	- It must be based on the indicators predefined with the watcher	- Project management tool

Table 1

We will note that two major participants are involved in the EI process

- The **decision maker**: According to *David* [David 01]. He gave a definition of a decision maker based on his role in the internal and external environment of the company as *"the person that is capable of identifying the problem to be solved in terms of what is at stake or of the risk, and/or the threats which weigh on the company"*. In other words, he knows the needs of his company, what is at stake³ and possibly the risks and threats⁴ it can undergo.
- *Bouaka* proposed a model making it possible to clarify the decisional problem (DMP). This one takes into account three classes of information: (a) the decision maker's identity (his individual characteristics), (b) the organization (organization parameters)

² Model P. Kislin, WISP

³ We understand by stake to mean, what one is likely to gain or to lose in a company

⁴ The risk is a danger which one can more or less provide for / threat. It enables to foresee something of annoying

and (c) the environment. The environment can be seen in more detail as the immediate environment parameters (customers, providers, competitors), the global environment (social, economic, political, scientific) and competence (knowledge, know – how). This phase is very important for the watcher. It allows him indeed to reformulate the problem and draw up an explicit representation of the desired goal, so that the watcher can start his process of information retrieval [Bouak 04].

In the final stage of the process, the decision maker knows what kind of decision he has to take to ensure that things run smoothly. (For example he has to know exactly when to react to good innovation or adapt to the market changes). According to *Simier*, “*the process of interpretation is different both from the system designed, (hardware and software), and from the totality of the explicitly formalized needs.. It is rationally given neither by one nor by the other, but interacts with both*” [Simie 02].

- The **watcher** specializes in the methodology of collection and analysis of information. His objective is to obtain indicators or information with added value on which the decision makers will use to make their decisions. After having received the problem to be solved in the form given to him by the decision maker, the watcher must translate it into terms of attributes of information to be collected needed for the calculation of the indicators. The watcher must also identify the relevant sources of information and employ his expertise to obtain these sources of relevant information, for the totality of information in a relevant source of information is not necessarily relevant. This last remark can be illustrated by the need to filter information derived from corporate databases which, although considered to be error-free and valid, is not all required for resolving the problem in hand.

The watcher intervenes in the four phases of the process which constitute the information chain

- In order to deal with the problem of the decision maker, it is essential to translate it into an Information Retrieval Problem (IRP). So that it can be understood by an Information Retrieval System (IRS). This first stage aims at characterizing; (a) the stakes involves in a decisional problem (b) the translation of these stakes into indicators and associated informational problems. Thus, this stage is largely based on the definition of indicators “*The indicators will guarantee the correct orientation of the research focus but above all will allow the watcher to construct his own qualitative and quantitative representation of the decision maker’s*

perception of things, in other words, to measure the gap between what is desirable and what is possible given the nature of the decision to be made” [Kisli 03].

- After having analyzed and having understood the need for the decision maker, the watcher draws up a list of sources of information. He is thus capable of locating and collecting new or ignored sources, which can be subsequently monitored and used. These sources can be formal (published information) or informal (through human networks, newsgroups, conferences, etc...). They can be automatically monitored in order to save time, to allow updating in real time and to be alerted according to previously determined criteria.
- The stage relevant information retrieval is carried out from request via IRS requests, or by discussion or questionnaires. They are then validated using various indicators (parameter of use, author, update, etc...).
- The final phase for the watcher is the data processing which will be done according to the decision maker’s request. Does he wish for raw information? in this case, the watcher hands over directly the primary document. Should the decision maker require digested information, he will receive a summary, a detailed report or a bibliography. This phase also takes into account the storage of collected information. It can be done on several different media according to the strategy adopted by the watcher. And finally, the calculation of indicators which can be used to monitor the evolution of the phenomena.

This assessment of process participant functions and skills of raises the question of where the infomediary might find a place in this scheme of things.

2. The concept of user - intermediary intervening within the IRP

In the current available literature, the term infomediary is poorly defined or even practically non existent in Communication and Information Sciences. On the other hand, we frequently find the concept of intermediation, informational mediator or user – intermediary in these literatures.

In France, various authors tackle the question of the infomediary. The following definition was extracted from the Internet: *“A concept formed from the fusion of the information and intermediary. It is a site that points to information or community which, from information product, proposes a direct link to approved supplier. Thus, the infomediary plays the role of*

both prescriber and intermediary” [Afnet 03]. We will see through our study if this idea of the infomediary is justified.

In the following lines we will present the concept of infomediary from two aspects: that seen by the European authors and that seen by the North American authors.

