WHAT CAPI REALLY CHANGES

Rolf Pfleiderer, Infratest Burke

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1. What we have done

In 1991 to 1995, Infratest Burke Munich conducted about 300,000 face-to-face-interviews per year with a stagnant tendency. About 40 % of these interviews were media research. 4 % of all our face-to-face interviews were performed using Computer Assisted Personal Interviewing (CAPI). In the spring of '96 we decided to switch our standard face-to-face interviewing method from "paper & pencil"to CAPI. Our main reasons for this decision were:

- To fulfill our clients demands for **faster delivery** of market research results once a project is commissioned.
- To improve the **flexibility** of field management and data handling.
- To improve our capability to conduct **multimedia**-interviews, e. g. for product tests, design tests, advertising tests, etc.
- To **rationalize** the internal data manufacturing process and maintain a high quality of delivered data. Keywords are reducing the hard and software-zoo to a mono species culture, reducing the amount of produced, printed and mailed paper as well as the machinery belonging to it, reducing and even eliminating coding and the feeding of records, improving interviewer control, accelerating the communication process of the internal staff to the external field force.
- To strengthen our **position** as the German market leader in innovative and high quality market research.

We developed the following CAPI-implementation concept:

- **700 interviewers** should be equipped with CAPI technology up to one year until April '97. This represents 40 % of our face-to-face interviewer staff and should include 80 % of our most experienced "premium interviewers".
- The **technical base** should guarantee a maximum of flexibility and future orientated technological certainty. Thus, we made a choice for Compaq's Armada 4130 T with 11.8" TFT Color Display, 133 pentium processor, 16 MB RAM, 810 GB Hard Disk, optional CD-ROM drive, Touchpad, 2.3 kg weight, accumulators for 3.5 hours of activity, supplemented by a HP Color Desk Jet Printer, a 28800 Modem PCMCIA and a Wacom Digitizer. In addition, we decided to install the in2itiv CAPI-software.
- We offered our premium **interviewers the chance to buy or lease the PC** for themselves. If they decided to do so, we guaranteed a 20 % bonus on their payments. More than 50 % accepted the offer. Thus, we could reduce our investment, increase the interviewers commitment, stimulate the offer of more interviewer-capacity, and substantiate the position of the interviewers as "entrepreneurs".
- Every interviewer had to be **trained** on his "own" equipment for one day by IBM, and a **permanent hotline** had to be installed for these interviewers.

In May '96, we conducted two group discussions with our interviewers concerning their general attitudes, criticism and demands towards Infratest, their CAPI-experiences to date and their reaction to our implementation concept.

Overall the interviewers spoke highly of

- the logical structure of the questionnaires
- the accurate guidance by filter questions
- the proper layout of our questionnaires
- the feasibility of the projects
- the good personal relationship between interviewers and the Infratest field management.

Thus, please note: All these eulogized aspects would be of minor impact by changing to CAPI.

On the other hand, they criticized too long interviews and the general refusal of incentives for the interviewees (with the exception of doctors and certain professionals). With regard to CAPI - Infratest has conducted CAPIs since 1991 on a small scale base - the main criticism included:

- too many errors
- frequent corrections during the first week of field work
- no view of the interview as a whole and by this no chance to estimate the interview length
- not enough and/or hardly any attempt to reach competent respondents on the side of the institute
- too many additional papers and hard copies (e.g. masthead cards, show cards, lists, etc.)
- more difficulties to get interviews in certain population segments due to distrust of computers and concerns regarding privacy and data protection
- problems of power demand and readability of the screen questionnaire,especially if interviews are conducted outdoors in summer.

Please also note: Beside the two last mentioned points, all CAPI-related criticism was addressed to the potential strengths of CAPI. Therefore you may imagine what a great amount of work still had to be performed in order to come up to the standards we usually claim in our brochures and high polished prospects.

The response to our proposal (that the interviewers should purchase or lease the laptop computers) was not very homogeneous. Supporters, refusers and the undecided were in good balance!

