AGRI Innovation summit 2017

KEYNOTE SPEAKER

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# AGRICULTURE 4.0 AND RURAL DEVELOPMENT

## Robotics / Mechanization

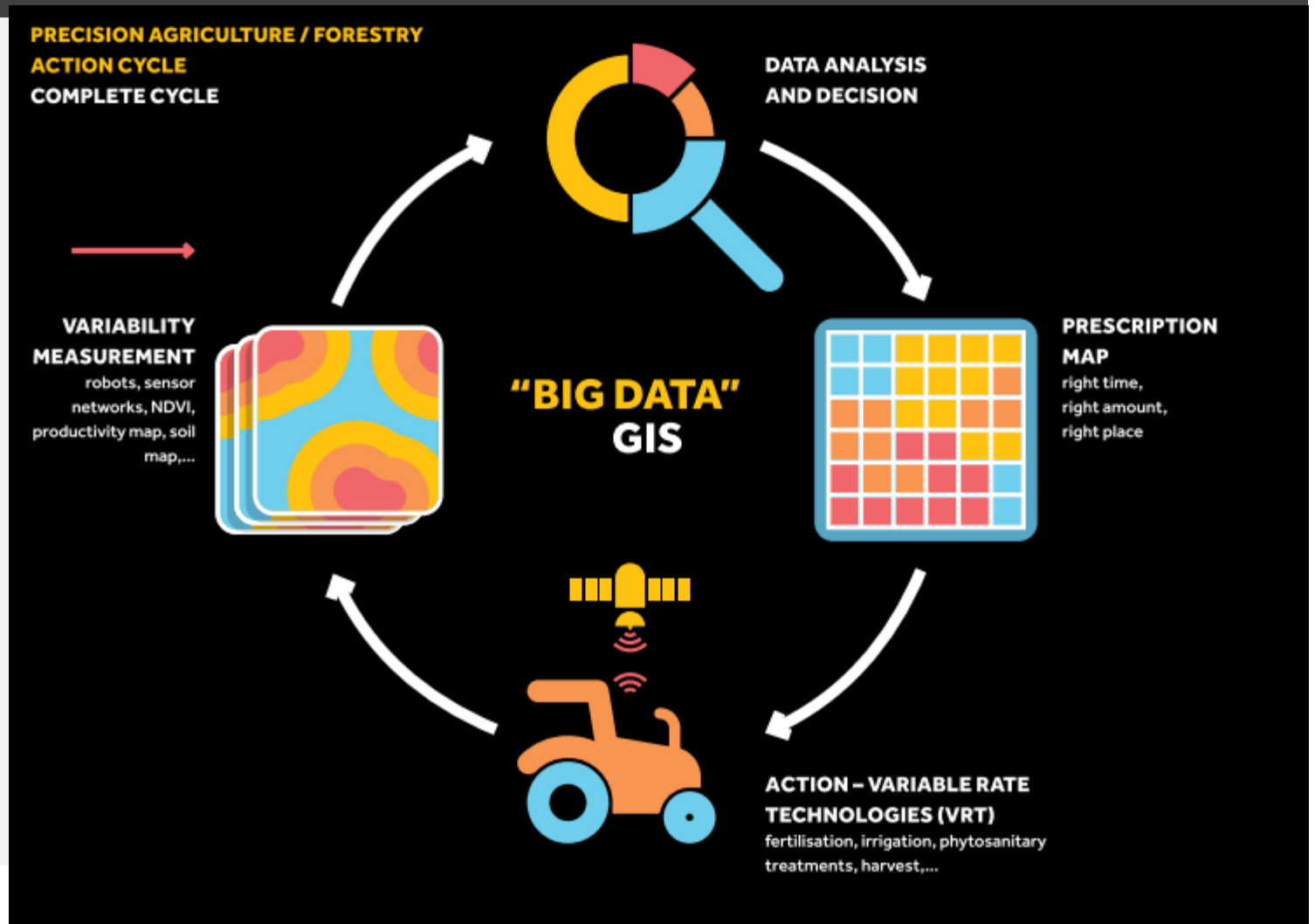
## Robotics / Mechanization


- Lack of workers
- Water scarcity
- Environment impact - *Expected climate change has negative impacts on soil productivity*
- Food Waste
- Food security - *Interrelationships connection to human well-being*
- Soil compaction
- Higher efficiency on the resources usage
- Land based renewable energy and renewable materials production conflict

## Robotics / Mechanization

## Tendency:

- Gather all relevant/type/amount of available information
- Apply the right amount at right time and place
- Act chirurgical at the right time and place



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Agriculture 4.0 and rural development

## Robotics / Mechanization

### Success Cases:

- Extensive crops and logistics
- Milking robots.

### Benefits:

- Improves yield, land use, environmental impact and management
- Increases precision and quality in the process
- Extends operation time and Reduces unit costs
- Provides a quantitative decision base (ability to gather data and assess the state of crops and livestock)


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## Robotics / Mechanization

The use of robotics/mechanization in agriculture is **not fully democratized** in agriculture. (permanent crop, countries)

**Challenges:**

How we move/promote robots/mechanization for **more complex scenarios, fruit, vegetables, small farmers** and we make more **cost-effective** for low competitive countries

Agriculture is **cost driven, unit costs and yield** improvements are the only real argument for automation. However automation:

- reduces **environmental impact** for example with selective pesticide dosing, reduced levels of ground compaction and higher levels of land utilization
- Promotes the **economy of rural areas**

Should R&D on mechanization/robotics be driven only by the end-users?

## Robotics / Mechanization

**Challenges:**

In factories we can easily increase the production to satisfy the demand. Provide in-field processing and packing crop monitoring to livestock management and harvesting. **Food-processing in the field?**

**Multiple small robots** vs **Big machinery**? (less soil compaction, better adaption to the farm size)

**Urban farms, food factories**? Local VS Intensive VS Rural VS short chains

**Service Robots** (ex. UBER) VS proprietary farm robots? Small proprietaries VS true farmers community?

**Safety**: behavior of autonomous machines in low-deterministic environment. Control in mixed environments, how to get a robot to the field and the driver back home?

Robot Agriculture more ecofriendly/Bio (let the ecosystem do the job of plant protection) **– less monoculture more polyculture** -> more modular and smaller agricultural robots -> **Fuel vs Electrical motors** based