

Smart villages and Smart farms: building smartness side by side

Smart Village Leader Network

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Farms and digitalisation

Our society is digitalizing rapidly.

Agriculture is an important sector and its has to be well connected to the rest of the society.

Society also sets many demands for farming, some by regulation and some as a moral pressure, e.g. environmental or health impacts. Internally, farms are struggling with low profitability.

Digital tools help farms to answer these demands.



Smart Farming

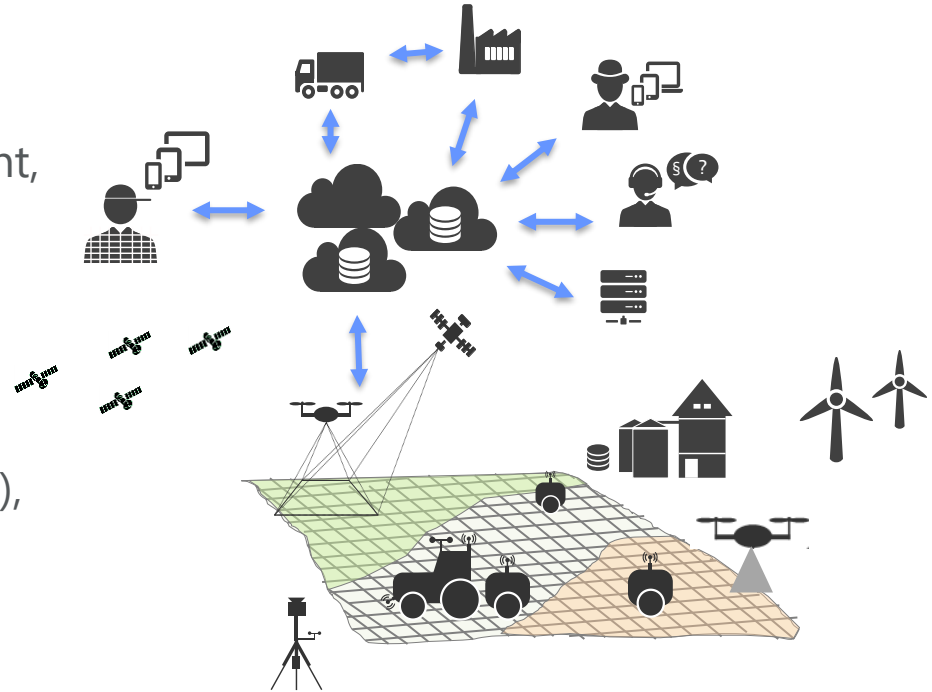
- Smart Farming represents the application of modern Information and Communication Technologies (ICT) into agriculture.



