

Seeds of Innovation at the Central Bureau of Statistics in Israel

Data Collection using a Tablet Computer

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The article:

This presentation will list the potential advantages we discovered in the field test **using new data collection tool:**

- **Respondent - Possibilities** for improved customer service
- **Interviewer- Benefits in the field work** obtained from the **new collection tool**

CASE STUDY:

The Pre-census - "Tromifkad"

The Goal: How many people live where they are registered?

Under coverage: The sampled units are geographical areas, and sample of units is drawn from the dwellings recorded in field.

Two-stage work process: registration of all the dwellings and sampling of sample fragment of each third apartment.

Over coverage: : A sample from the CPR (Central Population Registration).

Our article discusses about the Under coverage collection.



Innovations tested for the first time at the ICBS

- ❖ **Paperless Work Environment – Green Environment**
 - **Data Security**
- ❖ **Field Work and Appearance - stay relevant**
- ❖ **Computerized systems** for the “Pre Census” - **Survey Management Application**
- ❖ **Advanced Navigation Systems**
- ❖ **Built-In GPS Detection** for orientation
- ❖ **Computerized Maps (Digital)** for the first time
- ❖ **New collection method - a questionnaire** for **online retrieval**
- ❖ **An app with automatic sampling** of dwellings in the field
- ❖ **Collection tool: the Tablet**
- ❖ **Heading to New Technology Era – New Future Projects at ICBS**
- ❖ **Summary and Conclusions**



Paperless Work Environment - Green Environment

“In consideration of a green environment, many companies are already eyeing the green store, hoping thereby to **reduce their energy storage system.**”
(He, Qinlu, Zhanhuai Li, and Xiao Zhang. 2010)

Today more than ever, the use of paper is being reconsidered; **the use of tablets by interviews in the field saves paper and protects the environment.**

Many printed materials, such as **letters, reports, lists, maps, questionnaires**, can be converted into **electronic files that do not pollute the environment** as much and do not accumulate as waste.

Paperless Work Environment – Data Security

The management of information in the traditional method, without a technological platform and systematic methodology, creates heavy costs for organizations.



Compartmentalization and exposure of employees and external people to **information** to which they are not supposed to be exposed.



Personal data might get into the **wrong hands** and might get lost.



Field Work and Appearance - stay relevant

Novel survey techniques



a system that makes all the information accessible to the interviewers in their location.

Saving Time and Resources



higher productivity and efficiency among interviewers and organizations in general.

Reducing the **time** used working with **paper** will **decrease costs** and make the work environment more **modern and advanced**



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Survey Management Application

PAST:

- data collection systems involving interviewers "talk to each other"
- management systems require paper work management
- surveys of households do **not allow online retrieval**

Pre-Census Application :

- ✓ Using a survey management application
- ✓ application on the tablet used by the interviewer during all **three stages of the Pre-Census**
- ✓ The **changes** in each stage were **adapted to the required work process**
- ✓ the application contained many **functions** that assisted in ongoing work in the field



