

CLIMATE-SMART SOLUTIONS STUDY: AN ASSESSMENT OF CLIMATE-SMART DASHBOARDS TO SERVE FARMER FACING ORGANIZATIONS

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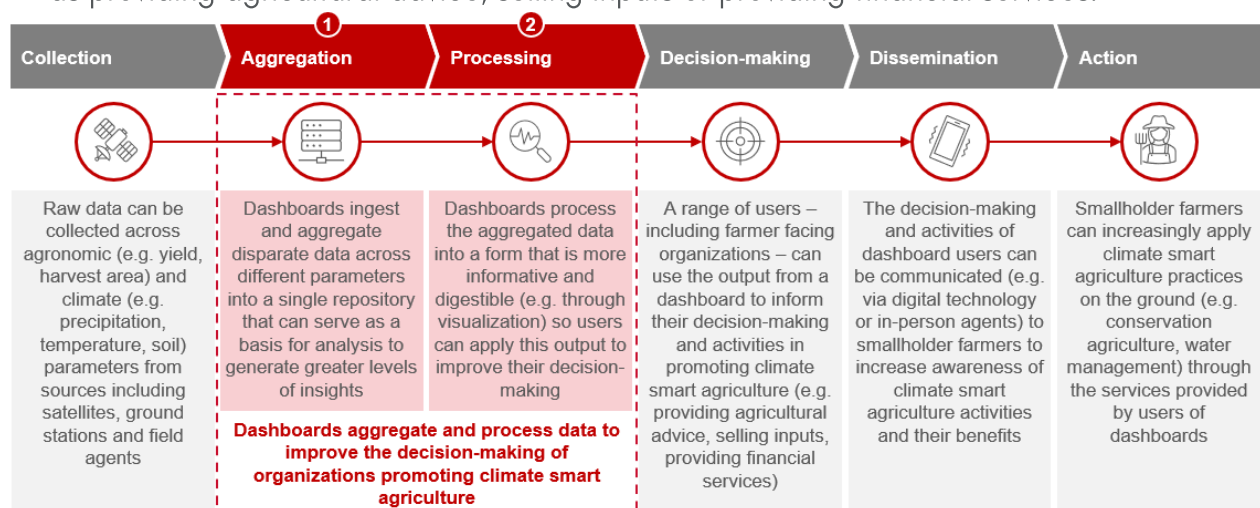
AgriFin with Dalberg Advisors has developed a landscape study to understand farmer facing organizations' needs and potential use cases of climate-smart dashboards, and to assess the extent to which existing dashboard solutions meet these needs.

>> Download [Landscape Case Study](#) and the [Annex](#) <<

Climate-smart solutions have emerged as an important mechanism to reduce risks for smallholder farmer financing and production. For example, 79% of smallholder farmers that have adopted weather advisory services with DigiFarm provided through climate-smart dashboards have reported increases in productivity. But more is needed to expand these services and promote the uptake of other climate-smart agriculture practices, such as soil management, crop selection and pest and disease management. As such, a growing number of farmer facing organizations are expressing interest in engaging climate-smart dashboards that aggregate and process data across climate-associated risks to support smallholder farmers. This landscape study was developed to understand farmer facing organizations' needs and potential use cases of climate-smart dashboards and to assess the extent to which existing dashboard solutions meet these needs.

What is a climate-smart dashboard?

A climate-smart dashboard aggregates and processes agroclimatic data to inform the adoption of climate-smart agriculture practices. Dashboards ingest and aggregate disparate data across different parameters, such as precipitation, temperature and yield, into a single repository from which the data can be processed into a more informative and digestible form. This processed data can then improve the decision-making of farmer facing organizations seeking to promote the adoption of climate-smart agriculture practices, such as providing agricultural advice, selling inputs or providing financial services.



Source: Dalberg Analysis 2021

Dashboards can ingest and aggregate data across a wide range of parameters that affect their complexity. The key parameters for aggregating data include the:

- Types of agroclimatic conditions observed
- Geographic range
- Geographic granularity
- Time horizon
- Frequency with which data is updated within a dashboard

Together, these parameters define the potential scope and complexity of a dashboard's processing capability.