Smart Farming

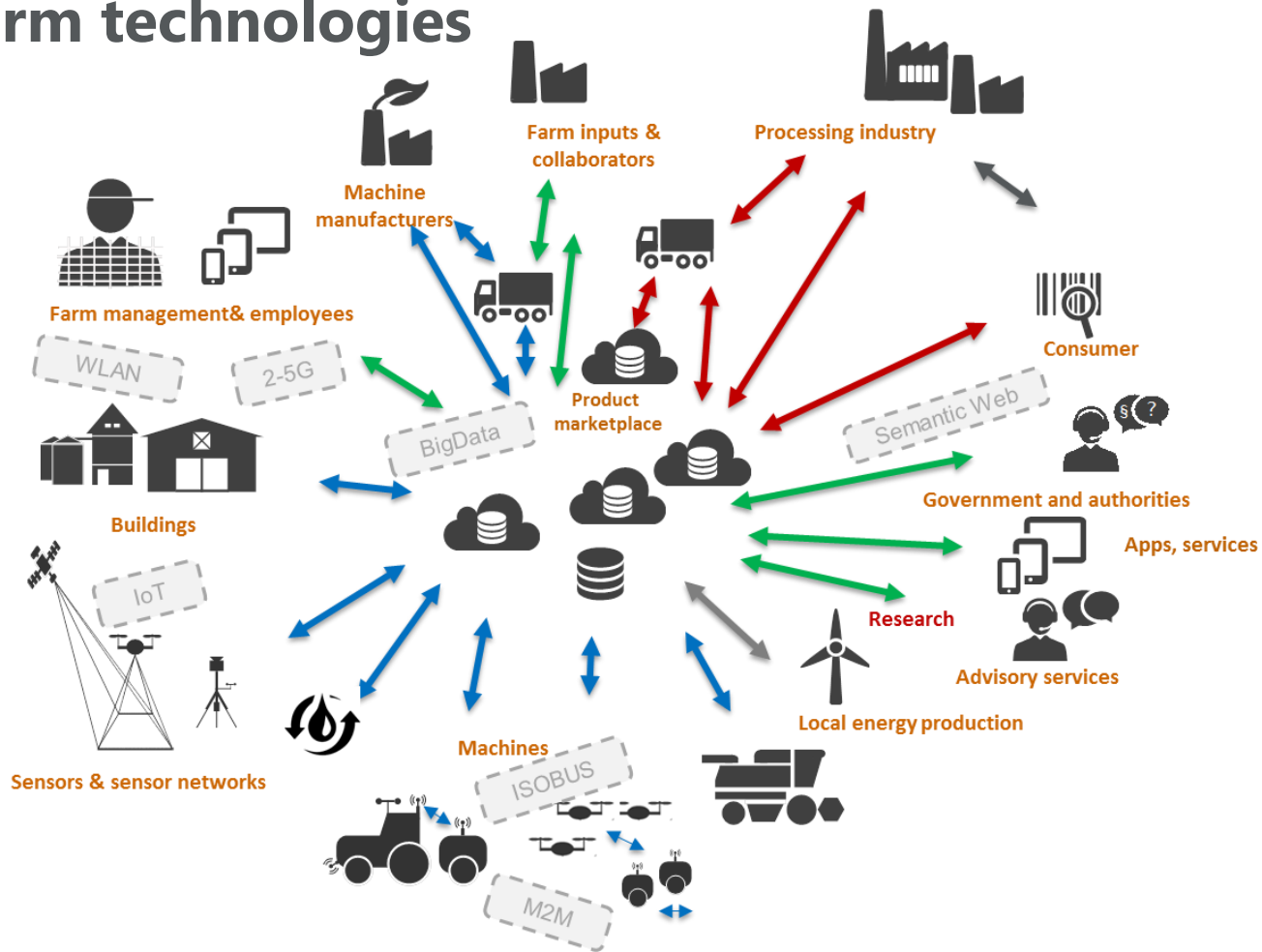
Smart Farming is taking over the agricultural world based upon the combined application of

- ICT solutions such as precision equipment,
- the Internet of Things (IoT),
- sensors and actuators,
- geo-positioning systems,
- Big Data,
- Unmanned Aerial Vehicles (UAVs, drones),
- robotics, etc.





Farm technologies



Smart Farming and collaboration

Building and maintaining smart farming systems would benefit greatly of collaboration with neighbours and service providers.

Smart farming is based on efficient use and exchange of data between farm's internal and external systems, and thus, well functioning communication technology.

This opens many opportunities where farms and other enterprises or actors in the region or nearby village could collaborate and support each other.

