Environment, Human, Problems, Needs & Information!

How dose arrange this puzzle?
What is the information gathering (IG)?

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Abstract:

The environment is a field that interaction between world elements was occurred on it. The environment produces some information, and affects other elements that exist on that field. This interaction can be defined as processes. At the other hand, the human factor as an element, produce some information and take other. At this process the human factor may be passive or active. This processes and the way of information gathering were explained at this paper.

Introduction:

Human as a living organism is one of the complex environment elements. Such environment has other elements than human, that each of them is information potentially. Each of elements has his complexity and radiates information that can affect others. Also information has informative component, but sometimes overflowing of it can lead to a gap. Occurring a gap for each organisms, have same massages, that is, organisms or part of its encounter with a new situation that needs for new tools (information) or existing information dose not enough for solving of the problem. So, the gap should be removed and solving the problem is

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vital for the organisms to can return to the normal situation. At the other hand, sometimes lack of the information can lead to same problem, that is, new experiences were need for solving the problem. Problem is that keep one at distance of ideal (stressing or uncertainty) situation, but need is that satisfying of it can bring near to ideal situation.

T. D. Wilson (1994) maps this process such as below charts:
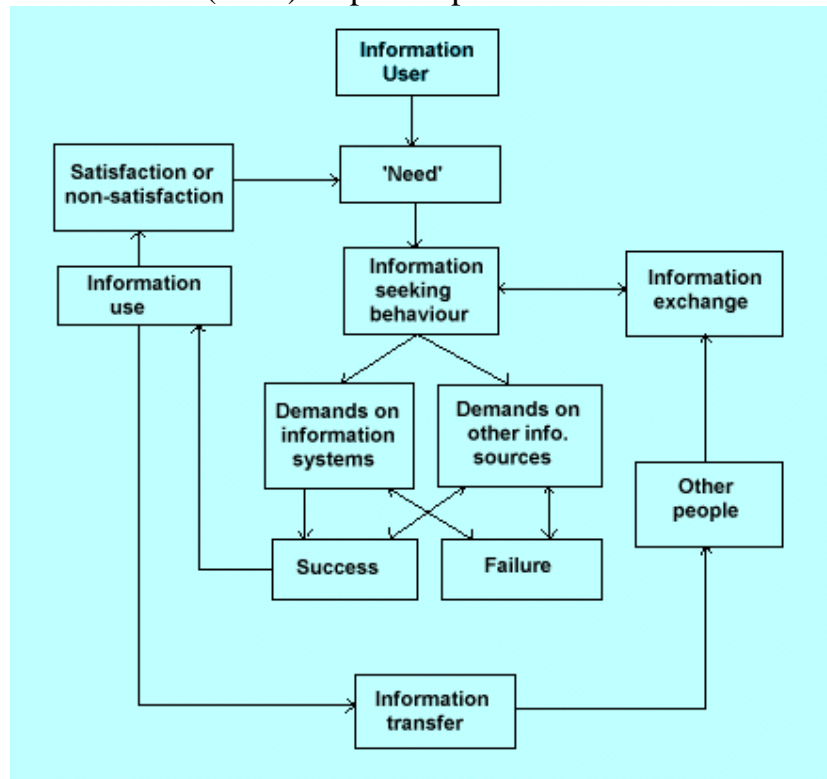
What is information?

But what is Information? Information is that accessing to it and/or using of it can lead to bridging of gap or solving the problem. Such that interaction of human with his environment (internal or external) lead to the problems and needs; finally this process can lead (or doesn't lead) to the Information after the seeking activity. These processes were complete with other activities, known "Information Gathering".

Because this continuous process is part of the life, then it is important that all of the environment entities involve with these components. All entities radiate information to each other, and all of them receive others rays in an interaction situations. But sometimes occurring these processes are very speed, so that we resolve numerous of problems immediately. By sensing a problem, we define the needs very soon (scope