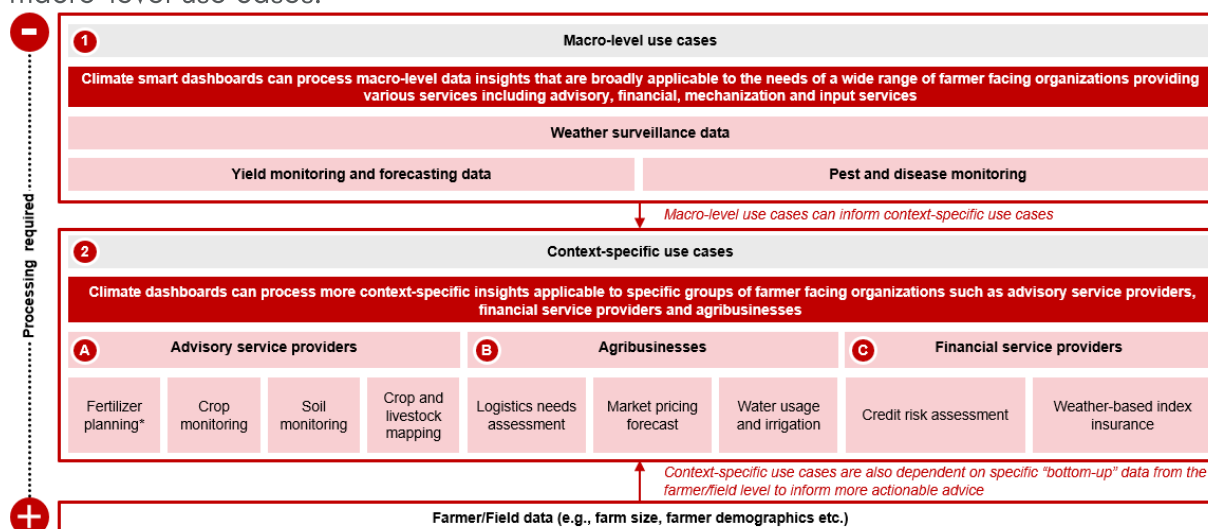
Dashboards process aggregated data to generate insights to varying levels of actionability and present these insights in a more user-friendly format. Dashboards can process back-end data according to three broad levels of complexity:

- **Descriptive** – discerning and describing trends across data, such as descriptive maps and indices
- **Predictive** – generating new forecast data to inform future planning, such as yield forecasts and famine warning systems
- **Prescriptive** – providing actionable advice based upon future expectations and specific contextual knowledge, such as crop selection and calendaring

Dashboards can then present this greater level of insight in more interactive and usable formats, such as interactive maps and forecast charts, to inform farmer facing organizations' decision-making.

How can climate-smart dashboards be used by farmer facing organizations?

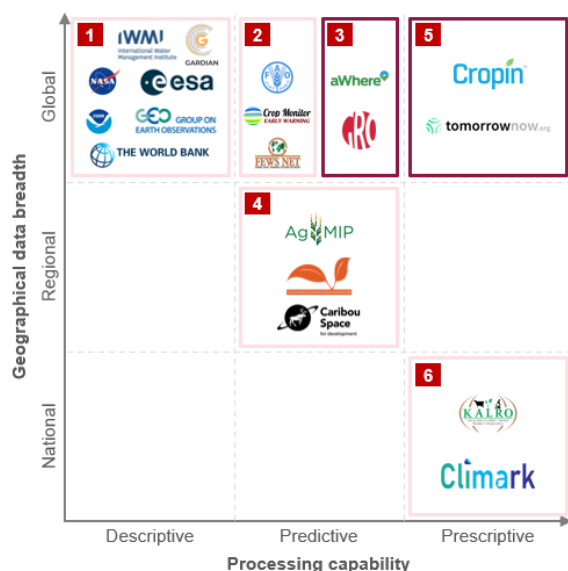
Climate-smart dashboards can inform two levels of use cases: macro-level uses cases applicable to a broad range of farmer facing organizations or use cases that are more specific to different organizations. The macro-level use cases can inform a variety of farmer facing organizations' activities but at a higher, less actionable level; on the other hand, context-specific use cases tend to be more specific to different groups of farmer facing organizations, requiring the processing of both macro-level data and "bottom-up" farmer and/or field level data to develop more actionable advice than is in macro-level use cases.