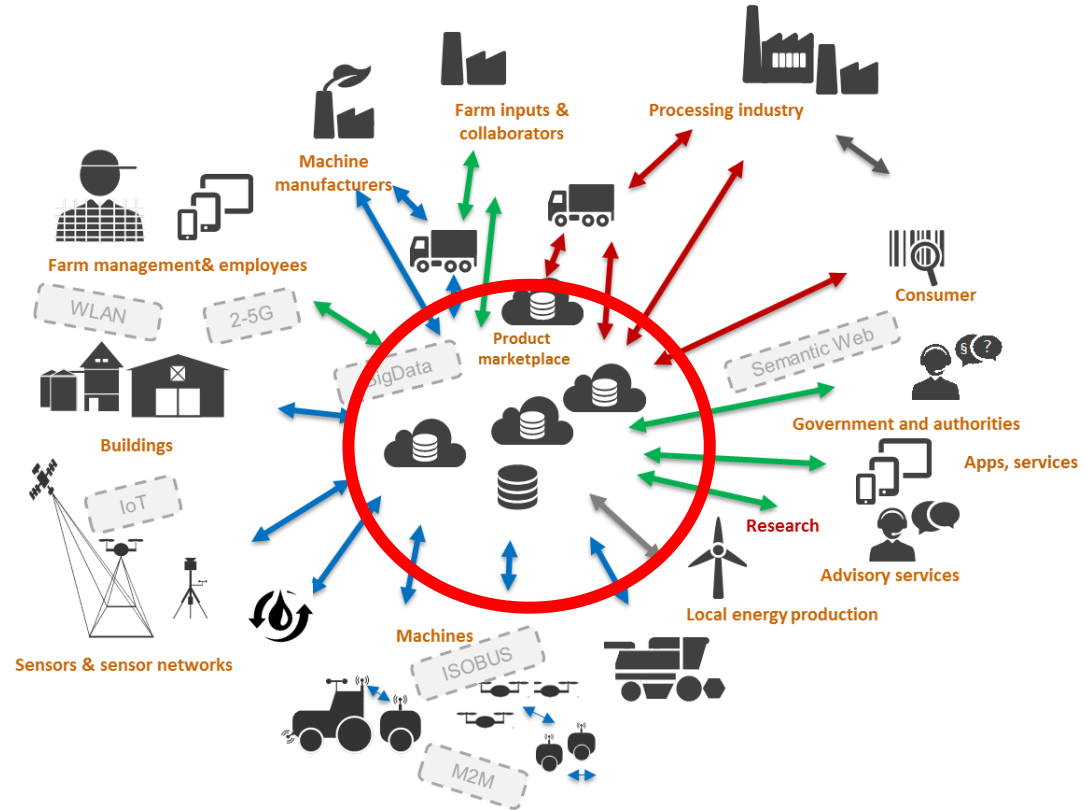
Such as:





Farm technologies

Communication

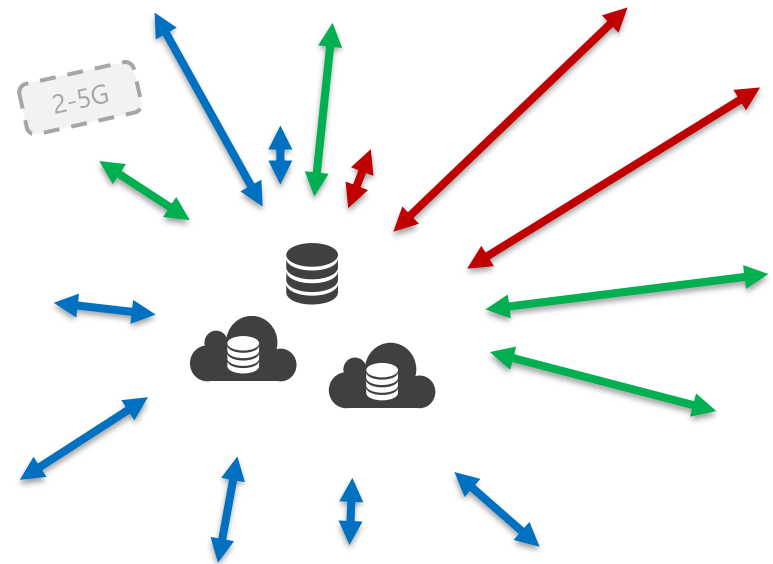


Acquire efficient internet connections

Broadband connections have been difficult to arrange to rural areas in Finland eventhough they are essential for modern farming and other livelihood.

Now micro-operators can be legally established. They could act locally, and offer solutions that are tailored for farms and other actors in the region/village.