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and range we can show the flow of the human interaction with their environment, which leads to a problem such as below (Fig1.) :
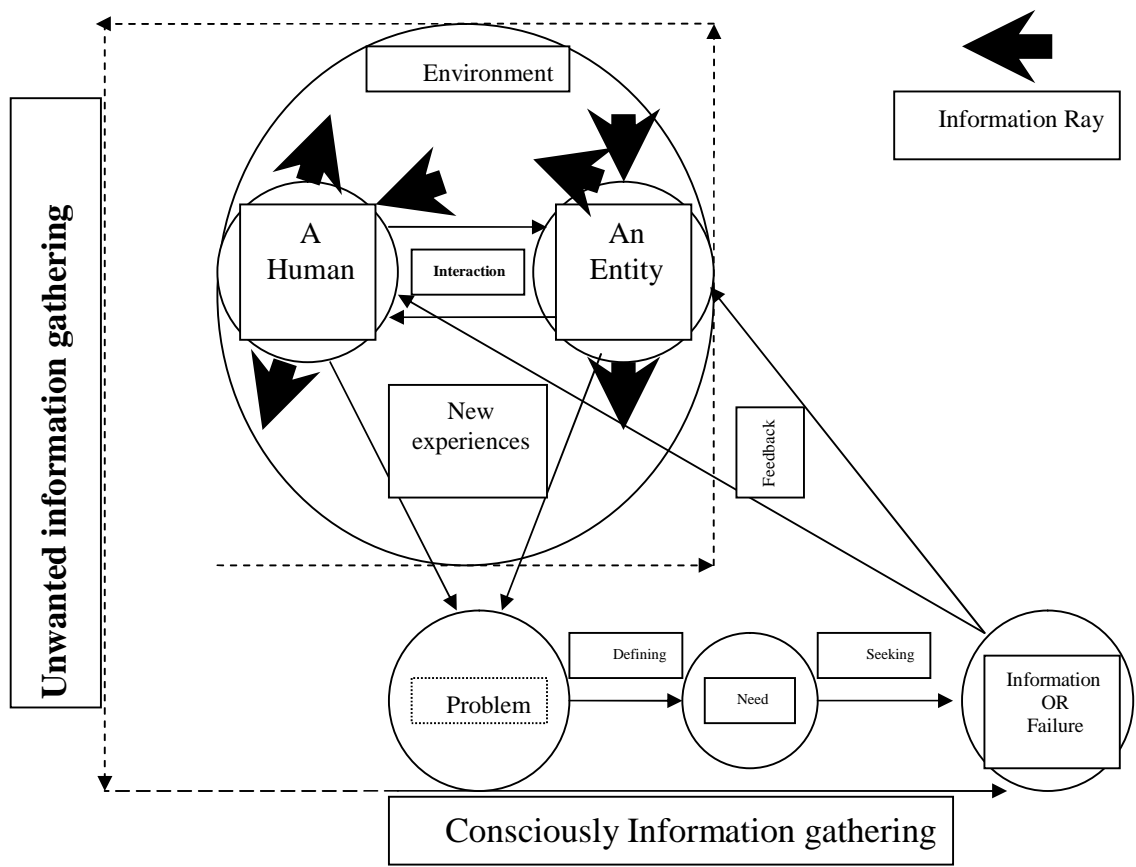

Fig1. Interaction a Human with an entity

Lamb Indicates that data gathering may be lead to reduce of uncertainty, anxiety or increase the core knowledge. And by result the organization behavior may be rational decision making or environmental scanning; decision legitimating or displaying competency; and basic research. (Lamb, 1997)

Information gathering may be in a special environment such as an organization. Organization as an entity in the real world interacts with other organizations and entities. When a change occurs in a part of the environment or other homogenous entities in the world, the organization was impressed; called uncertainty or stress. For removing this situation it needs to get some information; but how? This information obtains by Environmental scanning tools.

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What is the Environmental Scanning:

"Environmental scanning refers to the exposure to and acquisition of "information about events and relationships in a company's outside environment, the knowledge of which would assist top-management in its task of charting the company's future course of action".(Correia,2000). Change factors may have internal or external origins.

On the other hand, Aguilar defined environmental scanning as: "…the activity of acquiring information… about a company's outside environment, the knowledge of which would assist management in its task of charting the company's future course of action" .(Correia,2001).

Tounkara and Benhamou (2000) indicate that firm and its Environment can be considered as two distinct subsystems with a strong interaction. The equivalent weighting of interactions going from the Environment to the firm and vice-versa is a fundamental factor of stability. As below
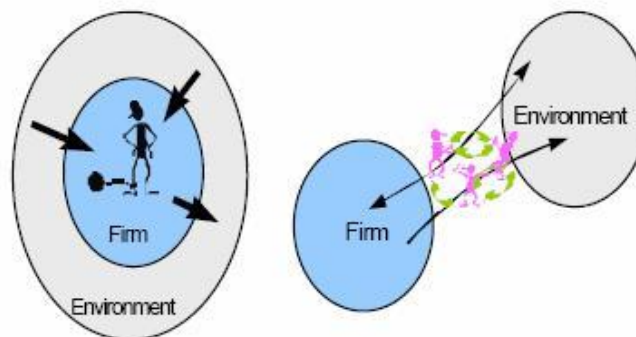
two aspects of interaction between a firm and its environment

Information gathering can perform by the scanning of the environment. If an answer for the need find by the information of external sources, the information gathering ways would be vary.

