IBM

Case Study Introduction – Electronic Census System (ECS)

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Case study objectives

The objectives of this case study are to give you:

- A clearer, more thorough understanding of what it means to think architecturally, from all perspectives, about the *IT solution design to a specific business problem,* and therefore allow you to gain confidence in your own ability to think the right way

- A safe environment in which to experiment with various approaches to thinking this way, thus reinforcing the knowledge and skills you've gained from this course

- The opportunity to learn from others on your team through sharing knowledge

- An appreciation of how, even at the earliest stages of a project, important design decisions and trade-offs almost always occur

Republic of Bolumbia

~ 23 Million People
~ 9.5 Million Dwellings

Republic of Bolumbia

Department of Statistics (DoS)

Collects and analyses information about various aspects of the country including its population, society, health and the economy to name the key areas

The department has been running a **Population and Housing Census** for over 100 years and in recent history the Census has run every 5 years, the next census being 3 year from now.
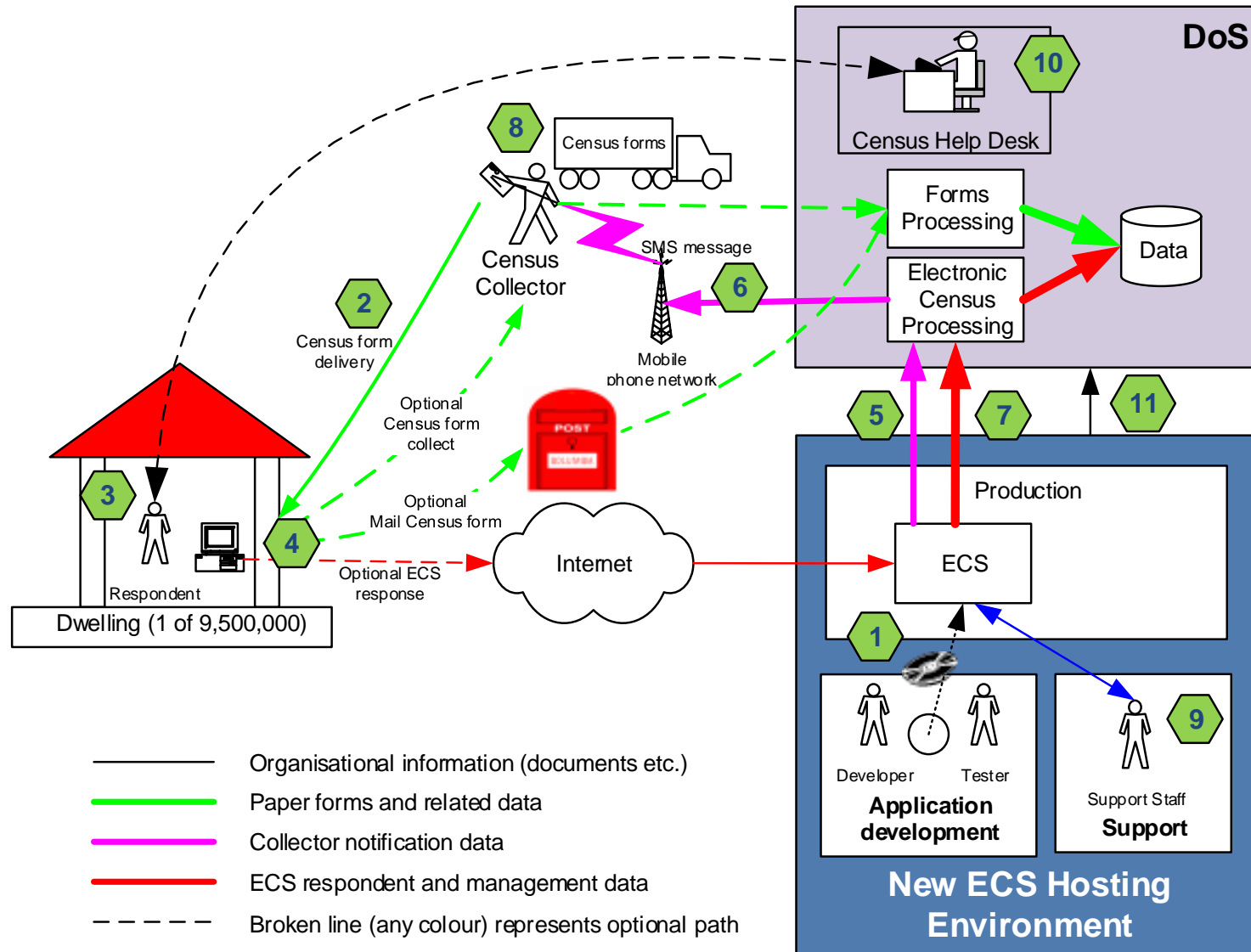
DoS Mission:

- Assist and encourage informed decision making;
- Research and discussion within government and the community, by leading a high quality, objective and responsive national statistical service.
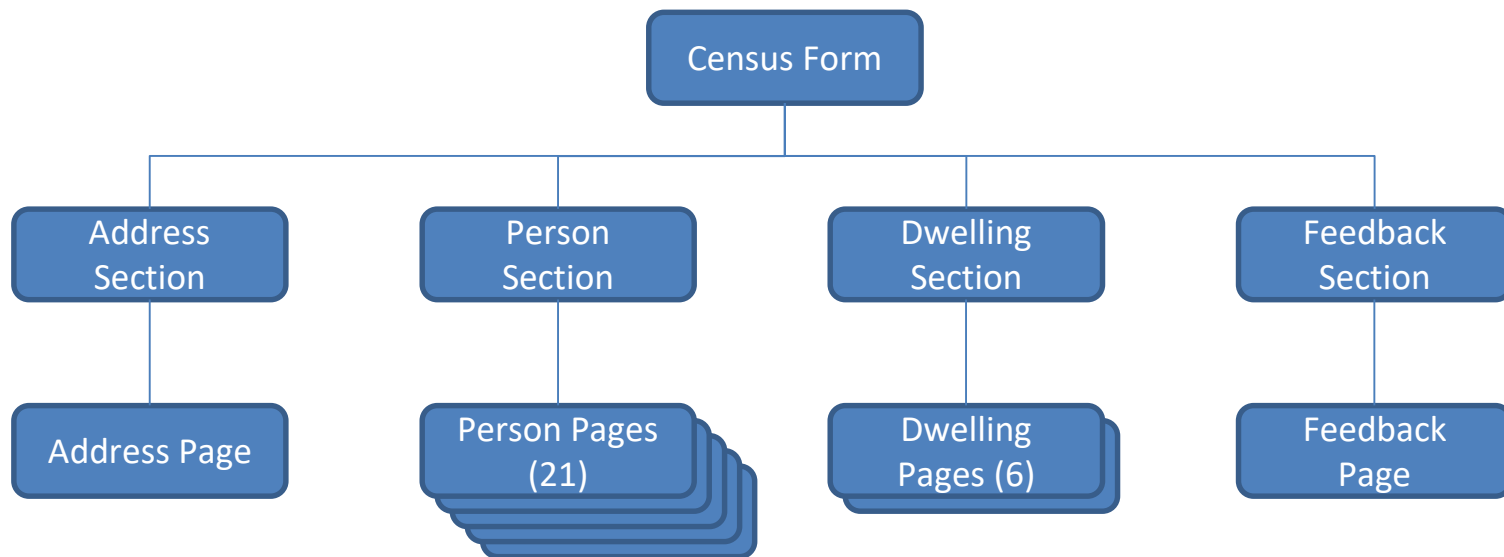
Business need and project objectives

- Business need

    - The Census of Population and Housing is the **largest statistical collection undertaken by the DoS** and one of the most important.

    - Its objective is to accurately measure the number and key characteristics of people who are in Bolumbia on **Census Night**, and of the dwellings in which they live.

    - To date the Census has been **done manually** distributing and collecting paper forms from each household and business in the country before entering this information into a computer system.

    - In line with DoS' continual improvements program, effort has been expended in order to **improve and expand communications channels to, and from the public**. The ECS initiative represents a significant step in this process as it embraces the internet as a viable, and powerful, communications medium.

- Project objectives

    - The ECS initiative is to provide the Bolumbian population with the ability to complete the next Census questionnaire electronically over the Internet and must address the following DoS objectives:

        - Responds to public requests for increased flexibility in methods of completing Census materials.

        - Capitalizes on the internet as a viable communications channel.

        - Meets DoS obligations under the Electronic Transactions Act 2009.

        - Provides online support of the next Census.

        - Maintains the privacy & perception of privacy, in that DoS holds a unique security access key to the managed data, and only staff employed under the Statistics Act can access the raw respondent data.

ECS Project scope

- The ECS proposal that you are being asked to respond to includes the following elements:

  - Definition of a solution for capturing Census information electronically via the internet through the Census period of one week
  - Implementation of the solution including testing and production deployment
  - Hosting services during the length of the project (i.e. through development and production)
  - Supporting the application and infrastructure (i.e. full support for the overall solution)

- The ECS proposal does not include:

  - Systems to analyze Census information collected (this is the subject of another proposal)
  - Non-private dwellings: These responses will be paper-based for this first release of ECS.
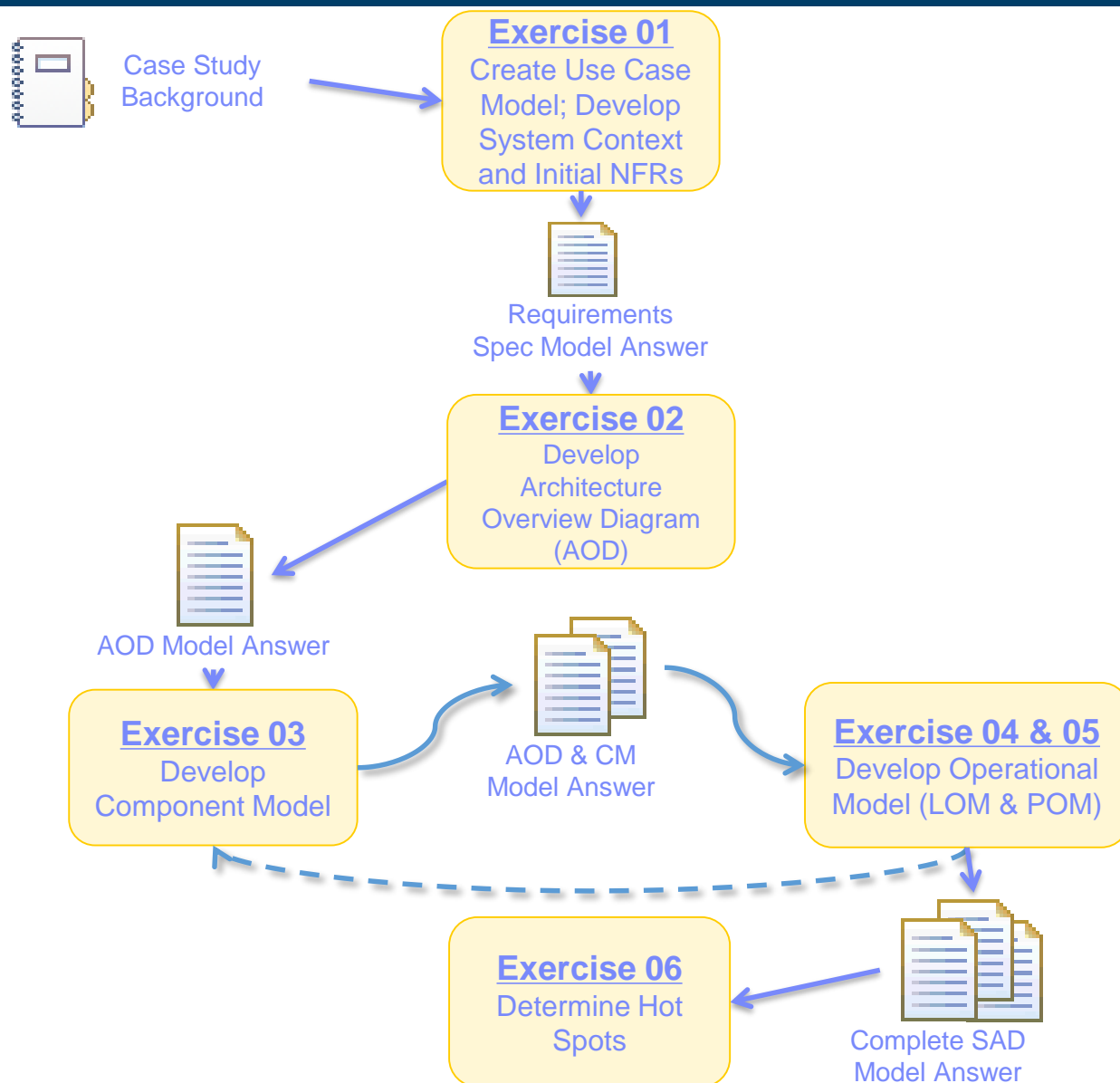
Census form structure

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                        ┌─────────────────┐
                        │  Census Form    │
                        └────────┬────────┘
          ┌──────────────┬───────┴───────┬──────────────┐
┌──────────────┐ ┌──────────────┐ ┌──────────────┐ ┌──────────────┐
│   Address    │ │    Person    │ │   Dwelling   │ │   Feedback   │
│   Section    │ │   Section    │ │   Section    │ │   Section    │
└──────┬───────┘ └──────┬───────┘ └──────┬───────┘ └──────┬───────┘
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│ Address Page │ │ Person Pages │ │   Dwelling   │ │   Feedback   │
│              │ │     (21)     │ │  Pages (6)   │ │     Page     │
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- Over the next few days, we'll use Electronic Census System (ECS) to explore architectural thinking.

- We'll do this using a repeating cycle:
    - Lectures on an aspect of architecture
    - An exercise
        - Working in teams
    - Presentation and review
    - Discussion on key learning points
        - and presentation of sample answer

Case Study Background

Exercise 01
Create Use Case Model; Develop System Context and Initial NFRs

Requirements Spec Model Answer

Exercise 02
Develop Architecture Overview Diagram (AOD)

AOD Model Answer

Exercise 03
Develop Component Model

AOD & CM Model Answer

Exercise 04 & 05
Develop Operational Model (LOM & POM)

Exercise 06
Determine Hot Spots

Complete SAD Model Answer

THANK YOU