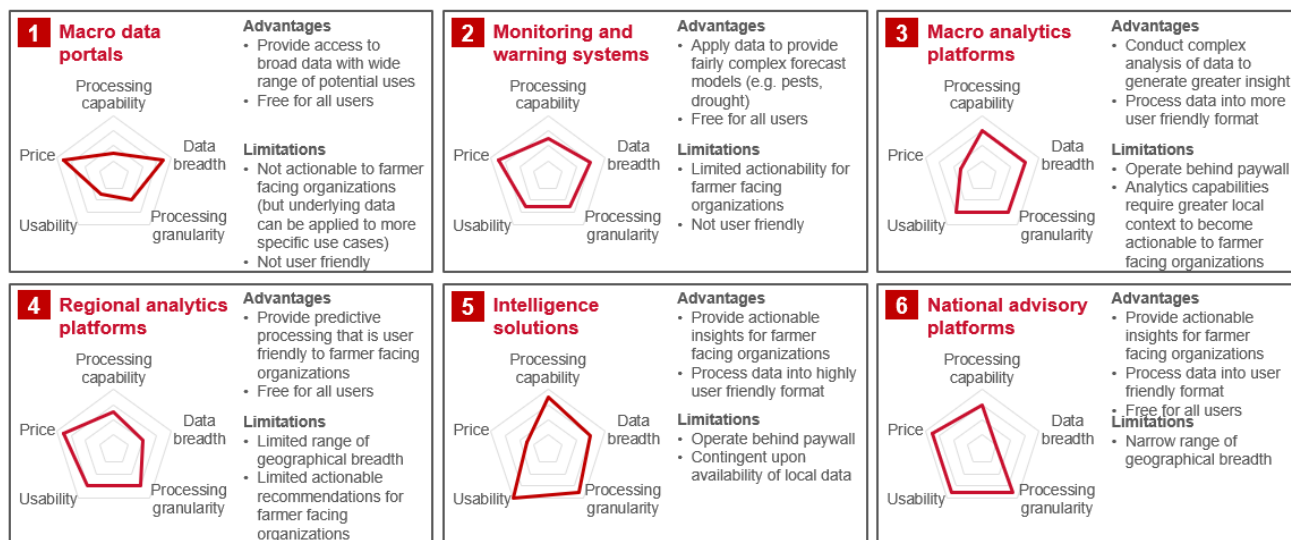
Source: Dalberg Analysis 2021

To what extent do current climate-smart dashboards meet the needs of farmer facing organizations?

Climate-smart dashboards can be broadly grouped into six archetypes according to their processing capability and geographical coverage. These six archetypes include: macro data portals; monitoring and warning systems; macro analytics platforms; regional analytics platforms; intelligence solutions; and national advisory platforms. Each of these archetypes offers different advantages but all have their limitations in serving farmer facing organizations.



- 1 Macro data portals**
 - Aggregate and visualize a broad range of descriptive data (e.g. weather patterns) to inform macro-level decision-making (e.g. for policy makers)
 - Free of charge but relatively complex to use for non-scientists
- 2 Monitoring and warning systems**
 - Process data for forecast applications at a macro level (e.g. drought/famine warning) that can often inform a broad range of users
 - Free of charge but relatively complex to use for non-scientists
- 3 Macro analytics platforms**
 - Apply advanced analytics to offer a broad range of applications (e.g. yield forecast models, weather indices)
 - Operate behind a payroll due to more advanced analytics
- 4 Regional analytics platforms**
 - Process data (e.g. yield forecasts) with a narrower geographical coverage and range of use cases than macro-level platforms
 - Free of charge and relatively interactive/user-friendly
- 5 Intelligence solutions**
 - Apply advanced analytics to provide more actionable advice to end users (e.g. when to plant crops)
 - Operate behind a payroll due to more advanced analytics
- 6 National advisory platforms**
 - Apply processing to a local context to provide more actionable advice (e.g. crop selection) albeit with a narrower geographical range
 - Free of charge and relatively interactive/user-friendly