Wheras the problems origin may be Internal or External, also information origin may be suchlike.

Pavlides devides the spatial environments for an organization to Internal and External. And indicates that Before an organization can begin strategy formulation, it must scan the external environment to identify possible opportunities and threats and its internal environment for strengths and weakness. Information on the external environment can be obtained from a variety of resources, including:

- Industry periodicals and general news sources
- Analyst reports available on business databases
- Interviews with industry experts
- Annual reports of existing companies that disclose environmental factors in the Management Discussion & Analysis of risks and assumptions.

The external environment includes:

a. The <u>societal</u> forces that do not directly touch on the short-run activities of the organization but that can, and often do, influence its long-run decisions.

b. The task (industry) environment includes those elements or groups that directly affect the corporation and in turn are affected by it.

- Societal Environment forces are categorized as follows:

  v Economic: At the macro- and micro- levels, what is the economic environment that will impact your customers and your suppliers? What factors in the economic environment will directly impact your costs and revenue potential?

  v Technological: What old technologies are being used? What new technologies are emerging? Do they help you pursue your business goals, or do they compete with your product or service?

  v Political-Legal: Will you face any restrictive regulations, or a political-legal environment that offers benefits?

  v Sociocultural: What demographic and social trends affect your main customer base or related markets? Will they cause the market to expand or shrink? Are attitudes shifting in favor of your product? Are they shifting against a competitor?

The Internal environment is that managers must look within the corporation itself to identify internal strategic factors: those critical strengths and weakness that are likely to determine if the firm will be able to take advantage of opportunities while avoiding the threats. Five steps, resources-based approach to strategy analysis:

♦ Identify and classify the firm's resources in term of strengths and weakness
♦ Combine the firm's strengths into specific capabilities
♦ Appraise the profit potential of these resources and competencies in terms of their potential for sustainable competitive advantage and the abilities to harvest the profit resulting from the use of these resources and capabilities
♦ Select the strategy that best exploits the firms resources and competencies relative to external opportunities
♦ Identify resource gap and invest in upgrading weakness.

Choo, (1998) indicates that scanning is not a monolithic activity. Environmental scanning includes both *looking at* information (viewing) and *looking for* information (searching). Then he provides the Modes of Environmental Scanning as below:

• Undirected viewing
• Conditioned viewing
• Informal search
• Formal search (Choo, 1998).

In **undirected viewing,** the individual is exposed to information with no specific informational need in mind. The goal is to scan broadly in order to detect signals of change early. Many and varied sources of information are used, and large amounts of information are screened. The granularity of information is coarse, but large chunks of information are quickly dropped from attention. As a result of undirected viewing, the individual becomes sensitive to selected areas or issues.

By explain the choo's approach; undirected viewing may be doing in lifelong activities. In the other hand, we placed in the target of other things (entities) informational rays. Human sense is the best tool for such scanning. In this type of scanning human is passive.

In **conditioned viewing,** the individual directs viewing to information about selected topics or to certain types of information.

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The goal is to evaluate the significance of the information encountered in order to assess the general nature of the impact on the organization. The individual wishes to do this assessment in a cost-effective manner, without having to dedicate substantial time and effort in a formal search. If the impact is assessed to be sufficiently significant, the scanning mode changes from scanning to searching.

There, user is active and can select type of information for eliminating of his need. Then he can to select and examine some ways lead to best results. In this type of scanning human may be semi-active.

During **informal search,** the individual actively looks for information to deepen the knowledge and understanding of a specific issue. It is informal in that it involves a relatively limited and unstructured effort. The goal is to gather information to elaborate an issue so as to determine the need for action by the organization. If a need for a decision or response is perceived, the individual dedicates more time and resources to the search.

During **formal search,** the individual makes a deliberate or planned effort to obtain specific information or information about a specific issue. Search is formal because it is structured according to some pre-established procedure or methodology. The granularity of information is fine, as search is relatively focused to find detailed information. The goal is to systematically retrieve information relevant to an issue in order to provide a basis for developing a decision or course of action. Formal searches could be a part of for example, competitor intelligence gathering, patents searching, market analysis, or issues management. Formal searches prefer information from sources that are perceived to be knowledgeable, or from information services that make efforts to ensure data quality and accuracy. The choo's four modes of scanning are compared in Fig. 2.