* Point of view of the European authors

- *Kocergin* presents the infomediary as a prescriber of information, entrusted with the task of animating the network and to make "educating" the various members of this network interested in the use of IRS tools of placed at their disposal. This amounts to representing him as a mediator, "facilitator" of the informational process [Kocer 02].
- *Berquier – Ghérolde* sees the infomediary as a specialist having the capacity to anticipate the evolution of the economic fabric with which he deals, to influence the decision-making and to retain the custom of his information seekers [Berqu 03].
- *Montculier* represents him as a "conductor": contributing organizational skills and follow-up service [Montc 03].

These three authors have a common point of view of the role which the infomediary should play. They clearly spell out the aspects of coordination and animation of a network which we will develop later in this paper.

- *Zwick* tackles the subject from a marketing standpoint : “*Among the new commerce models invented by and for Internet, "infomediary" is the most prospect. This term, coined by John Hagel of McKinsey, describes intermediaries as one who **sells information** in a particular type of industry and creates a place where purchasers and sellers can meet and transact business. It is the equivalent of village market organiser... here global village*” [Zwick 02].
- *Nabarette et Beaumelle* regard the infomediary as an intermediary on Internet who introduces the reduction of transaction costs (information **retrieval**, coordination, **monitoring**...) [Nabar 02]. This concept will be again be reviewed by a North American author.

We will not approach these aspects as regards time saving in information retrieval, because we think that this function of search intermediary is filled by the watcher, as clarified in table 1. However, we suppose that the infomediary could be likely to fulfill certain functions of the watcher according to the context and needs' (if he is only

participant with the decision maker to intervene in the process of EI; if the watcher is overloaded of work, etc...).

* Point of view of the North American authors

- *Belkin* indicates a **search intermediary**, representing a type of mediator who has the following functions [Belki 87] :
 1. Reveal information about a user's problems state / 2. determine how/where to obtain documents / 3. generate a general model of the user / 4. generate a description of the user's information problem / 5. determine how the IR system should carry on a dialog with the user / 6. develop search strategy / 7. develop responses to the user's query / 8. explain system features to the user / 9. analyse input to translate user's request into equivalents usable by the system / 10. be able to appropriately convert system responses to a usable format for the user.

We note in this idea that the type of user is not clarified. Is the decision maker (the end-user) included in each phase or is it the watcher or both? Indeed, we estimate that in phases 4, 5, 8, 9, the user thus named would be, in our study, the watcher, as for the other phases, the user would correspond to the decision maker.

The last phase is to be determined according to the needs expressed by the decision maker, on the mode of restitution of information: the watcher will use the IRS to conclude his watch and to restore in final phase the good answer to the decision maker, or can, if necessary, propose to the decision maker to use the IRS (to visualize his results of research online).

- *Robins'* works on the human intervention in the IRS firstly on man-machine interaction, and secondly intermediary-end-user interaction. He defines the search - intermediary as a person **assisting the end-user** in his information retrieval [Robin 00]. To do this, he must take into account the environment of the end-user, his situation, the state of his knowledge, his goals, his beliefs, his tasks and his intent ([Sarac 97] in [Robin 00]). He studies the skills which this professional must possess to arrive at relevant result⁵ for the user.

The term "infomediary agent" was found in a publication of *Neie* which he observes the role of the infomediary in the Internet era by presenting him in the form of "**Agent as**

⁵We understand relevance (Anglo-Saxon term) as the capacity of optimizing calculation of distance between the theme expressed in a question and the theme treated in the documents. It may be absolute, but can only be determined as a function of the user

intermediary in the electronic publishing world”. Indeed, with the appearance of the Internet (inducing new information accesses, from everywhere and constantly, under multiple supports), the role of the distributors and producers of information implies: more suppliers, more formats, more type of relationships, more platforms, more pricing and licensing models, new ways of buying and selling information. The new ways of acquiring information include an increasing demand for individual articles and linking of various content types...The author represents the infomediary in the electronic information chain as he who consolidates and gives a value to information. He is capable of facilitating the information specialists and the librarians with the management of their way through the electronic environment. In conclusion, he said, « agents will develop new functions and services that will play on and strengthen their role as intermediaries between information producers, packagers, libraries, and end users» [Neie 02]. His ideas are akin ideas from Nabarette et Naubelle.

We notice following the bold elements above that the intermediary - user is nothing other than a watcher who shares the various functions assigned to him.

3. Point of view : a case study of function of infomediary

After the analysis of literatures on the concept of infomediary, we wished to evaluate the current practices by reviewing various expert reports on this subject. Our interviews were carried out within the infomediaries found within an economic intelligence organisation located in Lorraine named « DECiLOR™ ».

