

# Modern Technologies For Making Census

By :  
Jaffar Mansour  
October 2015



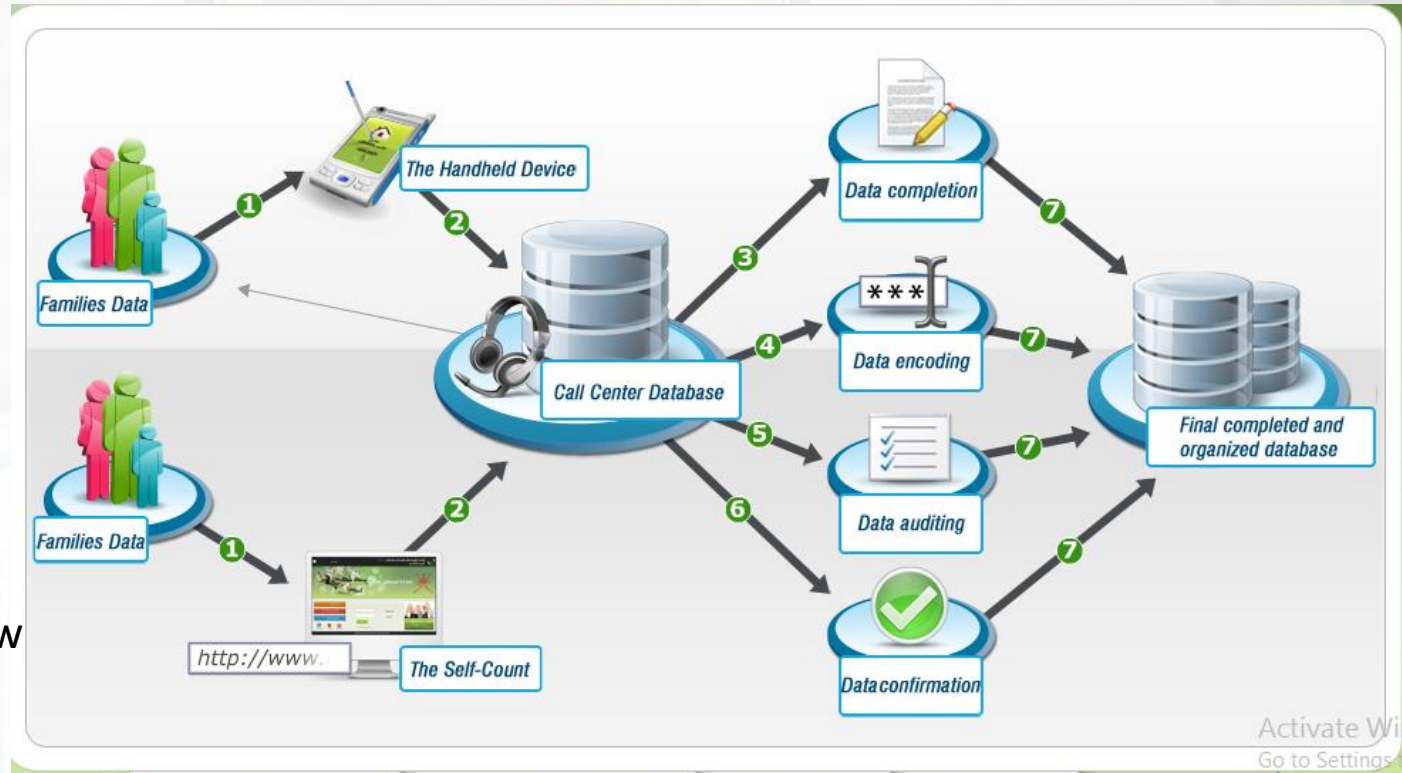
**REALSOFT**  
ADVANCED APPLICATIONS

# Agenda

- ❑ Census 2010 Round Technologies Implemented the Arab countries.
- ❑ Mixed-Mode Census Taking.
- ❑ The Case for IT Skills Outsourcing.
- ❑ Registers – Based Statistics and Census, Are you Ready.