In order to follow up and to fine-tune our CAPI implemantation concept, we conducted a mail survey of our face to face interviewer staff in June `96.
The main results were:

- 50 % of our "regular" interviewers were PC-users (i.e. 750), 37 % used their PC at home. We thought this was a good base for our project.
- Nearly all of these private PC-users also had a printer at home, but only 60 % owned an ink jet or laser printer. To avoid mailing materials we had to face some investments on printers for the interviewers.
- 23 % of the home users also already owned a modem or ISDN card for their PC - one in five of them was fast enough for our purposes. Without any doubt we had fo face further investments at this point.
- Only 18 % refused to conduct CAPI. 28 % already had CAPI experience (most of them for Infratest), in total 47 % agreed without any reservations, one third expressed reservations.
- The most frequently mentioned expectations and chances of CAPI were (base: all non-refusers):

        - facilities in work   49 %
        - more speed in data transfer   21 %
        - reduced amount of paper   20 %
        - professional image   11 %
        - automatic filter control   10 %
        - fewer errors, "online correction"   9 %

- Half of the CAPI experienced interviewers reported faster interviews, whereas one fourth complained of slower interviews. We hoped to improve this 2:1 ratio to a 5:1 or even 10:1 ratio by training very fast.
- About 40 % of the CAPI experienced interviewers claimed to have more problems in convincing interviewees to participate in random based household surveys as compared to the paper & pencil technique. We are sure that this disadvantage of CAPI will disappear in time, altough we also considered a need for training to be high priority.

In October `96, our board decided to invest nearly 5 million DM in our CAPI project. The following objectives were set:

- First nationwide survey with new CAPI technology in January `97. We did it.
- Full installation of 700 laptops including electronic communication by April `97. We failed. We reached about 500 installations, but only one third of them were fully integrated in our electronic communication system.
- 25 % of all our face-to-face interviews should be conducted by CAPI in April `97. Here, we also failed. We reached 22 %.
- 50 % of all our face-to-face interviews should be conducted by CAPI up to October `97.
  This objective was already fullfilled in August. The 700 installations were performed and they were all integrated in our electronic communication network. (To manage this, we even had to install new telephone connections in some isolated cases or villages around the Lake Constance area - the DTAG was not able to manage this in time).

Today, Infratest Burke ist without any doubt the German market leader in CAPI. Last but not least, this may be substantiated by the fact that we even had the first nationwide call back action of all our Compaq laptops due to certain bugs which hindered the development of the full technical potential of our CAPI-armada.

Though we continue to conduct a lot of face-to-face interviews via the paper & pencil technique, the technical base of our face-to-face fieldwork has essentially changed. However, what about the human resources of our face-to-face fieldwork? What has changed? I will now give you a short view including some special experiences which may illustrate the sort of surprises you have to face by changing to a new interviewing technique.

2. Some experiences in developing CAPI

In describing the implemention process, the perspective was seen to be that of a field manager or (as we call it) a production manager. Now I'll change the perspective and take the view of the research manager which particularly includes the clients' part in the research process as well.