Setting : It is embedded in the Lorraines' SME-SMI in their process of strategic intelligence. Several sectors were targeted: which include: wood industry, metal works, logistics and health. It uses the SME-SMI, the strategic information collected by a team trained by the CEIS™ (the European Strategic Intelligence Company). « *The company “mutualises” all that is “mutualisable” then transforms information into knowledge. The economic intelligence in the region, is a link and practices of: prospective/innovation and transfer/benchmarking of the tools and methods/social capital of networks* »⁶.

Context: each infomediary works in a watch sectoral center (WSC) attached to a given affiliation.

⁶ Pierre Bourgogne, director of «Technological Innovation at Lorraine Regional Council » Presentation at a conference « L'intelligence économique, un atout de la Défense Globale en France», Verdun mai 2004

In this setting, the infomediary is in general college graduate and has a double competence ; firstly in techniques of documentary and in addition a knowledge in the field which he covers. his competence is generally preferred as Documentation. However, his capability in Documentation is vital to understanding the problems arising.

He is an autonomous person and responsible to his domain of operation (where he covers). His main goals are to link available competences in the territory and to facilitate exchanges between the SME-SMI.

His **mission** to the decision maker:

1) To present the organisation (structure)/audit phase - 2) To reformulate the decision maker's problems - 3) To carry out investigations - 4) To reconstitute the good information to the decision maker.

He must also

Animate his network in the broad sense / Implement the schedule of his affiliation / Link the competences interesting in the structure.

His **working methods**:

- Audit stage: he preliminary identifies the company which he will contact so that this one can be integrated to the EI structure
- He locates the various types of watch emanating from the needs of the company.
- He structures results of the audit in graphic form (OMEGAS™ method).
- He resolves specific information retrieval problems.

His **actions**:

- **Coordinates** all the needs, because he is the central element of information supply. "ITP": Information Transfer Pivot (between the back office (knowledge bases and tools) and the target company)⁷.
- **Adhere** the decision maker by regularly sending information to him on the evolution of his environment.
- Advise and **accompany** the decision maker.
- **Train** people within the WSC (business managers, mission directors...) in the use of installed tools and search engines.

⁷ Testimony of a CEIS' Senior Consultant. April 2004

- Take part in the open shows in order to prepare surprising **reports** to demanding company.
- To take part in communication and publicity campaigns on EI.

His **assets** and his **weaknesses**

his weaknesses

- Lack of time, because he has to follow a great number of companies at the same time.
- It is necessary for him initially to acquire a certain knowledge and a certain maturity before knowing a company well.

His assets

- He is a person who is trusted with confidence, he is a vital to the company.
- He has deep information knowledge.
- Guarantee the traceability of information and confidentiality.
- Personalise information.
- Resource - Person for practical EI councils.

His essential **ability**⁸

Opened / Curious / Pedagogical sense / Sense of negotiation / Synthetic Spirit / Adaptability / Methodical.

Watcher // infomediary

« The watcher is a "technician" who remains in his office to make research and to restore information. Furthermore, the infomediary will canvass the companies, while going on the spot to do an audit, to identify and answer in a precise way their need. The infomediary has a more precise vision of economic fabric, link of proximity»⁹.

« The watcher supervises information permanently whereas the infomediary answer directly to more specific needs (and often more in form of informal information (show, conference...)). He propagates, he has a good knowledge of the local area network, guide more of his answers and posses a central position by collecting signals coming from all the affiliated organisation, by gathering them and by exploiting them ".¹⁰

If we compare the roles of the infomediary (discussed above) and those of the watcher clarified in table 1, we can notice several similarities.

⁸The ability is a natural device or asset inducing a behavior. *Euroréférentiel I&D, ADBS Editions*

⁹ Testimony of an infomediary in a logistic sector . April 2003

¹⁰Testimony of an infomediary in the metal works sector June 2004

In this study, our objective is to question what an infomediary participant could bring to improve the implementation of the EI process. In the following part, we will reconsider the EI process by clarifying the roles and skills of this participant. In the first instant, we will compare the phases of the EI process. We will also compare the participants of the process.

4. Prospects on the idea for an additional participant in the process: the infomediary

Our study of the participants in the EI process leads us to think that certain functions relating to EI should not be part of the watcher's responsibilities because of the time that he devotes to the effective management of his work defined above. Thus, we imagine a new participant whom, for the moment, we shall call the "infomediary". He would be a kind of **pivot**, playing the role of **passer-on** of information. We would consider him to be an important go-between amongst the various participants in the EI process. In particular, he would construct links between the various phases of the process and ensure smooth transitions across them. And in addition to his role of supervisor, he would be responsible for **energizing** his network.

