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Techniques

System Analysis & Design

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Fact Finding

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# Fact finding techniques

## What is fact finding?

Fact finding is the process by which data or information is gathered usually revolving around a particular technique which contains sampling of documents, research, observations, questionnaires, interview scripts and requirements planning.

A fact finding technique is usually used by a system analyst to develop and implement a solution to a problem that they’ve been asked to deal with. A fact is relevant information to a particular topic. Pure facts that have high relevance to the topic that is being dealt with is crucial in the analysis stage of the software development life cycle, because tools nor developers can be effectively utilized without properly extracting the core ideology from facts.

Not only is fact finding involved with analysis stages but also in design and post implementation reviews, but not as intensively as they are used in the analysis stage. Facts can be tested on their relevance and accuracy based on three main characteristics:

1. Data - facts that are used to produce useful information
2. Process - functions that will perform the necessary procedures to achieve objectives
3. Interface - designs to interact with users to find facts

# Common fact finding techniques

## Sampling existing system documentation

The best way to analyze the existing system is to collect facts from existing documentation rather than from human sources. There are various kinds of documents to collect facts from existing documents. These include:

* E-mails
* Customer complaints
* Suggestion box notes
* Reports that document problems
* Problem performance reviews
* Samples of completed manual forms
* Reports and samples of completed computerized forms

There are 2 commonly used sampling techniques namely **randomization** and the other being **stratification**. Randomization is the process by which you select sample data randomly. Stratification is the systematic process to deduce the variance in the sample data that is taken.

## Research through visiting sites

Research through visiting sites is the process of examining similar problems or the same problem which had been previously solved by other sources through human trial or pure documentation on the part of a company. To solve the problem, the analyst will attempt to visit other company websites to see if they’ve gone through similar problems and see how they came to a solution. By doing so the analyst can attempt to search for databases, books and case studies.

## Observation of the work environment where the problem exists

Observation is the simplest and the easiest fact finding technique, that requires nothing but your presence in the work environment. Through this technique, the analyst participates in the organization, studies the flow of documents, applies the existing system, and interacts with the users.

The key to success through this fact finding technique is to see everything through the eyes of the user than an expert of subject matter. This way problems experienced by the clients of a system can be directly observed. Also, through observation, it is possible to grade the problem whether if it’s trivial or something that must be dealt with as soon as possible by observing the impact the problem causes on the employees of a company.

## Questionnaires

Questionnaires are also one of the most useful fact-finding technique to collect information from not only users but also employees. But the greatest strength of questionnaires is also its greatest weakness. A questionnaire is biased on the user’s perspective, each user may have different levels of expectations and have different levels of knowledge backing their understanding so it might be difficult to come to a conclusion.

This issue manifests the greatest when questionnaires are used in companies with a large variance of sectors with people that have different knowledge bases. As such, questionnaires are recommended for audiences that cater towards one specific knowledge base, this way the bias and the level of expectation with bend towards just one particular path.

Questionnaires are highly effective in the initial stages of providing a solution from scratch than from creating a solution to a problem, this is because you can draw the outline of the expectations, requirements and the scope a user sees as a product.

There are two types of questionnaires:

1. Free-format: Users are allowed to answer questions freely; response is not mandatory. This is ideal for situations when you require reviews, feedback, opinions, possible improvements and experiences.
2. Fixed-format: A predefined format of questions is put, then each user has to answer the question. Response is mandatory as the questionnaire is structured. Multiple-choice questions, rating questions and ranking questions are usually used in this format. Ideal for situations where the analyst is trying to put together the expectations, requirements, scope and the outlined structure of a solution or system.

## Interviews

This is the most commonly used technique, because it is the easiest to catch the problem from the root of the cause. Interviewing are usually in the form of face-to-face, where you ask someone questions that will provide useful insight. This insight is gauged in order to understand, verify, clarify and perceive facts about something.

It is in the best interest for a system analyst to conduct interviews than have a second or third party do the interview for them, because during the interviews clues left upon by the gestures of the interviewee are very important. This is because, psychologically humans communicate 70% through gestures and body language. As such, if the analyst is present real time to see this part of the communication, the facts that are henceforth produced will be much more accurate.

