

The ISO Strategy Advisory Group on Smart Farming

R. Andres Ferreyra, PhD
Syngenta Digital



2022-03-14



What is Smart Farming?




 The consumer and their dinner plate!

 Processors, food companies

Buyers (e.g., Elevators)



Producer

Crop input retailers 

 Crop input distributors

 Crop input manufacturers

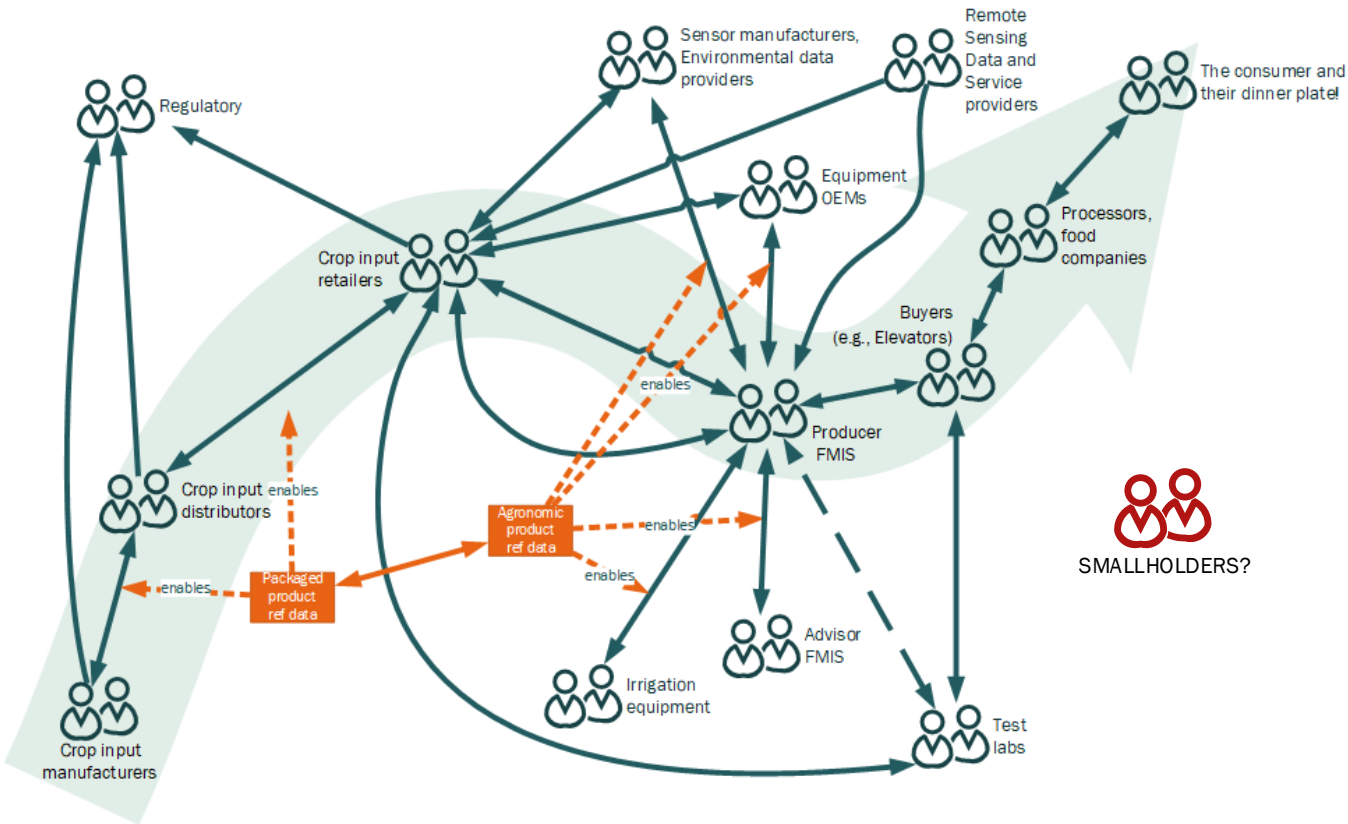
Modern farming happens in a **multi-stakeholder system**.