To summarize, we would imagine him as :

- a **supervisor** and a **controller** "overseeing the correct execution of the tasks and checking that they lead to the expected result" (cf [Lesca 03]).
- ensuring **the coherence** of the EI process in order to make it optimal.
- **animating** human resources by instigating the exchanges between the various participants in the process.
- **coordinating** the actions carried out via the EI process of which the goal is *"to make converge the efforts of the members of the organization, to carry out an integration of their individual effectiveness "*(cf [Lesca 03]).

Hence, it would be essential for the infomediary to have a **global vision** of things and a thoroughgoing knowledge of the EI process, **because if there is a fault in the process, he has to know on which level it has occurred, who is responsible and how to remedy it.** Moreover, he must be able to guide all the participants in their work, with the assistance, for example of advice and recommendations (in the form of rules, methods and techniques) [Lesca 03].

In addition to his role as **coordinator**, we would imagine him as a kind of an **organizer** who would propose EI actions such as communications, network animating, awareness raising,

etc... We find here the concepts of training and of **pedagogy** as met above in the French literature and practically in DECI LOR™ as "**teacher** " and trainer.

We think, then, that the term infomediary has a double connotation. On the one hand the concept of intermediary between the world of information and the decision maker. On the other, the intermediary as **mediator** between each participant in the EI process. He would “fluidify” and direct each phase like the conductor of an orchestra.

Following these observations, we would attribute to him, in addition to those referred to above, the following aptitudes,: have **managerial and organizational** sense, have the capacity to motivate others, be a good listener, be rigorous and be a good **communicator**.

Our process can be represented as follow:

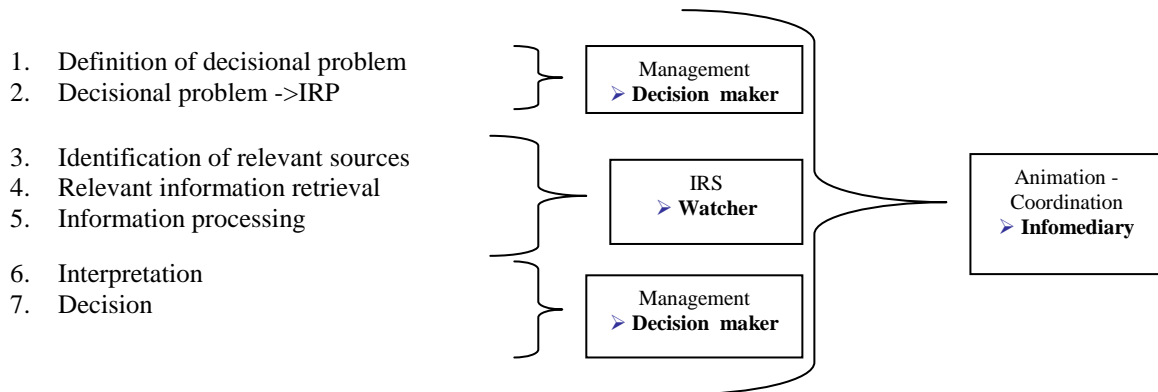


Figure1 : the EI process

This diagram shows that the infomediary would supervise all stages of the EI process.

So he would have:

- To know the decision maker (his individual characteristics and his environment) and have a complete grasp of his decisional problem
- To know the watcher: his skills and his knowledge
- To be perfectly familiar with all the levels of the information chain (Source identification, information retrieval and treatment).

Conclusion

Our work consisted in the analysis of the roles and skills of the participants in the implementation of the EI process, in order to understand if on the one hand each stage is carried out effectively by actors having suitable skills and on the other hand, if there could be any deficiencies in term(s) of skill(s) or of role(s) in the process. The second part of this paper will make it possible to supplement our first observations on the roles and skills of the infomediary by proposing a point of view based on his place within the framework of a transition from a function dedicated to Documentation to a function dedicated to the Economic Intelligence within a company.

Part II: EI process and information retrieval problems

Introduction

This part is on IRP (Information Retrieval Problem) which is a major problem information acquisition experts have. Thus, a person charged with solving an IRP need to have the best understanding of the IRP and be able to identify the subject's future works. In fact, each of them in resolving an IRP shares a set of competencies with the others and have some specialities linked with his own particular approach. In this part, we propose to ask ourselves about the similarities and differences which exist at this level between a documentalist and an Economic Intelligence worker, to show a possible transition from a documentalist work to Economic Intelligence work. In addition, this transition perspective enables us to envisage a complementary definition of what is an infomediary work with what we say before in the earlier part of this paper.