However though, if the analyst is a poor communicator or if the interviewee is a poor communicator, the results from the interview will not be as perfect. Communication is key in the interviewing fact finding technique.

## Prototyping

Prototyping is a specialized fact finding technique that is used to collect the requirement part of the system or solution. Prototyping is process by which a small part of the working model of the existing system is sampled, and then observed, interacted with and then understood. This is also used in the design stages of the software development cycle.

Prototyping technique’s best can be extracted after a confident knowledge base has been found and fathomed. A several list of facts must have been already be found before using prototyping. This way you can use prototyping to gauge the accuracy of the facts that have been found previously.

# Compare & contrast

In this section similar fact finding techniques will be compared and contrasts will be drawn. I believe, there’s no point in comparing or contrasting unlike fact finding techniques because the end object of certain fact finding techniques are different in simpler terms, their purposes are different. So comparing prototyping with questionnaires seem pointless, a better comparison is prototyping with sampling.

The first sentence of each comparison/contrast will be a justification as to why I chose to compare or contrast them. To justify that they have similar end goals or purposes and as such are eligible to comparison and contrast.

## Prototyping vs Sampling existing documentation

Both fact finding techniques use the same core, they sample different things to understand.

1. Sampling is a fact finding technique that can be used in the earlier stages of analysis, prototyping must be used in the later stages.
2. Sampling is usually used to gather facts, prototyping is used to gauge the accuracy of facts that have already been found.
3. The facts found through sampling may be outdated, but prototyping provides accurate upto date facts based on a presently existing system.
4. Prototyping requires a certain level of knowledge and experience to perfrom, but sampling does not, it just needs the ability to read.
5. Prototyping needs a working modal to exist which is rare than finding system documentation for sampling. So the likelihood that you will use sampling is higher than prototyping.

## Research through site visiting vs observation of work environment

Both fact finding techniques require little to no investment of resources. Their core is observation, and the end goal is to understand.

1. Site visiting does not require cooperation of an audience while observation does.
2. Site visiting will take much less time to perform than through observation.
3. The facts gained through site visiting is concrete. They’ve been tested and observed countless times. Observations in the work environment may happen only just once and never again.
4. Observation of the work environment helps understanding the impact a particular problem has on the working environment; this is not possible through site visiting.
5. Site visiting is not always successful; you are not guaranteed to find solutions or facts that are related to your problem. Observation however will definitely help you understand the situation and come up with a solution on point.

## Questionnaires vs Interviews

Both techniques rely on an outside audience, the facts that you obtain through these techniques may or may not be biased.

1. Questionnaires do not require the analyst’s presence, while interviewing requires not only your presence but an interviewee as well.
2. Good communication is a mandatory requirement of interviewing, questionnaires does not have this requirement.
3. Interviewing may take long periods of time on large audiences, questionnaires can be collected within a couple hours if you wished to.
4. Interviews are ideal in situations where feelings, experiences and what not are a strong requirement to understand the problems. Questionnaires fail in times like this, because feelings can’t be expressed accurately through words.
5. Questionnaires for large audiences require a budget enough to design the questionnaire, test it and then print it. Interviewing has a low budget requirement.

# Fact finding techniques that I used

I mainly used three fact finding techniques that I have listed above to find facts to gauge the system and user requirements of the solution that is to be put forward.

1. Site visiting – This technique was used as a way to find facts about similar situations that have existed, and the background of IFRB. IFRB is set on traditional project management approaches, I researched other similar organizations that are transitioning from traditional project management to agile project management, the problems they faced, the problems they had, the motivation/reason they required in order to move from traditional to agile. This also helped me to gather facts about while people fail to deliver on time during traditional project management.
2. Sampling existing documentation – This technique was used to understand intensively the system requirements that have to be met to find a proper solution. The existing documentation is accurate and upto date and seems to convey the requirements that must be completely understood in order to provide a proper solution.
3. Questionnaires – In the form of a fixed format, this helped me to understand what exact the problem is in the existing situation that we must aim to solve through our solution. This allowed me to understand the quality that we must provide which is a strong expectation in the part of the user. Ratings and rankings allowed me to fathom the requirements of the users that must be met in order for our solution to be something that meets their expected workflow.

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