

# Can digitalisation transform African food systems?

## *CCAFS Virtual Dialogue 2: Digitalisation to improve planning and monitoring of adaptation actions*

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# Main messages

- Short term or long term for adaptation
- Evidence of impact of digital solutions
- Distinction in digital technologies for policy makers vs. small scale producers

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# Short term or long term for adaptation

# Global Risk Report (World Economic Forum, 2018, 2020)

For the first time in the history of the Global Risks Perception Survey, **environmental concerns** dominate the top long-term risks by likelihood.

Extreme  
weather



Failure of  
climate change  
adaptation



Major natural  
disaster



Biodiversity  
loss



Human-made  
damage



# Climate change impacts and agriculture

- CO2 concentration increase
  - Positive for photosynthesis (mostly), so potential for production increase
    - Especially in temperate regions
- BUT:
  - Higher temperatures and rainfall changes lead to poorer conditions for growth
    - Especially in arid & semi-arid regions
  - Extreme weather events: droughts, excessive rainfall, heat waves, hail storms, hurricanes

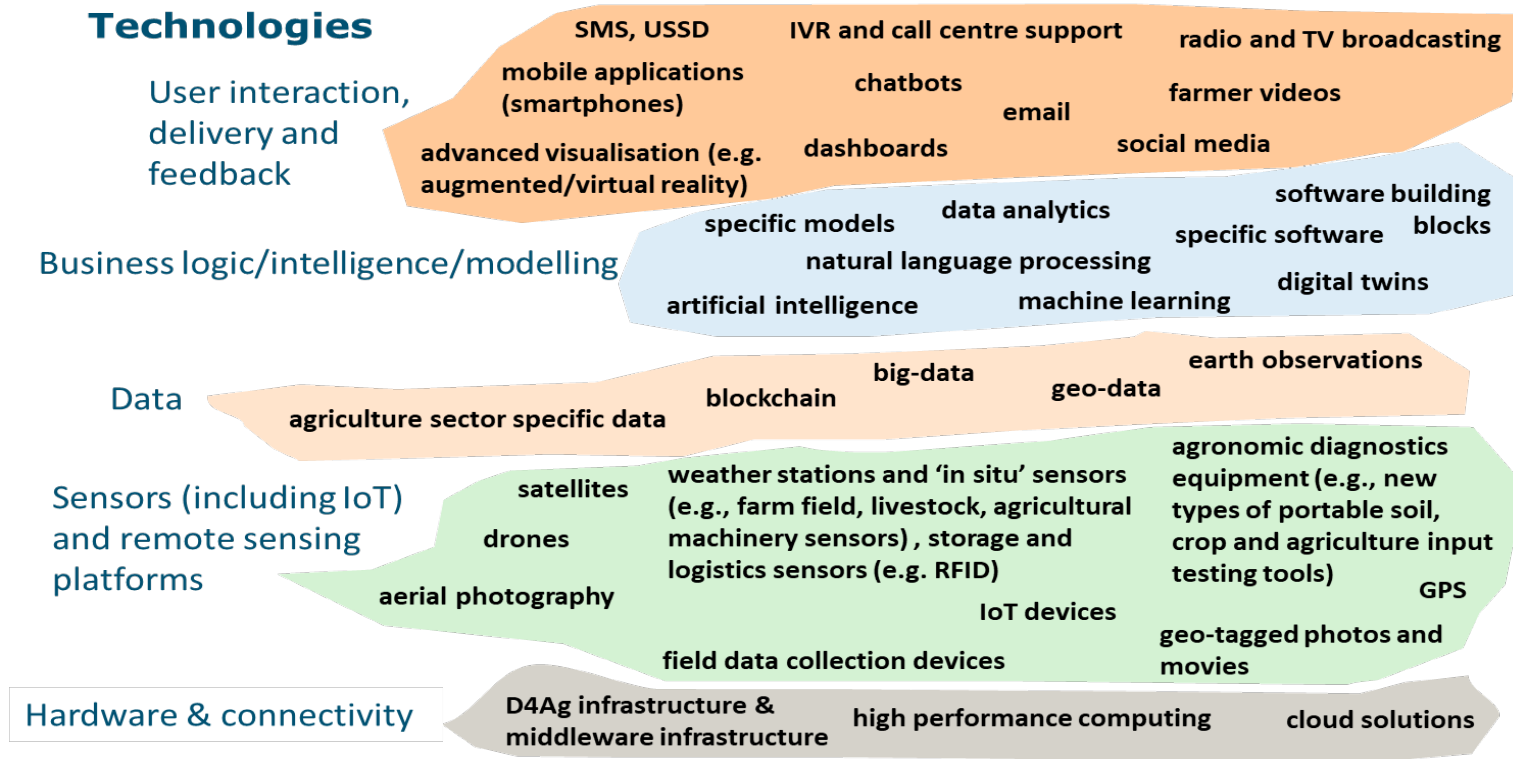
# Time scale of change?