1. Understanding an information retrieval request

First, we do not use the usual denomination in referencing Economic Intelligence (EI) process participants; we hope this will help us overcome the ambiguities linked to their usual functions. Thus, we only referred them in terms of the two principal roles they play, ie: Person who Expose the IRP's (PEI) role and Person Charged with Solving the IRP's (PCS) role. We are considering only these two actors in order to have an easier understanding of the complex relations which exist between them in the EI process.

Consider a situation with two persons, where one must expose a particular need to the other, this relation must be translated by a knowledge transfer between these two persons. Then, we can suppose the existence of some similar elements in this kind of situation (i.e. exposing an

IRP) for all PCS and PEI concerned. For example, the PCS can be supposed to have learnt through education and by experience a set of methods which help him improve this knowledge transfer. Afterwards, we modified the classical communication model and use this to explicit some problem expressions between PEI and PCS to obtain the figure 2:

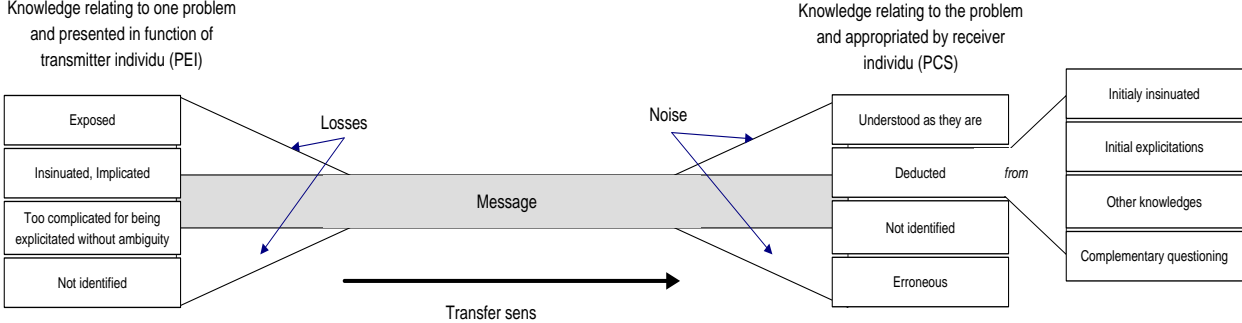


Fig. 2 Knowledge transfer in case of IRP expression

With this figure, we see that:

- PEI individu does not necessarily have all the knowledge relating to the problem solving;
- All what PEI knows about problem is not necessarily exposed to PCS;
- PCS can not understand all, or have an understanding of another problem.

If we consider an IRP expression from one individual to another; the first objective of this action is to optimise the IRP interpretation by PCS. We should obtain an adequate and usable knowledge transfer to resolve the IRP. (i.e., for one IRP expression, we should have statement of a dialogue between PCS and PEI. It is from dialogue mastery with the PEI that we can find, for the PCS, the essential background which can orientate to the Documentation universe to EI universe.

2. IRP understanding

If we suppose that the IRP was rigorously formulated, it can be almost be solved as a mathematical problem. We can thus refer to the IRP problem solving methodology which was proposed by George Polya (cf. [Polya 89], p 39:

Where do you start from? I repeat, from the problem statement. (...)
What can I do? Identify the distinctive feathers of your problem (...). If this is a problem to be solved, these feathers include the unknown, data and conditions. On the one hand, see how the various items are connected and how the unknown is linked to the data, in order to obtain

a glimpse of solution. On the other hand, see links which exist between each data and the problem itself.

Thus, to give a good response to a problem, we must understand its expression as much as possible, as shown in figure 2. Unfortunately, problem understanding does not only depend on the two actors' goodwill, but also on their point of view of problem. Also, there is the problem of interpretation of terms. Yvan Elissalde ([Eliss 00], p 163) presents interpretation in a tripartite structure:

All interpretation supposes apparently, three different things: the interpret, that which is interpreted and the person to whom it is interpreted. Interpretation is always the interpretation of anything by anyone for one other person. It is three times relative: to interpret, to that which is interpreted and the recipient.

Also, a good PCS must realize this three times relativity of interpretation when he tries to solve an IRP. The PCS must also compare his interpretation of the problem to the PEI interpretation of the same problem. For that, PCS must make use of "landmarks" to help show what is his interpretation of the problem to the PEI.

Then, the PCS must not forget that his representation of the problem is not the problem itself. Only then, with an elaborated dialogue with PEI, could the PCS compare the two problems different points of view. Thus, a PCS does not only obtain an interpretation of the PEI understanding, but a validation of his new IRP interpretation in relation with IRP representation chosen. In fact, as Denys Apothéloz et. al said ([Apoth 84], p 80-81):

A point of view contrary to a knowledge universe does not exist before a discourse; it is constructed by the discourse.