Basically, the production process of face-to-face surveys of Infratest Burke in Germany can be described by the following diagram:
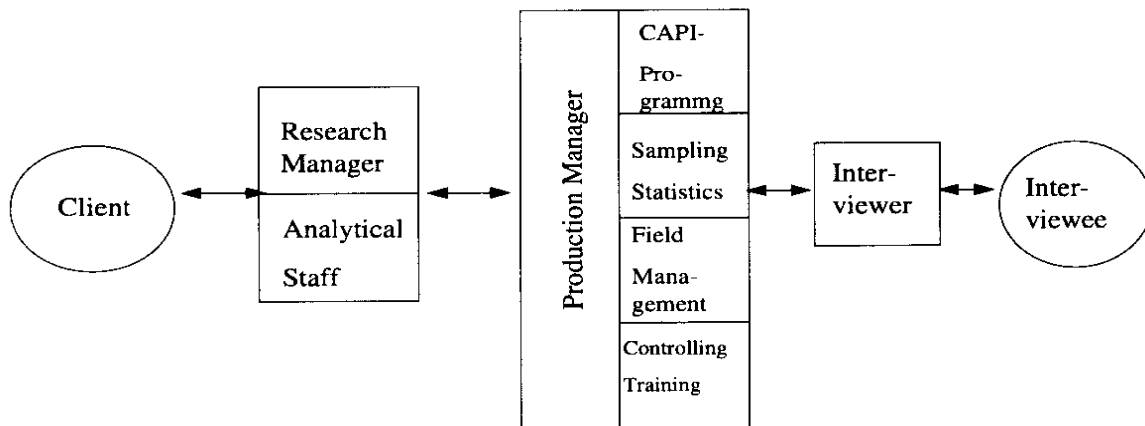
My focus is not so much on the changes in the production area of this process, although there are drastic ones:

- Accountancy, plausibility control, quota control, registration of each questionnaire, etc. are done without printed or written paper and without additional data gathering procedures - it's all integrated in the electronic production flow. The data transfer from the institute to the interviewer and vice versa is done by modem or ISDN. That means a change in qualification needs and a significant reduction in employees.

- The field management is able to act more flexibly and not on a mail-to-mail basis, but instead on a day-to-day basis. This means again a change in qualification needs - nearly all is done electronically - and also represents additional resources in terms of people and computer equipment.

- In former times, we had a special department for writing or, stated more properly, the layout of questionnaires. This department has now disappeared. Instead of this, the department of programming questionnaires - which was founded in the mid eighties for CATI - had to be increased.

- The formerly powerful department of data cleaning has also disappeared or diffused to the analytical staff and the questionnaire department.

- The printing shop has been significantly reduced in terms of people and machinery.

However, let's come back to the focus: A feature which is on the interfaces of the above mentioned diagram. I want to show some consequences of CAPI on the four critical relationships in the manufacturing process of survey results:

1) The interviewee - interviewer relationship
2) The interviewer (external production) - internal production relationship of the institute
3) The production manager (internal production) - research manager relationship
4) The research manager - client relationship

2.1 The interviewee - interviewer relationship

This relationship is fundamental for all our market and media surveys. Changes in this relationship should be analyzed carefully. My keywords are "distrust" and "standardized interviews".

In our interviewer survey, the most frequent answer to the (open) question, "in what do you see the biggest risks or disadvantages of CAPI?" was: More distrust of the interviewees (20 %).

Is it the often cited animosity of the Germans against new technologies? I think it's only reasonable. People have an increased consciousness of privacy and of data protection aspects - because the possibilities of computer-aided Orwellism have increased so much in the last years.

Do we encourage trust by presenting a powerful computer? People who don't know much about computers do at least know one thing: Computers are powerful machines which do inconceivable things. When you used a paper questionnaire things seemed to be easy to overlook, you had an impression of the survey as a whole. However, you can't estimate the length of a CAPI-questionnaire before the interview. You have no chance to correct yourself, you even suspect the computer of having already tracked your errors or first answers. You can't undo your information. As an interviewee, you can't ask for the completed questionnaire to shred it and throw it away.

What can we do? For example, we can offer a printout of the completed questionnaire - and hope that the offer itself can solve the problem. Since these printouts normally require special programming. If there are not too many filter questions, we also can offer a printout of the virgin questionnaire. So lets ask the providers of CAPI software for these options.

CAPI also means a tendency of withdrawal of the interviewer as an interlocutor. It's often said that the interviewing situation is more "standardized" by CAPI. In a formal sense this may be correct, but this "standardization" also reduces the chances to moderate the situation. The special qualification of a good interviewer: to keep the interview going on - this special qualification can be hindered by a rigorous CAPI-questionnaire. Thus, the risk of irritation or even braking off may increase. As a result, the situation may be less "standardized" as it was with the paper & pencil questionnaire.