Materials and information flow through the system.

A tentative outline (one of many possible) of how we got to Smart Farming:

- **Precision Farming:** New set of enabling technologies. Successes: auto-steer, fertility management based on soil tests.
- **Digital Farming:** Greater emphasis on **using data to drive decision-making**. Greater use of farm management systems, scouting solutions. Goal is primarily to maximize profitability.
- **Smart Farming:** **Dwindling resources, climate change** and a greater appreciation of the **large footprint of agriculture** leads to more ambitious goals, including **sustainability**, preservation of **biodiversity**, **optimization** of use of resources.

Why are standards needed in Smart Farming?



- As the **complexity** of agriculture **grows**, the number of stakeholders and the **complexity of information flows** does too.
- Modern farms use machinery and software systems from multiple manufacturers.
- Producers must deal with a multitude of mutually-incompatible proprietary data formats, code lists, etc.
- **Standards, i.e., standardized interfaces, data formats and semantics are required for interoperability.**
- **IMPORTANT:** How to make the advances of Smart Farming available to a greater number of people. For example, how do smallholders fit here?

Cross-cutting technologies and topics

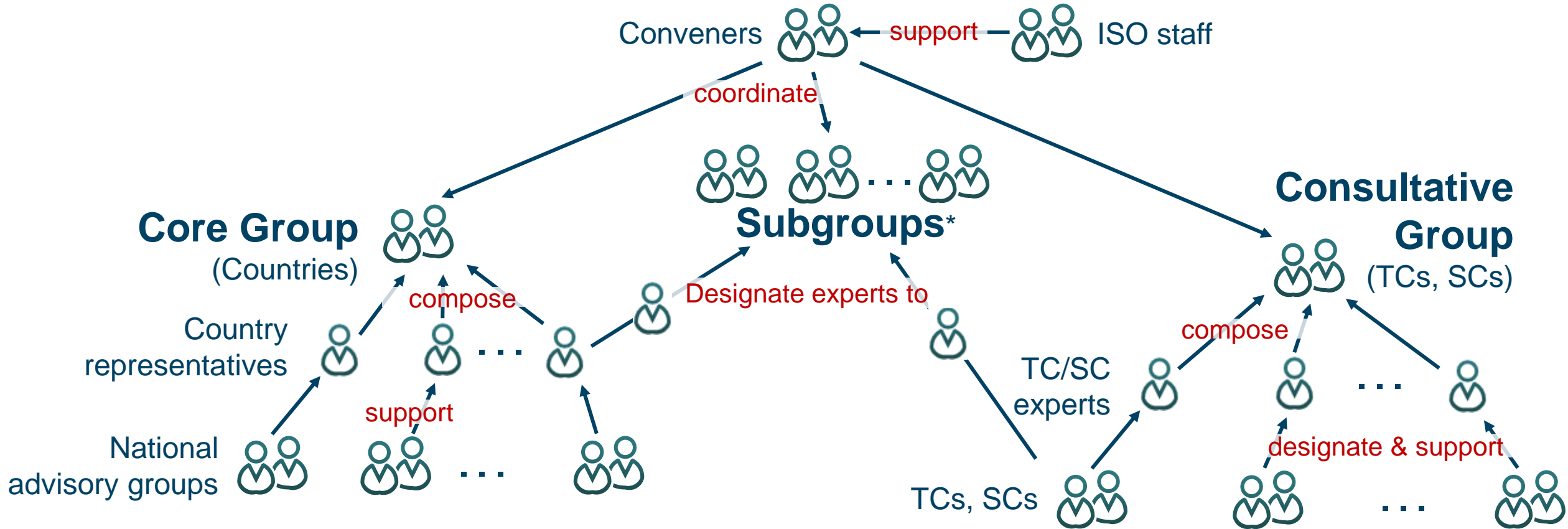
Artificial intelligence
 Cybersecurity
 Food loss and waste
 Climate