Source: Dalberg Analysis 2021

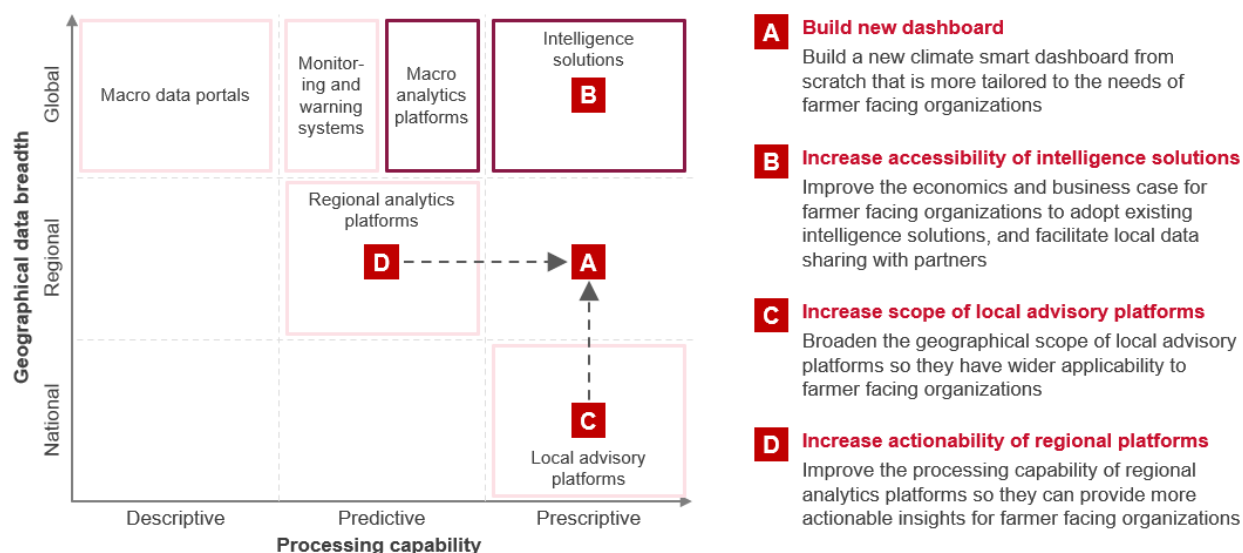
How could climate-smart dashboards further benefit farmer facing organizations?

There are four potential interventions to increase the actionability of dashboards in meeting farmer facing organizations' needs.

- Building a new climate-smart dashboard from scratch that is more tailored to the needs of farmer facing organizations
- Improving the economics and business case for farmer facing organizations to adopt existing intelligence solutions, and facilitating local data sharing with partners

- Broadening the geographical scope of local advisory platforms so they have wider applicability to farmer facing organizations
- Enhancing the processing capability of regional analytics platforms so they can provide more actionable insights for farmer facing organizations

Each of these potential interventions hold relative strengths and weaknesses and warrant further technical feasibility and cost-benefit analyses to understand how dashboards can generate the most impact for farmer facing organizations and how this compares to other interfaces for channeling data, such as APIs.



Source: Dalberg Analysis 2021

There is significant potential to increase the application of agroclimatic data to promote smallholder farmers' adoption of climate-smart agriculture practices.

Given farmer facing organizations' potential use cases for climate-smart dashboards, possible next steps include both supporting the improvement of climate-smart dashboards to meet farmer facing organizations needs and increasing awareness and adoption of existing dashboards by farmer facing organizations. Organizations, such as AgriFin, can play a key role as an interface between dashboard providers, farmer facing organizations and other public actors interested in digital agriculture initiatives, such as donors, to harness the power of data to promote climate-smart agriculture.

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MERCY CORPS AGRIFIN

Mercy Corps' AgriFin programming (MCA) represents USD 35 million in innovation funding from the Mastercard Foundation, Bill and Melinda Gates Foundation and the Swiss Development Corporation to support the development, testing and scale of digitally-enabled services for smallholder farmers. With this support, AgriFin now reaches more than 16 million smallholders.

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