I'll give you some examples of what can happen:

-       In a parallel test of a self administered paper & pencil questionnaire and a self administered CAPI-questionnaire - both in the presence of an interviewer - we asked for the overall satisfaction with a medical product. On a five point scale we found a difference of about 0.5 points of the scale on an average between the two matched samples. After extensive analytical efforts, we found the reason. In the paper & pencil questionnaire, the precoded answers were presented as follows:

        ❑   extremely satisfied
        ❑   very satisfied
        ❑   satisfied
        ❑   less satisfied
        ❑   not satisfied

The paper & pencil questionnaire was the concept for the programmer of the CAPI-questionnaire. To continue the interview, CAPI reguires a complete answer to each question. Therefore, the precodes were programmed as follows:

        ❑   extremely satisfied
        ❑   very satisfied
        ❑   satisfied
        ❑   less satisfied
        ❑   not satisfied
        ❑   no answer / don't know

Now assume randomized answering behavior on both versions, then calculate the average. We only found this difference when we finally looked at the original questionnaires - a procedure which is normally despised by high-tech researchers. What a silly mistake! We had a lot more interesting experiences with the "no answer" category. Our conclusion is: This is a very old but now new opened field of research. We have to look at the no answer problem very intensively and in a new way!

-       In a syndicated readership survey of the medical press we changed from paper & pencil to CAPI. We tried to exactly copy the paper & pencil questionnaire in the CAPI version.

For the readership questions, we used single masthead cards for both versions. We asked the awareness of about two dozen titles vertically, and afterwards the broadest readership, in blocks according to the publishing intervals, followed by the frequency question and the recent readership question in the horizontal plane. Thus, the computer really only was an input medium - but nevertheless we had a problem.

There is one paper of the professional organization of all doctors which is sent to all doctors and must be read by all doctors because all relevant new professional rules, laws and specifications of rendering accounts are published there. For years we have measured more than 99 % awareness of this title. With CAPI, we only measured 96 % at the beginning.

We re-instructed all interviewers. We strictly forbade to self-administering of these questions by the doctors. After that, we measured a 96 % awareness.

Thus, we decided to build in a loop: If the title is not mentioned as "already had in hands" this question has to be repeatedly introduced by the words "sometimes one doesn't reflect all ...". Using this technique we measured more than 99 % awareness of the respective title and we could see that 2 % came from the loop.

We have made some more experiences of this kind. They all show: You have to face consequences when you decrease the number of "degrees of freedom" of the interviewer. When you replace the special ability of both interviewers and interviewees to understand a grid or an answering scheme as a whole/simultaneously by the strictly one-after-another-procedure of CAPI, then you run the risk of slowing down the interview speed, making the interview monotonous and boring, and provoking a break off.

What we should do is to reconsider our CAPI questionnaires under the aspect of "where can we build in more degrees of freedom for the interviewers?". We really should say good bye to the fiction of the "standardized interview situation" and concentrate on what we want to know from our interviewees. The result may be somewhat different from what we used to do formulating a survey questionnaire. Sometimes the adaptation of the CAPI-software to the rules of the human dialogue may be troublesome and - I'm sorry to say - expensive....

2.2 The interviewer - internal production relationship

CAPI means an enormous acceleration of the whole communication process between interviewer and institute or field manager. Sending new instructions, sending an adjusted questionnaire, checking the completed questionnaires and redefining the quota of the next interviews, etc. - that is all done in hours or even minutes. This involves the danger of overstraining.

It is a danger to get used to the possibility of very fast corrections, it leads to less careful work.

The improvements in the area of controlling the interviewer staff are remarkable. The mere possibilities given by the timer running along with the interview are impressive. It's a double-edged experience when you are confronted with an analysis which shows that three of about 250 interviewers are able to fill in the questionnaire with a speed of two answers per second or even faster !