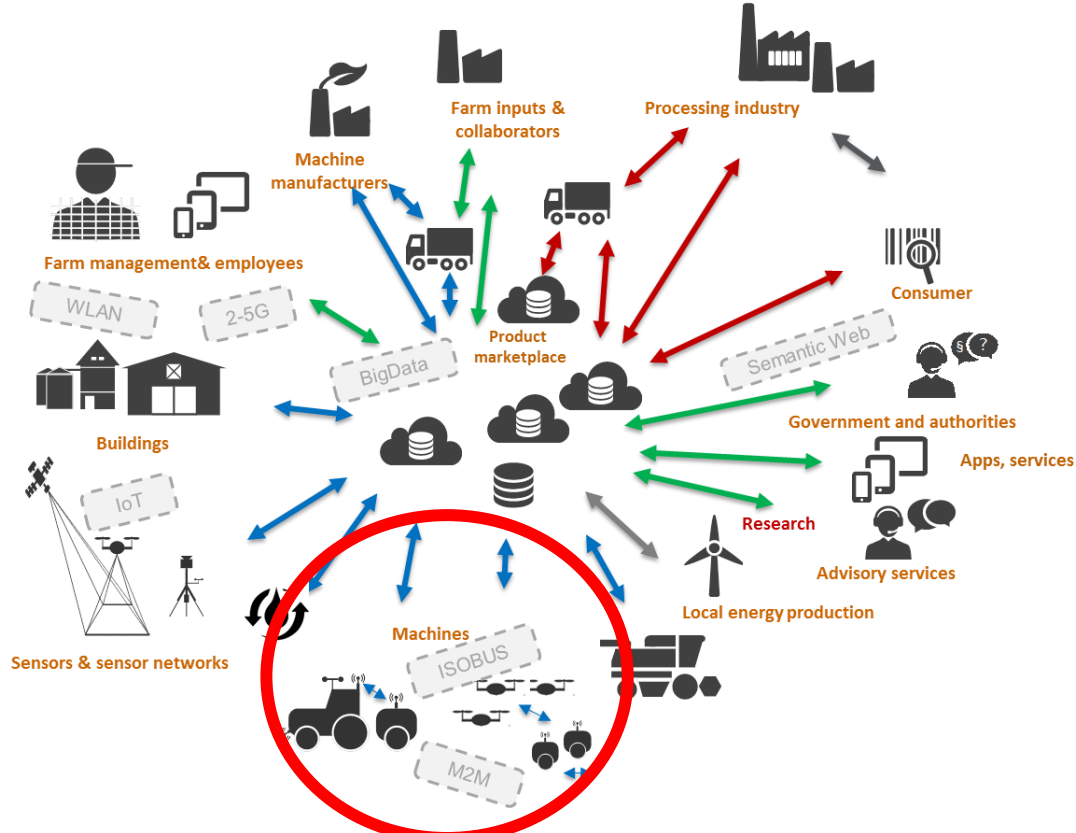
Broadband + 5G connections enable real-time monitoring and even remote control of machines and processes, which could bring new oppertunities also for other entrepreneurs, not only farmers.





Farm technologies

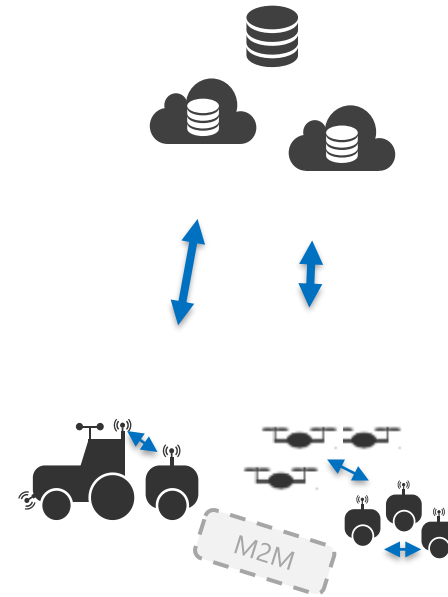
**Sub-contracting,
machinery collaboration**



Contracted operations in farm by local contractor

Good communication connections and data-based operation instructions make it easy and safe to share farm work with local contractors.

