Earth Observation and Mobile Software to Transform Farming

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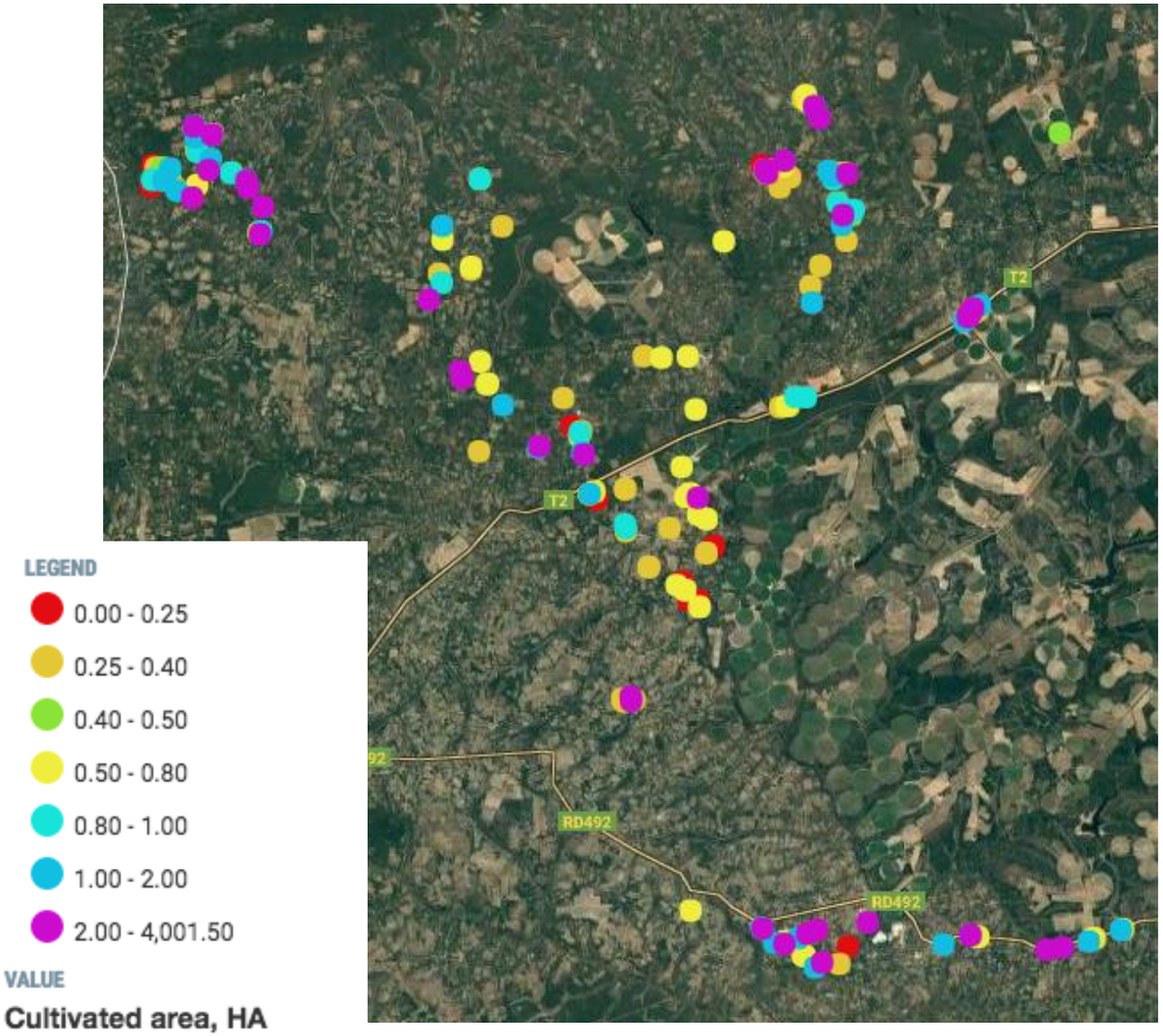
Disruptive Technologies

- Satellite remote sensing is not new, but has the potential to transform our knowledge of how to improve small farm productivity
  - Design targeted interventions to improve services, farm management, knowledge of agricultural activities
- Combined with information about how a field is changing through time, we can estimate:
  - Annual changes in cropped area
  - Impact of rainfall and temperature on yield
  - Start and end of the growing season
  - Strength and growth of agricultural economy