These new possibilities are certainly useful. However, there is also a danger that the interviewers may feel as if they themselves are in the clutches of the field manager, and that they feel the balance disturbed in the relationship to the institute. We have to market the laptop as an auxiliary device of the interviewers and not as an instrument which irons out the shortcomings of unreliable staff members and perfects the control mechanisms of the central office.

So again: Let's think about chances to make the interview more conveniant by CAPI! How many steps can we go to an individualized questionnaire for each interviewer? What is the use of a standard script type, how can we apply colors? In how many ways can you go through a statement battery, through a readership questions scheme, etc.?

I think by introducing CAPI we should even try harder to qualify our interviewers as well informed members of a research team and so motivate them for better quality work. And I know that this cannot be done without a struggle against the suction of technical feasibilities to perfect control mechansims.

2.3 Internal production - research manager relationship of the institute

In former days, the research manager had the chance to examine the completed questionnaires - not data sets, but real questionnaires. This usually was his most frequent first-hand knowledge of the interiewer's work. He saw the handwriting, the mistakes, the marginal notes. With CAPI, this is past. There is clean data. Ideally, the researchers only interlocutor regarding fieldwork and interviewer work is the production manager.

There are possibilities you have ever dreamed of. For example, you can get the information of the progress of your study in terms of completed cells and even the result in these cells on a day by day basis.

The danger is overstraining the new possibilities and at the same time loosing the contact to your basis - the answers and the opinions of your interviewees, the problems and working conditions of your interviewers.

Research managers have to adapt to the new structures, they are part of a new integrated communication process and are asked to deliver their part - information of timing, sampling, training, the questionnaire and so on - in time and in an electronically processable format. However, they mustn't become technicians, pure social engineers. The introduction of CAPI is a good opportunity to confirm these postmodern warnings.

2.4.   The research manager - client relationship

The clients' expectations towards CAPI are often inspired by the technical fascination and confirmed by the institutes' high polish brochures:

- CAPI means more speed.
- CAPI means more accuracy.
- CAPI means more flexibility
- CAPI means new dimensions, means multi media.
- CAPI means a leap forward in productivity and so lower cost.

In theory, all this is true. By developing our CAPI facilities, we have sometimes learned very painfully:

- You need a lot of time to get faster.
- If you introduce something new, the number of bugs, mistakes and catastrophes does not decrease, but increases - to begin with. Increasing flexibility increases the chances of mistakes!
- New dimensions sometimes look strange. For example: Have you ever tried to get a commercial through the phone line? What are the effects of animated questionnaires and speaking laptops on the answering behavior? You don't know? This is evident because this is the new dimension!
- Yes, in fact there is a step forward in productivity. However, the investments are considerable and the new technology forces revolutionary changes of your organization.

Thus, changing to CAPI first of all tends to stress the research manager-client relationship and there are important additional stress factors:

Regarding paper & pencil questionnaires, "you see what you buy" was true. Doing CAPI, it is much more difficult to see what you have bought: The standard CAPI-software packages produce a difficult-to-read hard copy of the screen questionnaire. Clients - and also the research managers - are (normally) not able to read and understand the original CAPI-program. Thus, for controlling purposes, you can test the CAPI-questionnaire in a trial & error procedure - or you get a little progam installed which creates random answers of virtual interviewees. In this manner, you can see whether your filter questions are right. All this is much more complicated and time consuming compared to the former procedure. The client normally refuses to do that. Consequently, the client needs much more trust in the research manager and his research institute compared to that necessary during traditional times!

On the other hand: Once the software is installed the researcher is able to e-mail the just finalized questionnaire and both the client and the research manager can simultaneously test the draft. They can even work together on this "document". The client can be directly involved, he can become integrated in the new type of research process. He can follow and control the progress of fieldwork nearly "in time". Thus, he is able to prepare his analyses even with more information and more carefully. He has the chance to add one or two more questions during fieldwork without stopping the whole process and without extreme consequences for his budget.

I think CAPI changes a lot. There are fascinating chances, but also some malicious threats. We can combat the latter by more basic research and an open exchange of experience.