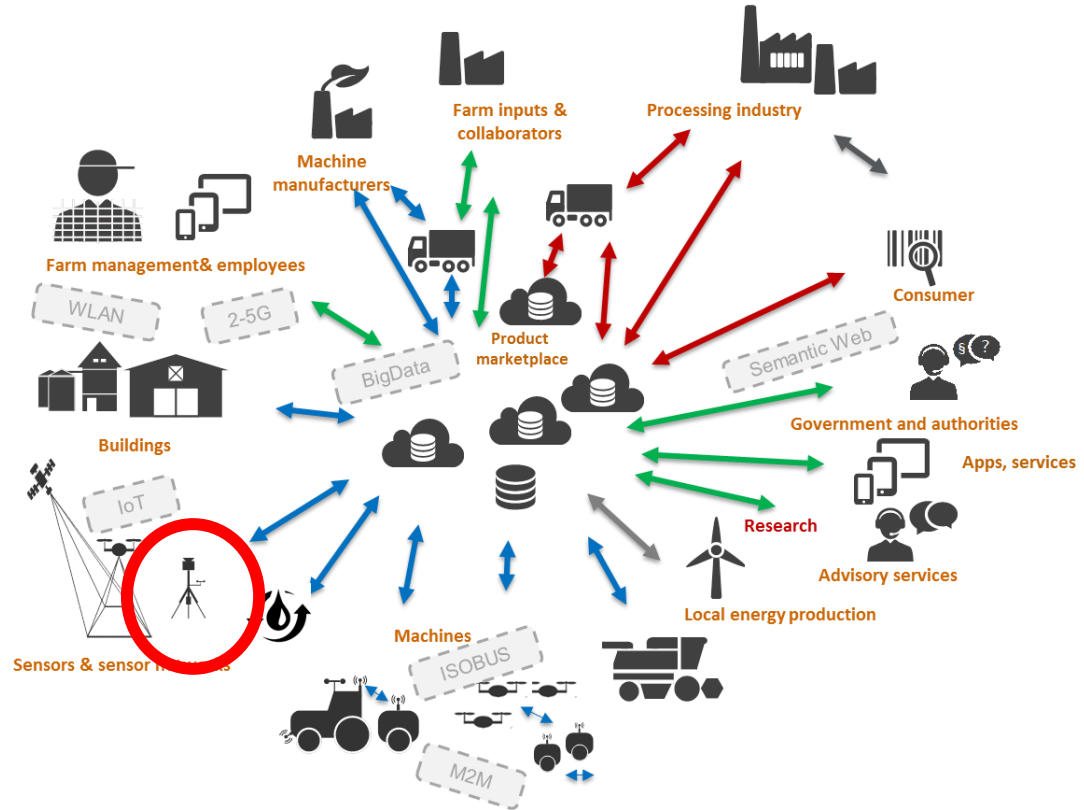
Contracting may be traditional field work but also field operations with drone or mobile field robots. Work could include data acquisition and/or cultivation tasks like harrowing, spraying, fertilising, etc.





Farm technologies

Village's sensor networks



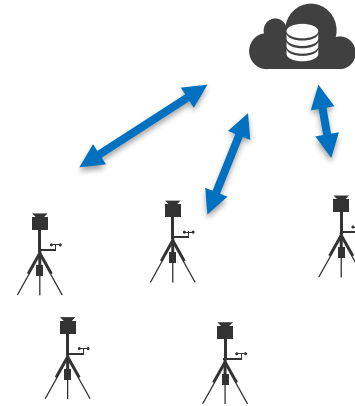
Local sensor networks and alarms

Dense coverage of rain and wind gauge stations over the village can produce collaboratively local alarms of changing weather.

Also sensors to monitor environmental conditions, such as biodiversity, ground and surface water quality could create common understanding and guide development for common good.

