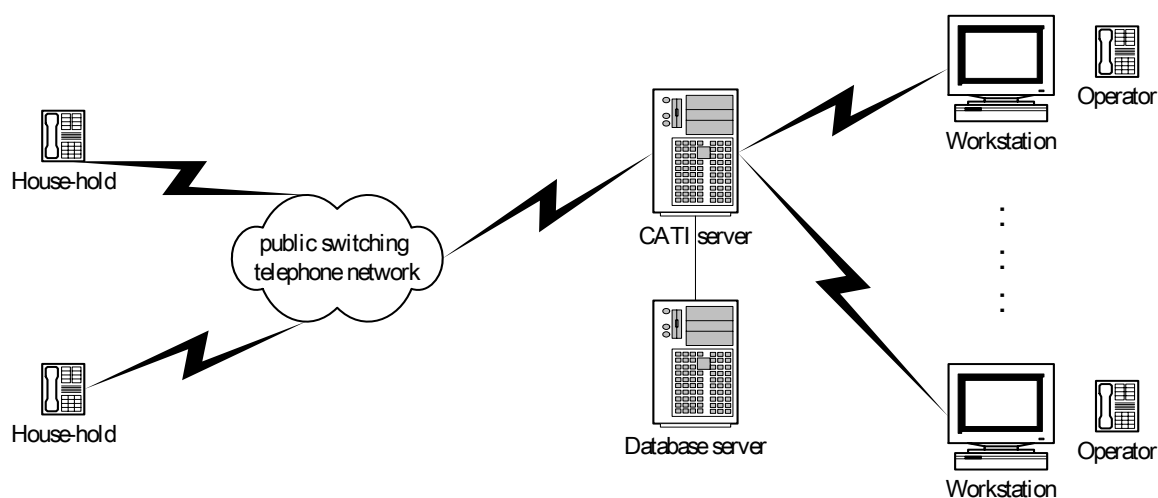


Using Computer Assisted telephone interviewing (CATI) system in Statistics and Census Service of Macao

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Computer Assisted telephone interviewing (CATI) system is combination of computer and telephone system, its main functions are providing:

1. Questionnaire content enquiries from house-holds;
2. Verification of identity of enumerators ;
3. On-line data entry and real time data validation;
4. Reservation of enumeration / scheduling for interviews by house-holds;
5. Callers can leave a message in non-office hour;
6. Conversation recording;
7. Conversation play back and message play back;
8. Send SMS messages feature was add in year 2005.



Basic structure of CATI system :

- CATI server with telephone cards connecting PSTN and PC workstations;
- Software running on CATI server (commercial product), managing tasks such as phone calls delivery, conversation recording and voice mail;
- A database server;
- PC workstations with hand free telephone sets;
- Software running on PC workstations (DSEC in-house developed), front end to CATI operators.

Using CATI on prior census (year 2001) :

The Statistics and Census Service of Macao (refer as DSEC in short) started using CATI system in 1999, the initial project was applied to unemployment rate survey, and this system was used in last census project (2001). During the last census data collection period, the CATI system received over 37,000 calls and as we analyzed the phone calls after the prior census, most of them were incoming calls from households. 55% of calls were enquiries such as the content of the census questionnaire and verification of identity of enumerators; 38% of calls were making reservation of interviews by house-holds; 4% of calls were on-line completion of the questionnaire (operator recorded down by paper questionnaire, then go through the OCR process for data capturing, need to inform branch office and enumerator about completion of the case); 3% were informational such as voice message.

Using CATI on next census (year 2011):

The DSEC will continue to use CATI system on the coming census in 2011, and is planning to integrate the sending SMS messaging function to the system. Reviewing the calls from prior census DSEC noticed that around 38% of calls were making reservation of interviews by house-holds, so it needs to inform the enumerator who in charge of visiting that housing unit about the reservation details as soon as the reservation is successfully made, so that the enumerator can have a good management of his assignments. DSEC decided to use SMS messages to inform enumerators as mobile phones are popular today. DSEC subscribed the SMS sending service (in form of programmable interface) from mobile phone operator and integrated the SMS sending function into the CATI system in 2005. DSEC used this feature in 2006 for project inter-census and we found the result to be quite good, only a few enumerators reported that they missed 1 to 2 SMS.

We also noticed that 4% of calls requested on-line completion of the census questionnaire which recorded down data by paper. Since DSEC already implemented an OCR process for data capturing, and after consideration of the complexity of the content of census questionnaire, DSEC decided to keep the current on-line completion procedure because it is not cost effective to implement additional on-line data entry procedure in CATI system on next census.

Using CATI on other surveys :

- CATI system is suitable for surveys other than census, especially those projects which involved revisiting interviewees e.g. unemployment survey. The CATI system can retrieve telephone numbers of interviewees being revisited and auto dial for phone connection; previous collected information of interviewees will also be loaded and displayed automatically for data comparison.
- On-line data entry interface allows entering data of new cases or retrieval of old data if it is revisited case.
- Real time data validation can avoid logical errors or mis-keying errors, guarantee quality of data collected.
- Can prompt up scheduled case according to interviewee's request.