Motivation for the SAG



- Standardization is essential for
 - the widespread adoption of Smart Farming (SF) and
 - the achievement of the Sustainable Development Goals (SDGs).
- Cross-domain interoperability requirements → fragmentation, incompleteness and suboptimal coordination in standardization efforts.
- **ISO is aware of this** and has created the Strategic Advisory Group (SAG-SF) to address these concerns.
- The SAG's primary deliverable is a **Standardization Roadmap**
- The roadmap will help ISO approach Smart Farming in a strategically well-organized and orchestrated way, considering existing ISO work and its TC structure.
- Over 20 National Standardization Organizations share this opinion and have nominated experts to work in the ISO SAG.

ISO SAG Smart Farming Organization



* Subgroup members may be designated by countries (2 max. experts / country / subgroup or by TCs & SCs)

Goals for the Roadmap on Smart Farming



- **Describe the standardization landscape** around Smart Farming across the entire food value chain in the context of the Sustainable Development Goals (SDGs).
- **Identify gaps** where standardization is needed.
- **Recommend actions and priorities** for standardization activities.
- **Publish the results** (i.e., the roadmap document).

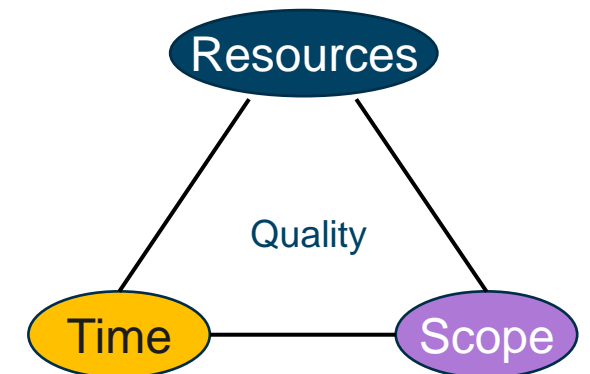




Guiding Principles



- We acknowledge our constraints:
 - Short timeline and limited resources will necessarily limit scope.
- We are not going to define smart farming *a priori*
 - Constructionist approach
- We are not defining the exact scope of the effort *a priori*
 - Using input from the participants themselves for both scope and subgroup categories.
- We *will* primarily focus on **processes** (present and future) and their data capture and exchange needs.
 - Will start from ISO 22006 Annexes A, B
- We will have to work in parallel (i.e., subgroups)
 - Common language to prevent divergence
 - BPMN: ISO/IEC 19510:2013
- Keep SDGs, smallholders in view at all times
- We understand that the end result will necessarily be imperfect and incomplete; we are committed to making it consequential; i.e., progress.





SUSTAINABLE DEVELOPMENT GOALS



- "Strengthen the means of implementation and revitalize the global partnership for sustainable development"
- Opportunity for partnership
 - FAO: "Owns" the agriculture related SDGs. They generate requirements.
 - ISO: Standardization of processes (and the data that support them) in the domain.
 - ITU: Standardization of information communication technologies



Some relevant targets

17 PARTNERSHIPS
FOR THE GOALS



- **Target 17.6:** Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism.

17 PARTNERSHIPS
FOR THE GOALS



- **Target 17.7:** Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed.

17 PARTNERSHIPS
FOR THE GOALS



- **Target 17.8:** Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology



R. Andres Ferreyra, PhD
Data Asset Manager—Syngenta Digital

Andres.Ferreyra@syngenta.com

Twitter: @aferreyra





Johannes Lehmann

**Head of Business Development Smart Farming,
German Institute for Standardization**

Johannes.Lehmann@din.de

M: +49 152 54871179

W: <http://www.din.de/go/smart-farming>

L: <http://www.linkedin.com/in/lehmann-johannes>

DIN

Deutsches Institut für Normung e. V.
Saatwinkler Damm 42/43
13627 Berlin

www.din.de



DIN