Also, a PCS, before anything else, must have the communication qualities to solve an IRP. Like in the previous chapter, we have shown the importance of the dialogue qualities which each PCS must develop with all PEI.

3. Helping in the explication of needs

Like G. Polya said, problem solving is firstly a good understanding of its expression. Also, it is only when problem has been expressed that it exists for the PCS. We must therefore study this IRP expression and its relation to PCS. In fact, we can suppose that an IRP is identified only when it was expressed. If it was exposed, it is because there is an establishment of

dialogue between two persons for whom the language initiating act is the IRP exposed. The two inherent invariant about an IRP are the two persons who are in relation to resolve it. That can justify our choice to limit the process from Documentation to EI understanding to persons: PEI and PCS. In fact, a good PCS could give a response to an IRP request in function of IRP expression but must be with a PEI profiling.

By this approach axed on language, we continue our study. When the IRP statement is defined, we must interpret and understand them correctly. Then, this set of terms must be studied at the level of their composition. Also, we can suppose reasonably that every PEI wants to resolve his IRP and every PCS, being an IRP solving professional would want this too. Then, we think that it will only be reasonable that these two actors collaborate in this direction. That made us assume that the *cooperative principle* of H. P. Grice ([Grice 89], p26-27) applies very well to this situation. This *cooperative principle* is divided into four categories called maxims:

- ***Maxim of Quantity:***

- 1 *Make your contribution as informative as is required (for the current purpose(s) of the exchange).*
- 2 *Do not make your contribution more informative than is required. (...)*

- ***Maxim of Quality:***

- 1 *Do not say what you believe to be false.*
- 2 *Do not say that for which you lack adequate evidence. (...)*

- ***Maxim of Relation:***

- 1 *Be relevant. (...)*

- ***Maxim of Manner:***

- 1 *Avoid obscurity of expression.*
- 2 *Avoid ambiguity.*
- 3 *Be brief (avoid unnecessary prolixity)*
- 4 *Be orderly. (...)*

In concluding this chapter we can assume, the PCS in his work, must master this principle, specifically develop other abilities to apply it, and also subtly help the PEI in its application too.

4. Self integration into decisional process

At the beginning of this part, we mentioned that we are interested in Information Retrieval process from Documentation process to Economic Intelligence process. In this, we will consider that a PCS should integrate himself to decisional process and translate this as a necessary function for his work, in a context targeting an EI finality. We will study this last function using two successive points. Firstly, we limit PCS to information supplier role. Secondly, we envisage a point of view more EI engaged with a PCS being considered as an element of the decisional process.

4.1 Contributing to decisional process

If we design two particular axes as in fig. 3; we can see certain distinctions between various PCS. Thus, EI approach is usually characterised as the art of supplying good information, at the right time, to the right person. This information must be usable to the decisional process because an IRP is an information request in relation with one specific need expression by the decision maker. This is why the definition of two axes: “*information requested*” and “*information helping the decisional process*”, can be sufficient to distinguish the different orientations between Documentation work and EI work. In fact, the essential goal of a documentary approach is to satisfy an information need. While an EI approach must supply usable information for the decisional process. Consequently, the EI approaches try to anticipate information requests for potential PEI needs. The fig 3. schematizes transformation from Documentary approach to EI approach which involves a voluntary act to make a 90° rotation in the manner a PCS considers his job. Difference between Documentation approach and Watch or EI approach can then be considered as depending on the interest accorded or not to the differentiation of the information from B and C sectors. But, for any information from B and C sectors, the PCS’s approach to questioning is the same. Only, the orientation of questions can then be extended or not to the usability of documents to be supplied.

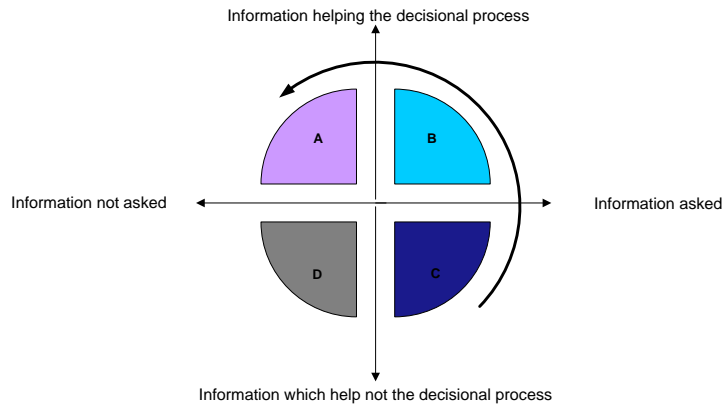


Fig 3. Transformation from Documentation approach to EI approach

Usually, a lot of people consider EI and watch approach as equivalent from information supply point of view. But, with a schema like in the fig. 3, we can distinguish them now with the difference which exists between information linked to A and B sectors. Thus, a watch approach can be characterized by a voluntary limiting of an information flow supply to that which is usable in decision making, without trying to anticipate information decisional needs. While an EI approach completes an information supply of the Watch type, at the same time gathering information that anticipates an information request and that can eventually start a decisional process no envisaged by decision maker.