- Climate system is slow!
- Adaptation: towards mostly a long term perspective towards 2030-2050
- Change in climate system is gradual

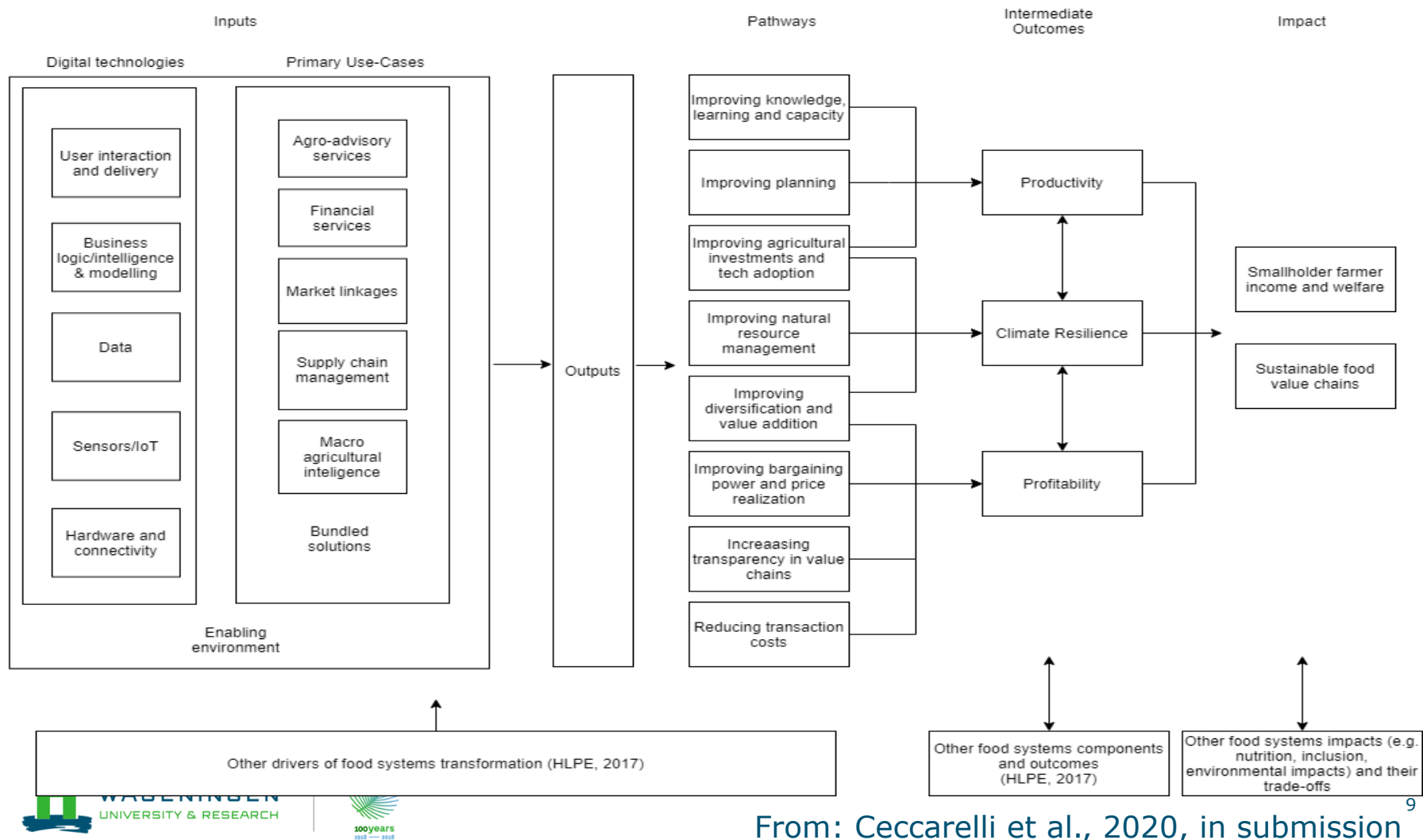
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# Evidence of impact of digital solutions

# Space of digital technologies







# Conclusions on evidence of impact

- Rigorous and quantitative evidence is still lacking
  - use cases such as supply chain management, macro intelligence, bundled solutions and 'super-platforms'
- Directions for future development:
  - A technical transformation pathway towards increased bundling of solutions
  - An urgent need for a human capital agenda and modes for improving digital literacy
  - The need for an analysis of the enabling environment



**Dalberg Advisors**

**<https://www.cta.int/en/digitalisation-agriculture-africa>**



News

## WUR monitors expansion of digital tools in agriculture worldwide

December 16, 2020

The uptake of digital agricultural tools and services around the world will be tracked by researchers from Wageningen University & Research. WUR will continue the work of the EU-funded institution, the Technical Centre for Agricultural and Rural Cooperation (CTA), which is winding down its activities this year.