Scanning Modes	Information Need	Information Use	Amount of Targeted Effort	Number of Sources	Tactics
Undirected Viewing	General areas of interest; specific need to be revealed	Serendipitous discovery "Sensing"	Minimal	Many	- Scan broadly a diversity of sources, taking advantage of what's easily accessible - "Touring"
Conditioned Viewing	Able to recognize topics of interest	Increase understanding "Sense making"	Low	Few	- Browse in pre-selected sources on pre-specified topics of interest - "Tracking"
Informal Search	Able to formulate queries	Increase knowledge within narrow limits "Learning"	Medium	Few	- Search is focused on an issue or event, but a good-enough search is satisfactory - "Satisfying"
Formal Search	Able to specify targets	Formal use of information for planning, acting "Deciding"	High	Many	- Systematic gathering of information on a target, following some method or procedure - "Retrieving"

Choo indicate that In order to be effective, environmental scanning needs to engage all four modes of viewing and searching. **Undirected viewing** helps the organization to scan broadly and develop peripheral vision so that it can see and think "outside the box." **Conditioned viewing** tracks trends and gives the organization early warning about emerging issues. **Informal search** draws a profile of an issue or development, allowing the organization to identify its main features and assess its potential impact. **Formal search** systematically gathers all relevant information about an issue to enable intelligent decision making.

Figure 3 shows how the four modes of scanning are supported by a continuum of online information gathering and communication methods that range from: (Choo, 1998).

- Information characterized by novelty and variety to information characterized by accuracy and focus;
- Secondary sources to primary sources;
- Many-to-many communications (newsgroups, mailing lists) to one-to-one communications (e-mail, telephone, face-to-face meeting);
- The chaotic, informal World Wide Web to the structured, formal online databases.
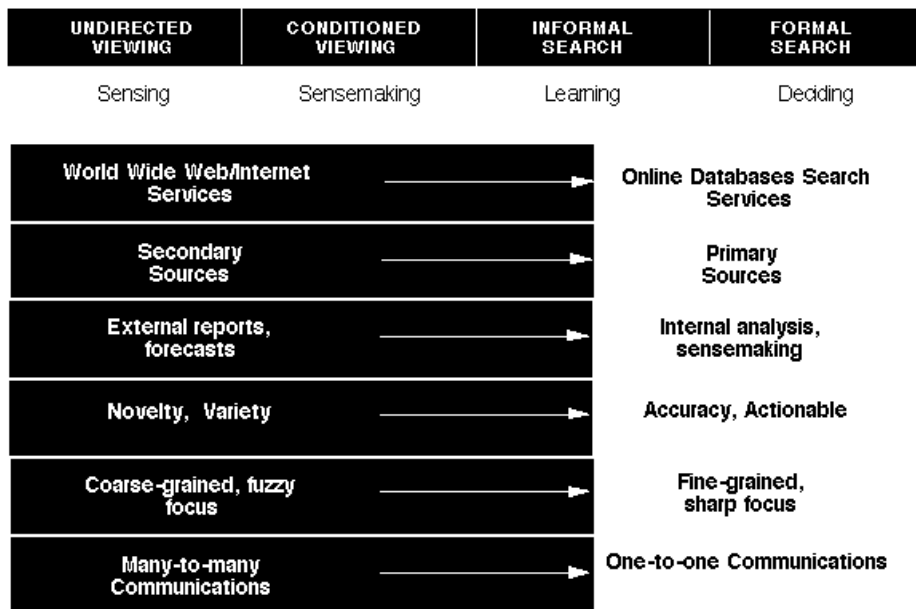

Figure 3. Modes of Scanning (2)
(Adapted from Choo 1998)

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Formal search [choo] can suppose equal with Deliberate Information Gathering (DIG) wraps up our series on information collection that supports safety intervention decision making. DIG is an information collection idea and framework that Todd Holder, MSW, came up with a few years back. It's a practical, straightforward way of thinking about and using interpersonal techniques and skills which can enhance your involvement and interaction with caregivers. And…using the DIG approach can result in more and better information for making better safety decisions.