Farm Management is the Key

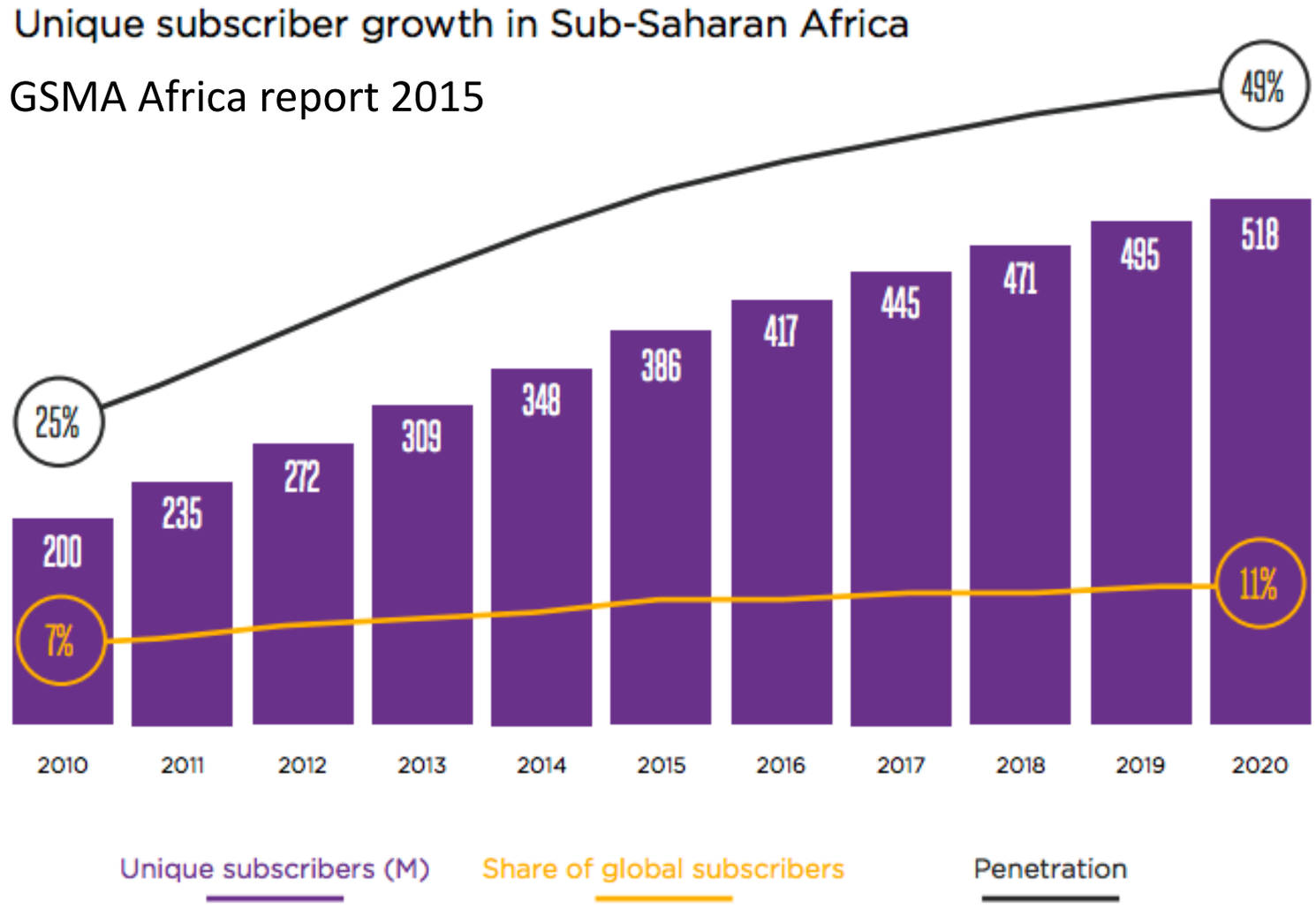


- Each farmer has a different management strategy and resources at their disposal
- Different crop varieties, use of fertilizer, soil inputs, herbicides, pesticides and other products will affect yield and farm profitability
- **Knowing what the farmer is doing** will transform our ability to use high resolution satellite and UAV data to improve outcome

Information about Farmers can transform our understanding of Satellite Data

- **Digital Agriculture** combines large data sources with advanced crop and environment models to provide actionable on-farm decisions.
- Information about the Farmer needs to be
  - Updated throughout the season
  - Include crop type, variety, inputs used, planting and harvest dates, and planting density
  - Diverse farm management types – large commercial, small commercial, subsistence
  - Diverse agro-ecologies and precipitation regimes to capture the variance across the landscape