Wageningen University and Research works on digital technologies and fostering digitalisation in agriculture and food through research and policy support including data science, modelling, data driven monitoring and evaluation, and ground activities to pilot innovations.

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# Distinction in digital technologies for policy makers vs. small scale producers

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# Distinction in digital technologies for policy makers vs. small scale producers

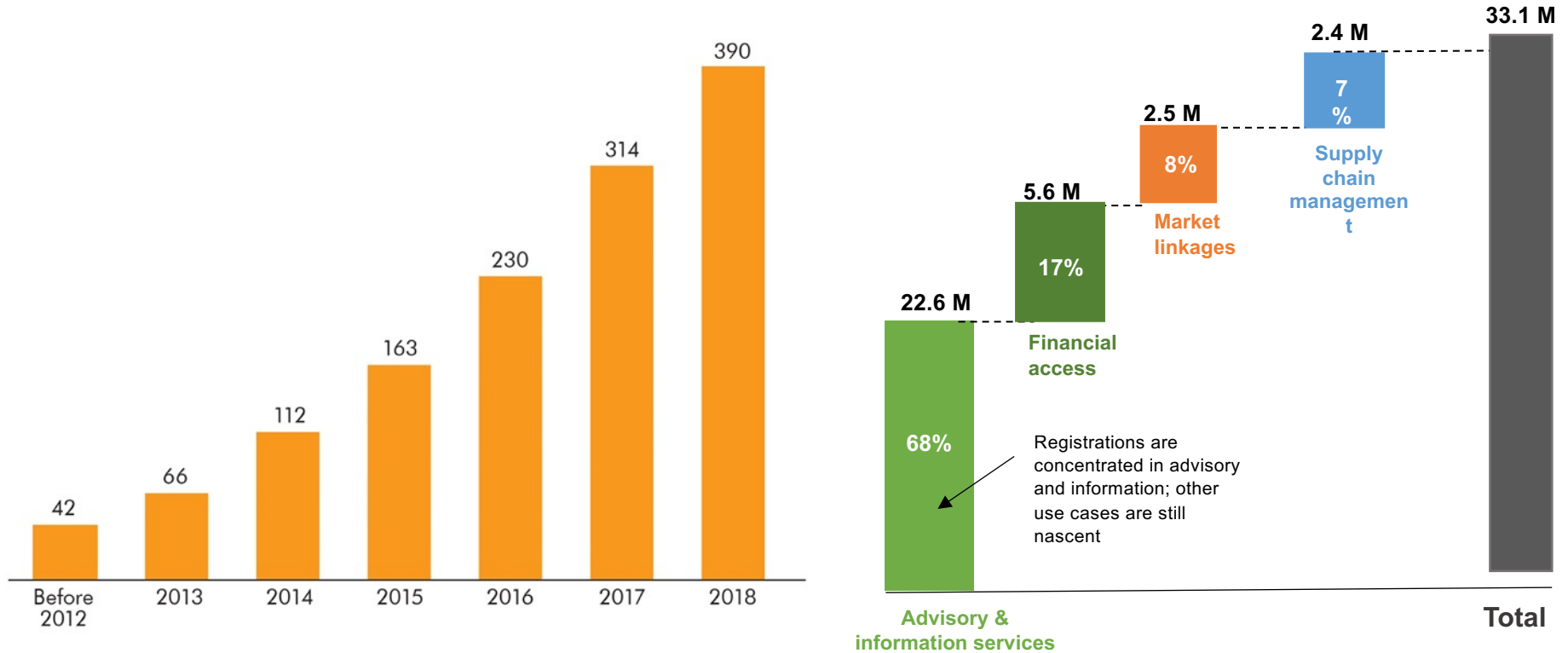
## ■ Small Scale producers

- Short term
- Immediate concerns in operational decision making
- Advisory services & Early warning
- Extreme Events

## ■ Policy makers

- Short & long term
- Short term = enabling environment
- Long term = promote adaptation strategies
- Shifts in climate system

# Growth trend (from the CTA/Dalberg Digitalization in Africa Report)



## Nioro Senegal

Overview Impacts Vulnerability Adaptation

**Farms:** Smallholder rainfed growing maize, millet and peanut

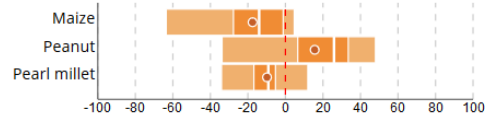
**Climate 2050s:** 1 to 3 °C hotter than today with variable precipitation changes

**Impacts:** Negative for maize, variable for millet and positive on peanut yields

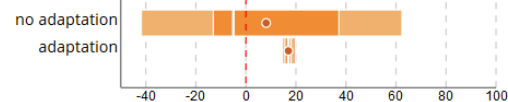
**Adaptations:** Use of heat tolerant cultivars for cereals and narrower planting window combined with future practices described in the development pathways



### Climate Change Impact on Yields (2050s)



### Climate Change Impact on Net Farm Income (2050s)



### Vulnerability (2050s)

47% negatively impacted by climate change.