Some **Core Techniques for Deliberate Information Gathering provided by** Ivey, A. (1994), Holder, W. (1997), Miller and Rollnick, (1991), Holder, T. (2000) are: (**Deliberate Information Gathering)**

∨ Attending Behavior

Attending behavior refers to focusing your attention on the caregiver rather than your agenda or your line of questioning. Attending behavior involves "matching" a caregiver's nonverbal behavior by consciously manipulating and controlling your own non-verbal skills and responses. Primary attending behaviors include: eye contact, facial expressions, body language, posturing and gesturing, following, reflecting and vocal qualities—tone and pace.

∨ Open Questions

Typically you want to attempt to begin each new line of questioning and/or transition in topic with an open-ended question. Open questions help to remove you from responsibility for "carrying" the interview by establishing a conversational quality to the interaction. Open questions are questions that cannot be answered "yes" or "no" or in just a few words. Open questions require the caregiver to elaborate with a wider range of responses. Open questions are the "what" and "how" kind of questions.

∨ Closed Questions

Closed questions should be used to restrict or narrow the focus of a caregiver's response. Closed questions should be used purposefully when precise detail and greater clarity is needed from the caregiver. As an exception, closed questions may be used more frequently when there are time constraints or when you are interviewing a caregiver who is very concrete or is not very verbal.

∨ Paraphrasing

The primary intent of paraphrasing, as used during a CPS investigation/assessment, is to facilitate the clarification of statements, issues and concerns. Paraphrasing may involve you selecting and using a caregiver's own key words. This enables you to better judge whether what you heard from a caregiver was in fact accurate. Beyond your reuse

of a caregiver's key words, it is important to note that paraphrasing is not simply stating back a caregiver's comments verbatim. Paraphrasing involves you formulating the essential message that the caregiver is conveying and then stating that message back to the caregiver in your own words. When using this technique, you want to make sure that you always check out the accuracy of your statement by concluding the paraphrase with a simple question such as, "Is that correct?" "Does that sound accurate?"

∨ Encouraging

This technique serves to keep people talking about a particular topic, issue or concern. Encouraging may be as simple as using a slight verbal prompt, such as "uh-huh," "I see," "go on," "then what?" Encouraging may also involve using precisely chosen key words or key phrases stated by the caregiver in order to get a caregiver to elaborate further (i.e., "Angry?" "Not the first time?" "Always happens?" "You screwed up?")

∨ Conversational Looping

Conversational looping is a skill for gathering information that first involves you identifying some key general topic or area for discussion with a caregiver (e.g., approach to parenting, problem solving, dealing with stress, etc.). Once you have identified a topic of discussion, you begin the conversation with a broad, non-threatening open question. As the conversation progresses related to an identified topic, you continue with a line of questioning (primarily open- ended) based on previous caregiver responses that progressively moves the discussion toward a more specific and intimate inquiry. A key to effective conversational looping is the ability of the interviewer to maintain a caregiver's focus on a particularly topic which will then enable the interviewer to gather more detailed information from the caregiver about the issue, concern or topic of inquiry.

David Locke (2003) provides a n information gathering template in a "Ps" framework. These "Ps" exist in our environment and can help me in IG process. As:

People

The most valuable connections are to people. Here I think of domain experts, authors, writers, opinion makers, consultants, brokers, analysts, scholars, maverns, connectors, gatekeepers. These people 'in the know', have extensive social capital, large personal networks, domain cache and reputations. They are often the first to be informed of new developments, they know the context and the history, they can serve as quick filters and they know the questions to ask. Build your people network first.

Places

Where to go, where like-minded folks gather. This could be professional associations, clubs, web pages, listservs, web conferences or blog rings. If you know some thought leaders and can 'hang' in the most advantageous places you are already 60% of the way there. What is now needed is to acquire some domain terminology - know their language and key concepts.

Problems

Understanding and empathy for the key issues and concerns helps you ask interesting questions, gains attention and shows you have done your homework. If you need to gather participation, facilitate conversations, appreciate social groupings or arrange things, a neat list of the current and emergent issues will provide a clear and engaging structure.

Promises

Get a grasp of the benefits, the particular advantages, the rationale and the expected spin-offs. Clarification here helps to appreciate the drivers, what is in it for the players and enables you to position and place your attention to gain cooperation and improve collaboration.

Principles

Drilling down to the core assumptions, the 'rules' and guiding logic helps to see where disparate parts fit. Getting participants to explicate the domain principles quickly raises the level of discourse, surfaces area where there is uncertainty, strong disagreement, divergent beliefs and practices. Talking principles is an easy way around quagmires associated with standards, pet frameworks and personal models.