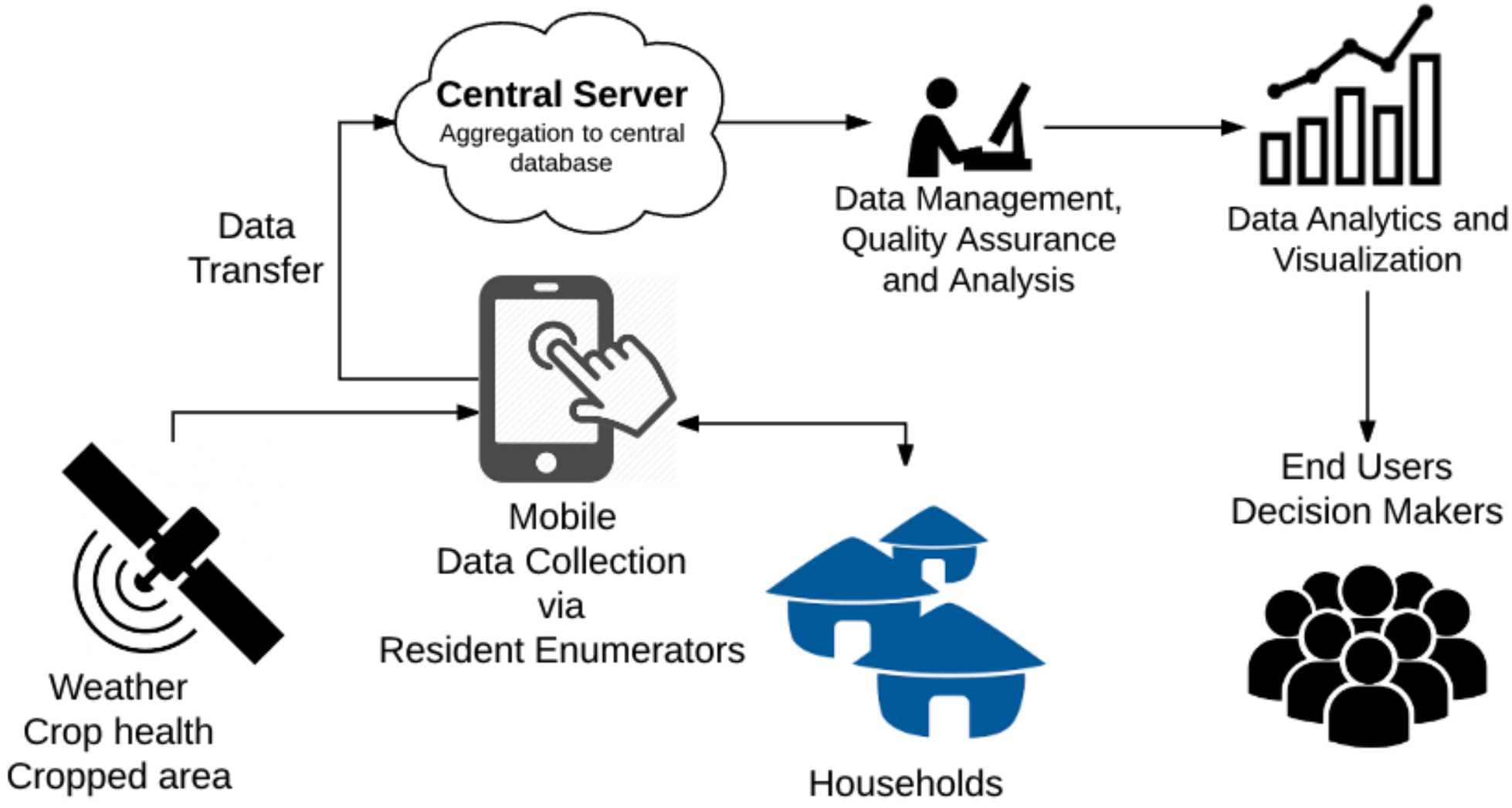
Mobile Phones are an Opportunity



To improve productivity, digital agriculture **must change farmer behavior** through information and education

Engaging with farmers through **social media, farmer cooperatives, and mobile devices** holds promise, with rising mobile connections

Surveying Farmers



Digital Agriculture

- To better understand how farmers can improve yields, we need to have **big data for small farmers**
- Small family farms occupy a large share of the world's agricultural land and produce about 80% of the world's food
- Generating high quality information on area cropped, yield estimates, farm management, and delivering knowledge to farmers directly will transform agriculture