Field collection – monitoring example

Tools

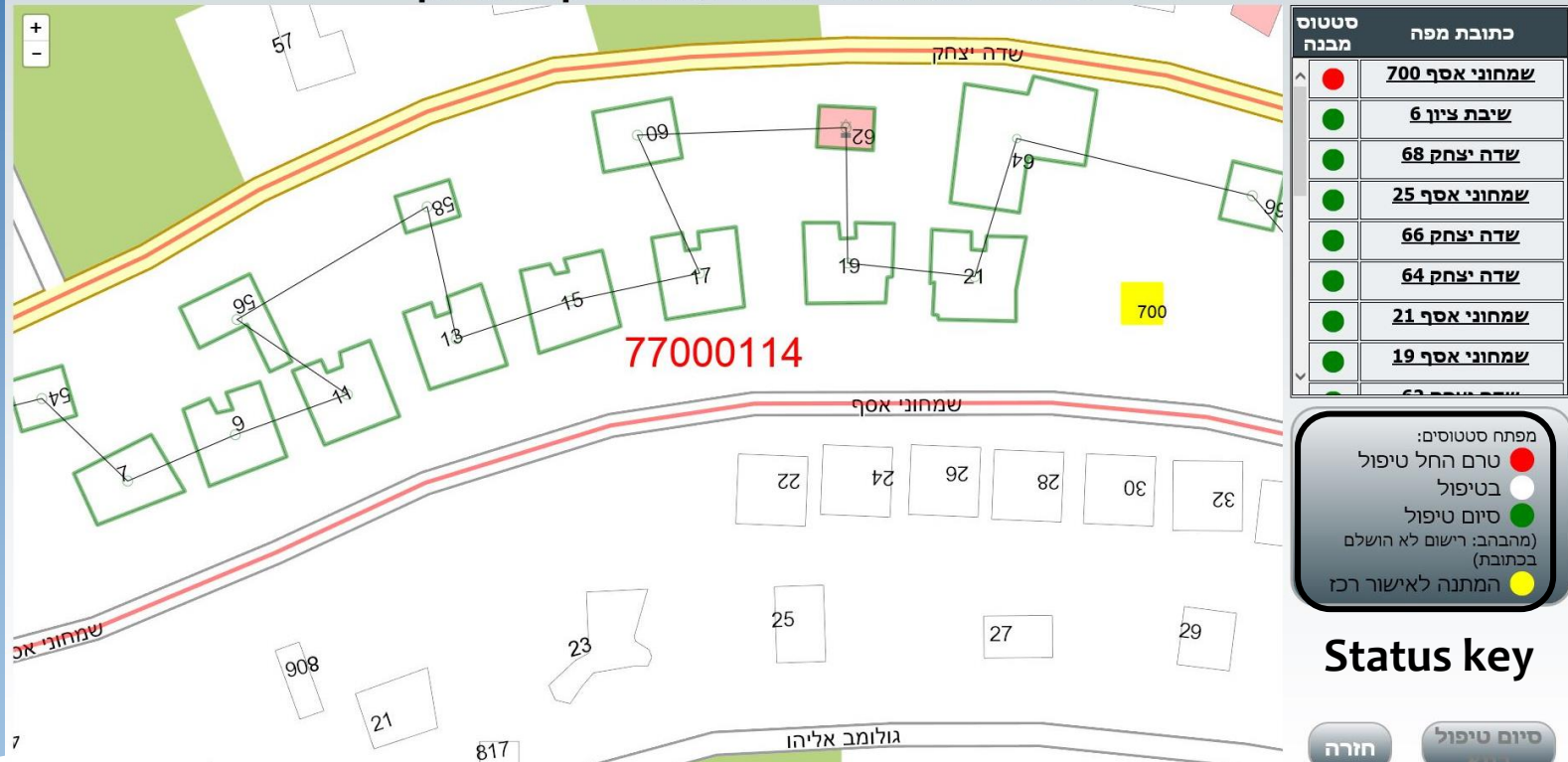
Survey management

כלים

ניהול הסקר

מנה שנתית 40

Workload סיום טיפול בתא 77000114 עפולה - קדם איסוף



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Advanced Navigation Systems, Built-In GPS Detection and Computerized Maps (Digital)

The requirements for the digital maps used by the field interviewer were based on: **field tests** and **examination**.

During these tests, the **interviewer's needs** were examined to **maximize his work**.

Two types of cell maps were required for the work of the field interviewer:

1

White Map of buildings and streets

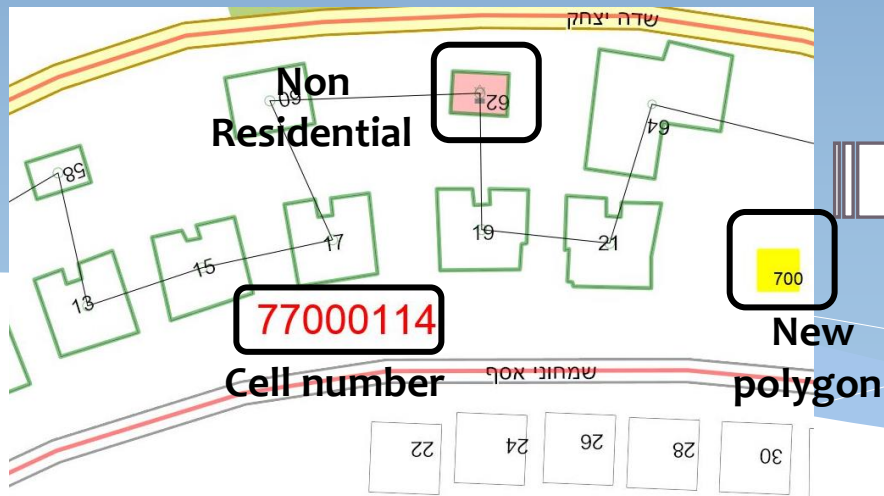
2

An aerial image



Points of Interest (POI): The POI will be displayed on the polygons on the map:

- ☐ In all scales
- ☐ Font size legible according to scale
- ☐ The font is larger or different than the other fonts on the map
- ☐ Polygons with a POI will receive a unique color compared to the other polygons on the map (coloring any polygons which are non-residential)



An essential tool
in localities
without an
organized
address number
system

Advanced Navigation Systems, Built-In GPS Detection and Computerized Maps (Digital)

Throughout the Pre-Census process, the digital maps were an **essential** part of the interviewer's fieldwork, which enabled the work to be done properly.

The use of the two versions of the map, the "white" map with the polygons and the aerial image map **complemented each other** and helped the interviewers to **familiarize themselves with the field** and to **accurately document the information** from the field.

GPS Detection



did not work 100% of the time, but when it did work it was very helpful in orientation.



Collection tool: the **Tablet**

“A tablet computer is usually defined as a thin, small tool – a general purpose computer contained in a touchscreen panel, which is operated by fingers, or a stylus pen.”

“In a world that seeks a **novel device**, this is seemingly a **new world of options**. The main advantages are **flexibility, mobility and productivity**”.

(PC Encyclopedia)

Technological Easy-to-Use Tool

The computer is **constantly on**, unlike the previous use of a laptop computer.

The device is **thin, storage and carrying is incredibly comfortable, unlike** most large, heavy **laptops**.

All the functions of a computer are available on a tablet and it **minimizes** the need for the interviewer to **work at home**.



Meet the interviewer's **field work conditions**:

- ✓ Working in **weather conditions (sun reflection)**
- ✓ **Work constantly** - typical survey work not less than 6 hours per day
- ✓ **A powerful and fast GPS** that identifies satellites at a reasonable speed
- ✓ A **durable device** adjusted to the interviewer's work
- ✓ **Powerful screen lighting** that will allow the interviewer to see the maps even in dark conditions conveniently and efficiently
- ✓ **sufficient software memory** according to the needs defined



Heading to New Technology Era – New Future Projects at ICBS

Generic Business Surveys

Agriculture Census

**Regional Survey Project and
Multi Survey System (MSS)**



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Summary and Conclusions

Existing Situation	Towards the Future
<ul style="list-style-type: none"> Information system for each survey 	<ul style="list-style-type: none"> Presentation of information – a general picture for all the surveys
<ul style="list-style-type: none"> A different collection system for each survey 	<ul style="list-style-type: none"> One collection management system
<ul style="list-style-type: none"> For each survey a specific sample 	<ul style="list-style-type: none"> General sample - division into areas
<ul style="list-style-type: none"> Each survey has a different management system 	<ul style="list-style-type: none"> One generic management system for all surveys
<ul style="list-style-type: none"> Separate training for each survey 	<ul style="list-style-type: none"> Generic training for all surveys + specialization specific to the survey
<ul style="list-style-type: none"> Designated interviewers and coordinators for each survey and each survey receives a different area 	<ul style="list-style-type: none"> Permanent interviewers and coordinators - for a designated area, expert in a permanent geographic area
<ul style="list-style-type: none"> Internet back-up is possible in some surveys 	<ul style="list-style-type: none"> Possible Internet retrieval and in all methods of collection in each survey
<ul style="list-style-type: none"> Work is on paper 	<ul style="list-style-type: none"> The system will work online from the field without the use of paper and no work from home
<ul style="list-style-type: none"> Survey areas vary in terms of travel distances 	<ul style="list-style-type: none"> Consideration of the area of the interviewer's residence and travel distances
<ul style="list-style-type: none"> Planning each survey separately 	<ul style="list-style-type: none"> Generic planning of all surveys

*Thank
you*

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