Force of reflection and proposition in decisional process

If we consider again the fig. 3 and associating to each of its three specific jobs (Documentation, Watch, Economic Intelligence) a particular quality (hearing, dialoguing, proposition force), we obtain fig. 4:

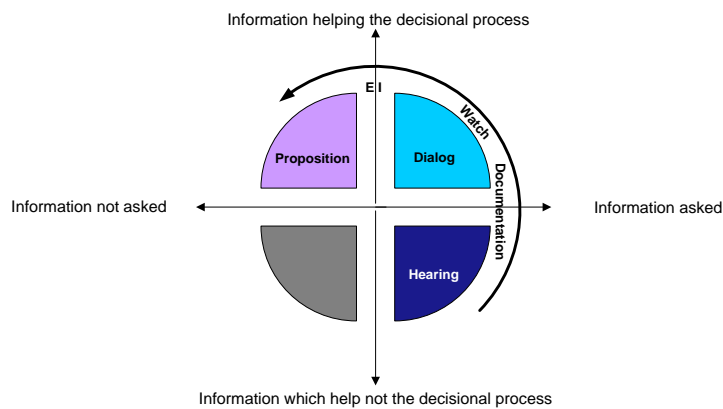


Fig 4. Three qualities: Hearing, Dialogue and Proposition Force, for the three information jobs

This last figure allows us to put in perspective some functions of EI, where the arrow shows the potentiality to translate from a Documentation approach to EI approach. It shows too that a PCS charged with an EI does not forget his Documentation and Watch competences (which we have seen), that can confirm a lot of our earlier conclusions. This can permit us to suppose two things for the decisional process. Firstly, the installation of an EI approach in an organisation can follow two paths: an installation from a Documentation approach as presented with fig. 3; or a complete installation available for use where Documentation and Watch functions are components created. Secondly, the gradual integration of an EI approach into an organisation can permit a PCS to participate totally in decisional process where he could progressively start from an audition attitude that ends in a discussion phase and finally can make propositions. However, if a PCS can never participate directly to decisional process, he can just ask questions, after which he can imagine the stakes, risks and threats to the company and interpreted like that by company's decision-maker. But, for a better anticipation of the decision-maker need, we think it is reasonable to consider an occasional PCS integration into the decisional process. In addition, like a proposition force integrated into decisional process, a PCS could then define more speedily adapted actions and products to his competences and company needs. Thus, these two perspectives from a point of view, on the first part on the infomediary, can help us envisage in particular its definition in two different manners:

- In a complete installation available, the infomediary will be in charged to audit the need, to provide a more adequate device, to monitor and to evaluate this with time.
- In a gradual integration of a complete device, from a documentation department, we can qualify an infomediary, not with the function which will evolve the documentalist to an EI specialist with time, but the person who must realize this transition.

Conclusion

Every IRP is not identified with in same manner, if it is understood in a Documentation, Watch or EI context. However, some process which help in its resolution are common to three contexts. Thus, for every case, the goal is to obtain an explicit expression information need, with help of an establishment dialogue between information asker and the person in charge of its resolution. However, like we have already argued in the first part, before the information management for a company was the documentation department work, nowadays, after a lot of EI sensibilisation actions (see Carayon [Caray 03] report for exemple), company understand more and more the strategic information dimension and have begun to understand information

in relation with the EI context. Also, we showed in this second part that some documentalists' competences (potentially already in company) could simply, by a simple different orientation of their work, transform themselves into watchers or other EI workers. For this, we must axe their questioning methods to a more complementary information collect (compared to their earlier collect for documentation work) linked, in particular, to the requester (about his request, himself, his work environment, information types which could help him to take a decision, ...). In addition, and this in relation with the works realized earlier, we have shown three other differentiatrice qualities of documentalist, watcher, infomediary and EI specialist : *Hearing, Dialoguing and Proposition Force*.