# Round 2010 – Technologies Deployed in Arab Countries.

- Self reporting over the Internet Mode
- Handheld/Tablet Interview
- Telephone Interview



Activate Wi  
Go to Settings



# Round 2010 – Sequential Mixed -Mode Census Taking

- The goal is to choose the right technologies to optimize data collection procedures and reduce total survey error within the available time and budget
- Survey designers choose a mixed-mode approach because mixing modes gives an opportunity to compensate for the weaknesses of each individual mode at affordable cost.
- Various studies have used sequential mixed-mode strategies and showed that switching to a second, and even third, mode is an effective means of improving response rates, even for newer data collection methods such as IVR and the Internet (*Dillman, Phelps, Tortora, Swift, Kohrell, and Berck 2005*)



# Tablets And Smartphone Interviews

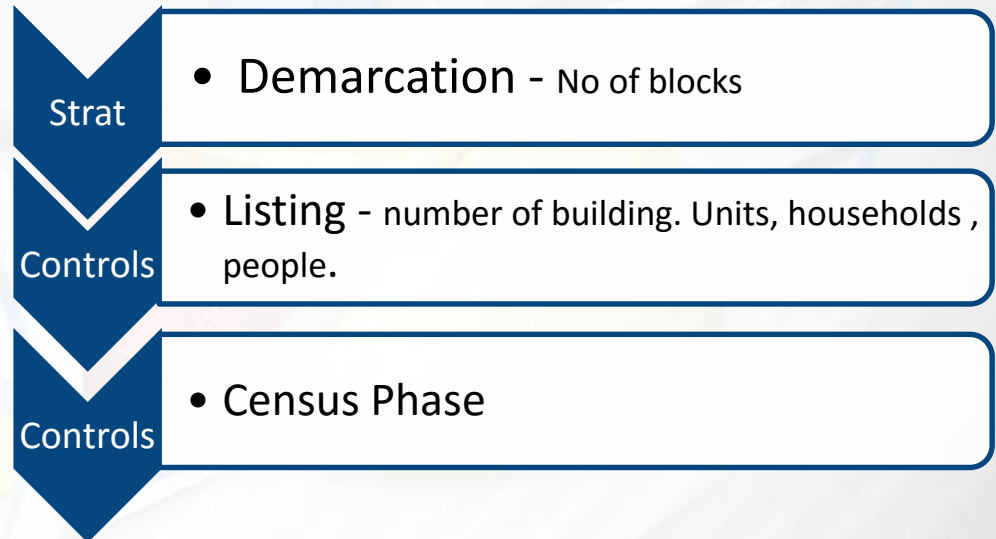
- Semi-timely data saving into the database.
- Field control through daily review of data, and tracking the surveyors.
- Every phase controls the next phase for coverage and volumes.
- Extensive use of Maps in the devices

- Economy of scale effect on devices' cost.

– Eg.

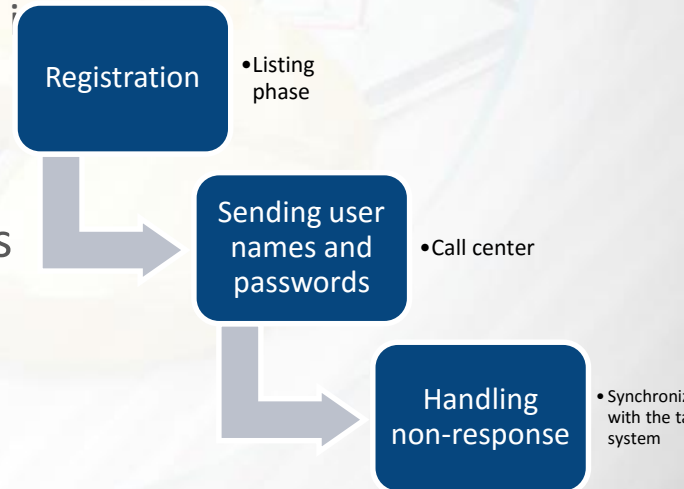
- 8" screen, 3G, GPS, Intel ,  
2 GB ram, 32 storage

**cost (200-300) US\$.**



# Internet Based Self-Reporting

- High internet penetration, and user expectations.
- High and very high EGDI in GCC region (BH 18, SA 36, Q 44, OM 48, Ku 49) UN Nations E-government survey. High and middle in African Arab countries (EG 80, Mor 82, Alg 136 ..etc).
- High public demand on Internet census in some countries (UAE), lower in other countries (Jordan).
- Internet or web surveys are very cost and time efficient (Dillman 2000; Couper 2000).
- How to predict the response rate., So does it save money i
- More things to do with the Internet census in the future:
  - The family member can fill his own form.
  - Use responsive designs to fill the questionnaires  
Using smart phones.