Patterns

Collecting proven solutions to common recurrent problems is a powerful way to gather and sift community expertise and experience. Helping the participants describe the forces at play, sift and test for optimal solutions that work, having a bounded specified context within which the pattern operates, helps structure domain knowledge. Expanding patterns into a connected pattern language, lifts discourse to new levels, enables the location of gaps and allows the community to talk effectively at high levels of abstraction.

Products

An appreciation of the market, the products and services available gives an immediate feel for the domain needs. It is always useful to classify the tools, services and organizations active within the domain.

Others divide information gathering in two parts as: [3]

ü Direct probe: (e.g., questionnaires, interviews, in-person observation) Some of the direct probe are:

Interviews

- a planned, formal, scheduled meeting. (make an appointment)
- used to gather information.
- interactive, flexible, adaptable, flexible.
- time consuming; non-standardized responses may be difficult to evaluate.
- The interviewer should have basic objectives.
- Explain objectives to subject.
- Give subject time to prepare.
- Interview should be held in subject's own office or department.
- Interviewer comments should be noncommittal; neutral, non-leading questions.
- Avoid premature conclusions, selective perception.
- Be careful not to accept negative responses too readily.
- Beware of subjects who try too hard to please.
- Listen!!

Questionnaires

- impersonal, often mass-produced.
- response rate may be low (discarded and not returned).
- suitable when number of respondents is large.
- cheaper, faster than interviewing when number of respondents is large.
- useful when the same information is required from all respondents.
- produces specific, limited accounts of information.
- if the population is very large, it can be sampled.
- samples must be random, not convenient.
- same information can be sought in different ways through multiple questions.
- redundant questions can be compared for consistency of information/responses.
- standardized responses: fill-in-the-blank, multiple choice, rating scales, rankings.
- open-ended responses: more difficult to tabulate
- standardized responses can be tabulated rapidly and analyzed using statistical distribution techniques.

Observation

- a qualified person watches, or walks through, the actual processing associated with the system.
- performance of the people being observed may be affected by the presence of the observer.
- avoid taking notes: can affect the process performance if workers notice notes are being taken.
- information gathered relates directly to observed performance: facts, not opinion.

Reviewing Existing Documentation

- Often there is little to tell you what is happening within the current information system.
- Keeping documentation up to date is not always a high organizational priority. Documentation may be out of date.
- Many organizations have undocumented/informal procedures. (Formal organization chart vs. what is *really* happening)

The Work Environment

- Physical arrangement of work areas will provide additional details associated with work flows and job performance.
- Information gathered should describe the physical movement of documents, forms, people, or transmitted data within offices where work is done.
- One method is to depict the floor plan of the office and trace the work flow onto it.
- New systems may disrupt existing work flows.
- Human factors: personal realtionships may have developed around existing work flows.

    ù Indirect probe: (review existing documentation; taking random samples)

Information Sources:

The information may be gathered through the some cannels. One of these cannels is other people and things that the interaction each other lead to transferring information. Heterogeneous information that available through the networks, provide a new challenge for IG.

Growing number of information sources available through networks, the problem of how to combine distributed, heterogeneous information sources is becoming increasingly critical. The available sources include traditional databases, flat files, knowledge bases, programs, and so forth. (Ambite**,** 1997)

Byström and Järvelin (1995) classified the types of information sources as:

- *fact-oriented***:**
    - ○ registers (manual and computerised catalogues and files)
    - ○ commercial databases
- *problem-oriented***:**
    - ○ the people concerned (for example, people proposing, or affected by, administrative actions)
    - ○ official documents (for example, agendas, meeting minutes, letters, applications, memoranda, maps, unpublished planning documents)
- *general-purpose***:**
    - ○ experts (including knowledgeable colleagues)
    - ○ literature (for example, books, reports, journals, newspapers)
    - ○ personal collections (personal notes, calculations, etc.)

Conclusion:

Consequently, that information gathering is a continuously process and the problem, need, and user characteristic impressed it. The user's impetus can transforms this process nature from the passive to active one. At the passive sense, user rests at the exposure of information radiation of any things in the environment, that can motives the user, if they had some needs previously, and encourage him to follows information gathering process actively. All of the environment components are information potentially but only a part of it is reliable. This same confronting me with a new challenges and ways of information gathering. Moreover the problems nature, needs and user's characteristics can effect the information level and finally needs to special ways of information gathering.

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