General conclusion and perspectives

We studied the Economic Intelligence process, in particular relation with infomediary job. Then, we have identified the functions linked to each actor of this process and add a definition for infomediary work. In this regard, we will continue our researches with the addition of other experiences and testimonies, to elaborate a formalized referential canning aptitudes, functions and skills of the infomediary job. In addition, we would have to consider the skills necessary, for an information problem solving specialist (who can be identified as an infomediary too), will need to correctly solve his IRP, as well as his dialogue capacity for IRP explicitation. We saw too, that this dialogue capacity could, in particular, translate as the capacity to respect and to help his interlocutor respect the gricean maxims. But, it is trivial to say that a lot of other complementary aids can facilitate this transition from Documentation to EI, in particular, for solving IRP. Thus, model, method and tool elaboration like strategic information system is the most important in our preoccupations. For this, the SITE team develop different tools, like models: DMP (for the decision-maker modeling), WISP (for the watcher modelling) and MIRABEL¹¹ (for the IRP exposition explicitation).

Références

- [Afnet 03] Glossaire. [On line]. Available from Internet : http://www.afnet.fr/afnet/glossaire/thesaurus/get_glossaire_l?la_lettre=I, 2003.
- [Adbs 01] ADBS, référentiel des métiers - types des professionnels de l'information – documentation, éd. ADBS, 2001.
- [Apoth 84] Apothéloz, D. and al, Discours et raisonnement, Sémiologie du raisonnement, éditions Jean-Blaise Grize, Berne : P. Lang, 1984.

¹¹ Model for Information Retrieval query Annotations Based Expression Levels (cf. [Goria 04])

- [Belki 87] Belkin N.J. and al, Knowledge elicitation using discourse analysis. In International Journal of Man – Machine Studies, 1987, vol.27.
- [Berqu 03] Berquier – Ghérolde V., De l'infomédiaire au portail communautaire. [On Line]. Available from Internet : <http://asmp.fr>, 2003.
- [Bouak 04] Bouaka, N. and David, A., A proposal of a decision-maker problem for a better understanding of information needs, ICTTA'04, 2004.
- [Caray 03] Carayon, B., Intelligence Economique, collectivité et cohésion sociale, Paris, La Documentation française, 2003.
- [David 01] David, A. and Thiery, O., Prise en compte du profil utilisateur dans un système d'information stratégique, VSST Veille Stratégique et Technologique 2001.
- [Eliss 00] Elissalde, Y., La critique de l'interprétation, Paris Librairie Philosophique, J. Vrin, 2000.
- [Goria 04] Goria, S. and al, Attempt on the elaboration of good expression principles for information retrieval problem, SCI 2004.
- [Grice 89] Grice, H.P., Studies in the way of words, Cambridge : MA, Harvard University Press, 1989.
- [Kisli 03] Kislin, P. and David, A., De la caractérisation de l'espace-problème décisionnel à l'élaboration des éléments de solution de recherche d'information dans un contexte d'Intelligence Economique : le modèle WISP, IERA 2003.
- [Knauf 04] Knauf A. and David A., The role of the infomediary in an economic intelligence process, SCI 2004.
- [Kocer 02] Kocergin S., « Le guichet unique » : son rôle dans la structuration du media Internet, colloque 2001 Bogues, globalisme et pluralisme.
- [Lesca 03] Lesca H. and Kriaa S., Veille stratégique, exploration de la fonction d'Animation : conceptualisation, état d'avancement et perspective de validation empirique, 3èmes Journées Internationales de la Recherche en Sciences de Gestion, Gammarth, 2003.
- [Montc 03] Montculier C., Comprendre le rôle de l'infomédiaire. [On Line]. Available from Internet : <http://www.01net.com/article/136665.html>, 2003.
- [Nabar 02] Nabarette H. and Beaumelle D., Les infomédiaires, de nouveaux intermédiaires sur l'Internet. [On Line]. Available from Internet : http://www.medcost.fr/html/internet_medical_si/si_051099c.htm, 2002.

- [Neie 02] Neie P. and al, Infomediaries in the Internet era : subscription agents as intermediaries and aggregators in the electronic publishing world – agents of change and tradition. In *The Serials librarian*, 2002, vol.42, n°1-2.
- [Polya 89] Polya, G., *Comment poser et résoudre un problème*, éditions Jacques Gabay, 1989.
- [Robin 00] Robins D., Shifts of focus on various aspects of user information problems during interactive information retrieval. In *Journal of the American Society for Information Science*, 2002, vol.51, n°10.
- [Simie 02] Simier P. and Thiery O. and David A., *L'Intelligence Economique et l'utilisateur - acteur au centre du processus de management*, 2002.
- [Zwick 02] Zwick, J.C., *Qu'Internet peut-il réellement apporter aux entreprises : un nouveau métier : l'infomédiaire*. [On line]. Available from Internet : <http://www.catalyznet.com/fr/presse/refagefi10-99.htm#artt>, 2002.