Chapter 3

Facts-Gathering Techniques

A. Preliminary Fact-Gathering

1. Obtain copies of all input forms (both filled and blank), and all output reports. Study the current system documentation such as manuals and specifications of procedures, programs, data, and interface. Evaluate the accuracy of the documentation (the older, the less reliable)

2. Look at system run books to study system errors, official customer complaints, employee complaints, employee suggestion memos, and formal requests for system improvements.

3. In-person observation of the current procedures to see how the current system really works compared with the theoretical procedures detailed in the documentation. This process requires several activities:

- Obtain permission
- Plan the observation at normal situations and unusual situations
- Explain to the persons that we observe that we are evaluating the system performance, not their job performance. Solicit their opinions
- During observation, avoid interrupting or disturbing the activities in progress. Understand that our observation changes the environment conditions
- Participatory observation: the analyst actually tests the current system's performance

4. Inventory of existing hardware and software, examination of memos, and accounting records, study of trade journal read by end-users of the system.

B. Questionnaires

The systems analyst uses questionnaires when:

- There is a large number of people he wants to survey
- Respondents are scattered across a large geographical area

Questionnaires can be used alone or in conjunction with interviews.

Questionnaires collect simplistic answers and hence are not suitable to complex questioning.
People have the tendency of discarding the questionnaires. The analyst must make clear that it is in the best interest of the respondents to fill out the form. Otherwise the opinion sampling will be incomplete

Questionnaires must be self-explanatory, clear, and easy to respond to. The analyst is not usually there to clarify or help people answering the questionnaires.

Planning the Questionnaire

The systems analyst must decide what information he or she wants to obtain from the answers. The questions on the form must be directly aimed to gather the necessary information.

Layout and Appearance

- A letter of explanation must accompany the questionnaire.
- The questionnaire must be prepared carefully and designed professionally to elicit responses that are carefully thought out
- The length of the questionnaire must reflect the importance of the topic surveyed.
- Machine-readable format should be used to allow fast and accurate tabulation of results
- Grouping of questions is important and must allow easy understanding of the flow of questions.
- Questionnaires can be either signed or anonymous. Anonymous forms provide more truthful answers but signed forms allow the analyst to contact the source of information when needed.

Question Format

- Questions can be directed toward grasping facts or personal opinions. Facts can be checked for accuracy while opinions cannot.
- Closed questions are accompanied with pre-formulated answers. **Scaling** can be used to provide answer levels.
- Open questions allow respondent to respond by their own words and discuss the topic at length. Open questions can be difficult to evaluate and quantify.
- Use as much closed and limited open questions as possible.
- The comments area at the end of the questionnaire allows respondents to provide additional information.

Wording of the Questions

- Question wording must elicit accurate answer
- Avoid using jargon that the respondent does not understand and unstable words that have several different and ambiguous meanings, such as “often”, “usually”, ”generally”
- Avoid double-barreled questions, that is those in which several concepts are lumped together
- Use appropriate wording to help the respondent overcome memory lapse.
- Avoid biased or threatening wording, which would elicit untrue answers
- Use the same terminology as the one used by the organization
- Be careful about using terms like “always”, “never”. Instead use “almost always”, “almost never”.

Testing the Questionnaire

Before sending out the questionnaire, the systems analyst must test it on a small number of respondents to assess its quality. If needed he or she must revise the questionnaire.

Administering and Tabulating the Questionnaire

Administering:
The analyst must decide upon whom to survey, especially there is a quite large population in the organization. He or she must decide to use a **sampling** technique.

- Random sampling: every body is likely to be chosen
- Non-random sampling: target a specific audience that is better able to provide the needed information.
- The larger the sample, the more accurate the tabulated results and the lower the error margin

Several methods of administering:

- Questionnaires can be mailed. A stamped return-envelope should be included. This method has lowest response rate
- Pass out the questionnaires to people assembled in a room. This method has the highest rate of response
- The analyst can give the questionnaire to individual respondents and come back later to collect them or establish a drop box.

Tabulating:
A computer and specialized software must be used to tabulate and evaluate the answers. Open questions must be evaluated manually: A way is to find commonalities in the answers and total them.

C. Interviewing

Principles of Interviewing

- The user's involvement in the system's analysis and design is critical to the success of the project. The new concept is having the user play a role in the design of the system.
- To ensure the success of the data gathering, the systems analyst must gain trust and respect of the users he/she interviews.
- He/she must project an image of sincerity wanting to help the user solve his/her problems and make his/her job easier.
- The basic principles are:
    1. During the interview, never offer opinions, suggestions or promises
    2. Always behave professionally and remain in control of our emotions
    3. Acknowledge that each individual has his own unique personality and be flexible.
    4. Each business has its own internal politics with alliances, animosities and power struggles. The systems analyst must be aware of the politics but stay away from them.

Preparation for the Interview

- Have all the documentation ready. Interview time cannot be wasted.
- Get the approval of the supervisors and set a convenient time for the interview
- Reconfirm the interview.
- Define the objectives before the interview, concentrate on the important areas. Inform the interviewee of the questions asked.
- The interview should not exceed one hour.
- Remember that the interview is not an adversarial situation
- Ask the interviewee to keep a diary a week or several weeks before the interview to get verifiable facts.

The Start of the Interview

- The interview can be conducted in the client's workplace, the analyst's office, or a neutral area (each has advantages and disadvantages)
- The interview can be individual or group interview. (cf. IBM's Joint Application Development)
- To start the interview, the systems analyst introduces him/herself, explains the purpose of the interview, convince users that the system is theirs, and assure that request for confidentiality will be honored.

Question-and-Answer Period

- Suggestions regarding questionnaires format and wording are applicable to interviews
- Take notes but should not do so obtrusively. Maintain eye contact
- Record the interview and take notes at the same time
- Questions should be geared towards the duties and responsibilities of the client
- The first question should be formulated carefully. Following ones can be more specific
- Ask factual questions about the current system.
- Ask the client to evaluate the system and give recommendations
- Listen and ask probing questions to get the necessary information
- Observe non-verbal communication of the client
- Do not ask leading and pre-answering questions, do not interrupt the client
- Be sympathetic and non-judgmental
- Reschedule the interview if necessary. Do not waste time.

Interview Conclusion

- Ask if the client would like to add something
- Summarize the information gathered.

After the Interview

- Transcribe the interview immediately. You forget 50% of the conversation after 30 min
- Copy of the transcript with a thank-you note should be sent to the interviewee for verification
- Analyze the information: extract the real data from the biases