# Telephone Interview Complements Other Modes.

The role of call center in the mixed mode census 2010:-

- Follow up on Internet registration and responding to
- Complete unfilled questions
- Data quality.
- Classification of jobs and economic activity

Telephone follow-ups appear to be effective in raising response and may even reduce nonresponse bias in mail surveys

One of the most consistent findings in mode comparisons is that self-administered forms of data collection perform better than interview-modes when sensitive questions are asked (for an overview, see De Leeuw 1992)

Telephone conversation is far more efficient than a letter in getting past gate-keepers and in identifying the targeted most knowledgeable respondent in the establishment

# Pros and Cons of Mixed Mode.

## Pros

Reduced coverage error

Time Efficiency

Completeness of Questionnaires

## Cons

The mode itself may cause measurement differences

Implementation complexity software development and implementation

Costs per interview/Capita

Later studies emphasized the difference between visual communication and aural or auditory communication and its influence on measurement (*cf. Balden 2004; Dillman 2000; Dillman and Christian 2003; De Leeuw 1992; Schwarz, Strack, Hippler, and Bishop 1991*)



# Case against IT Professionals Hiring

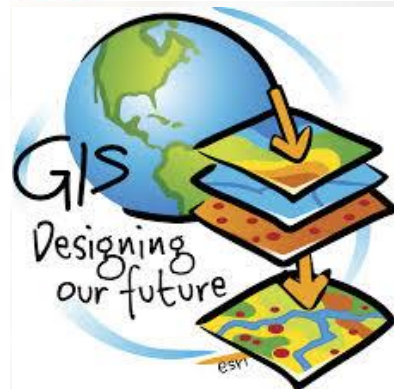
RealSoft pays 2-3 Millions US\$ annum for employees to make census

Can you keep good resources? For how long?

Can fire the IT engineers after projects?

Consider technologies shift?

- Big data.
- Registers.
- Emerging devices



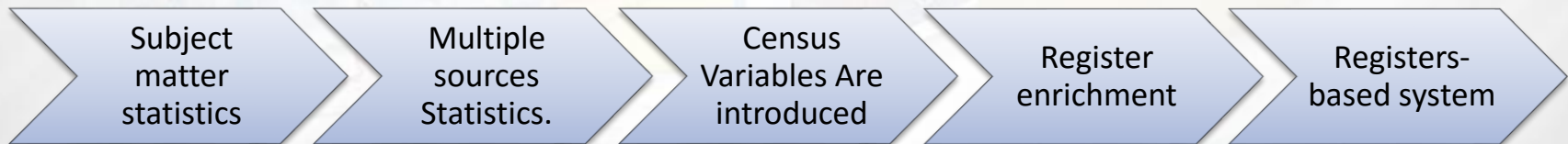
## Register Based Census.

“For a given amount of money the quality, requirements are better fulfilled by using data from administrative registers than by traditional data collection by means of questionnaires”

*Register-Based Statistics in the Nordic Countries states, United Nations , New York and Geneva ,2007.*

The step-by-step development has been the same in all Nordic countries:

- Subject matter statistics were tested and published in different areas.
- Register-based variables were introduced in the census as soon as the quality was considered sufficient.
- When statistics had been developed for all areas relevant for censuses, a totally register-based census could be conducted



Data quality assessment, Enhancement Integration and SLA

**REALSOFT**  
ADVANCED APPLICATIONS

# Registers-Based Census Challenges

- Quality of administrative data. Statistics needs are not considered in administrative data.
- “Four out of 12 countries have undertaken studies on the quality of registers. For one country , the population register was linked to the establishment register and the educational achievement register  
*AITRS Administrative registers as sources of statistical data in Arab countries , Bah 2013.*
- Keys and integration, all the countries we studied have serious issues in keys and integration of administrative registers.
- Confidentiality and protection of individual data goes hand in hand with use of micro data.

# IT technologies For Register – Based Statistics

The background features a stylized illustration of a laptop computer. The screen shows a line graph with a red trend line and a bar chart. To the right of the laptop is a 3D bar chart with several vertical bars of varying heights. The entire scene is set within a circular frame that has a slight vignette effect.

Database and Integration

Data quality Tools

- Profiling
- Quality
- Business rules review

Storage and infrastructure

Enterprise architecture