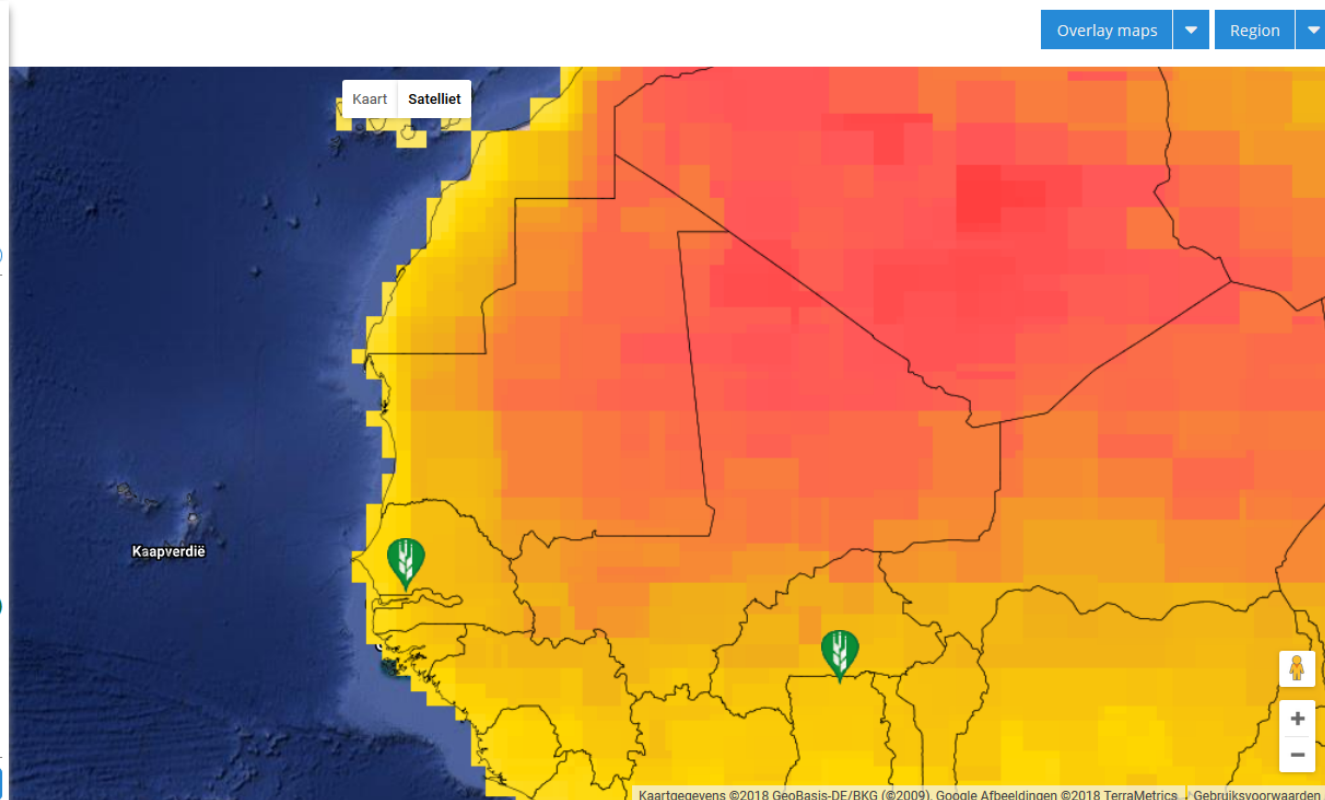
### Adaptations (2050s)

53% benefit from adaptation packages.



Read more

Explore data



Kaartgegevens ©2018 GeoBasis-DE/BKG (©2009), Google Afbeeldingen ©2018 TerraMetrics | Gebruiksvoorwaarden



# Conclusions

- Many pathways of digital technologies impacting adaptation & food system transformation
- Need for a global observatory on development of the digital agriculture sector
  - Evidence on pathways towards Climate Resilience (etc)
- Two necessary conditions:
  - Human capital agenda
  - Strong enabling environment

# Thank you!



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