Farms, tourism entrepreneurs, home gardens, road maintenance, etc. could gain common benefits.

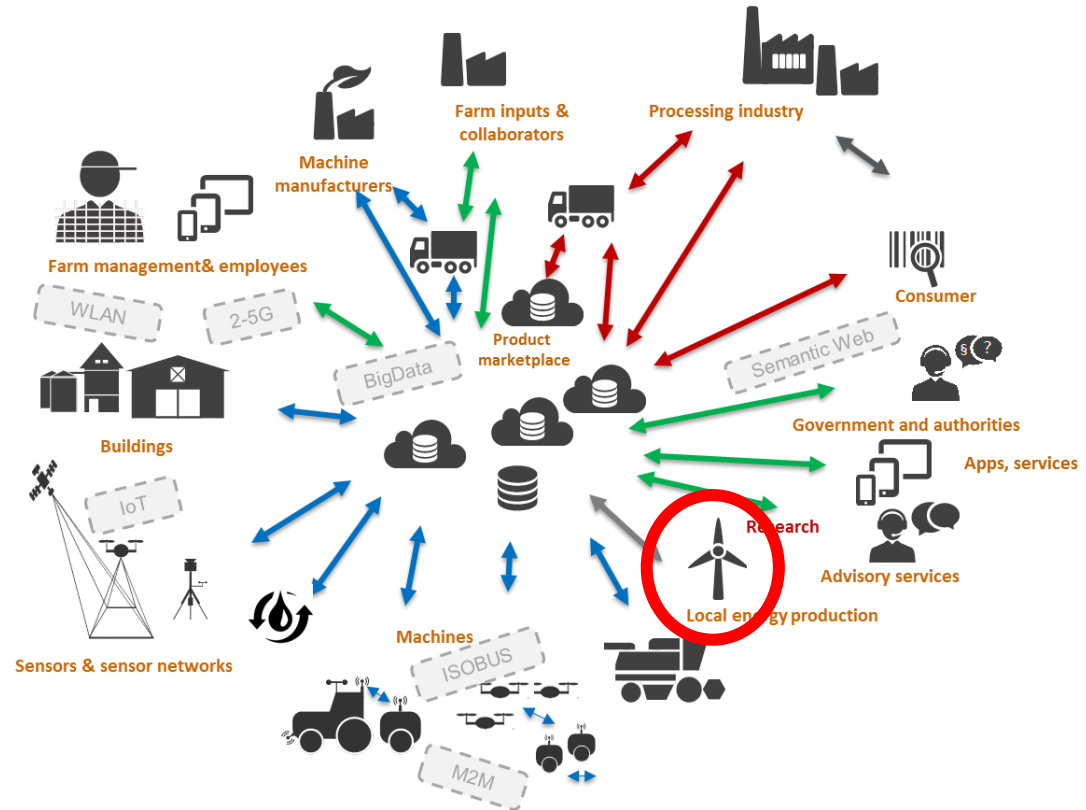
Alarms of occasional events (by e.g. What's up)
'Odour alarms' to inform neighbours of coming manure spreading operations.





Farm technologies

Local energy production

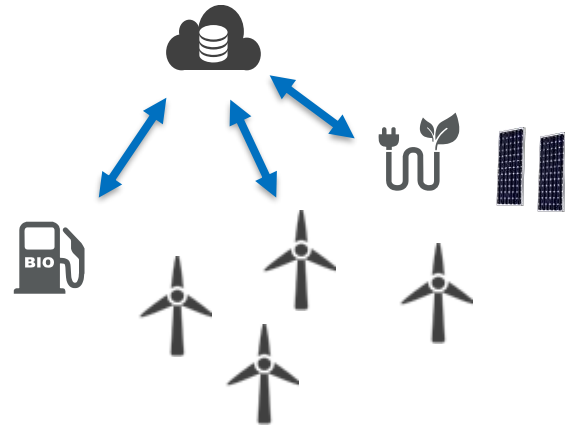


Local energy production

Farms could participate many ways to local production of renewable energy.

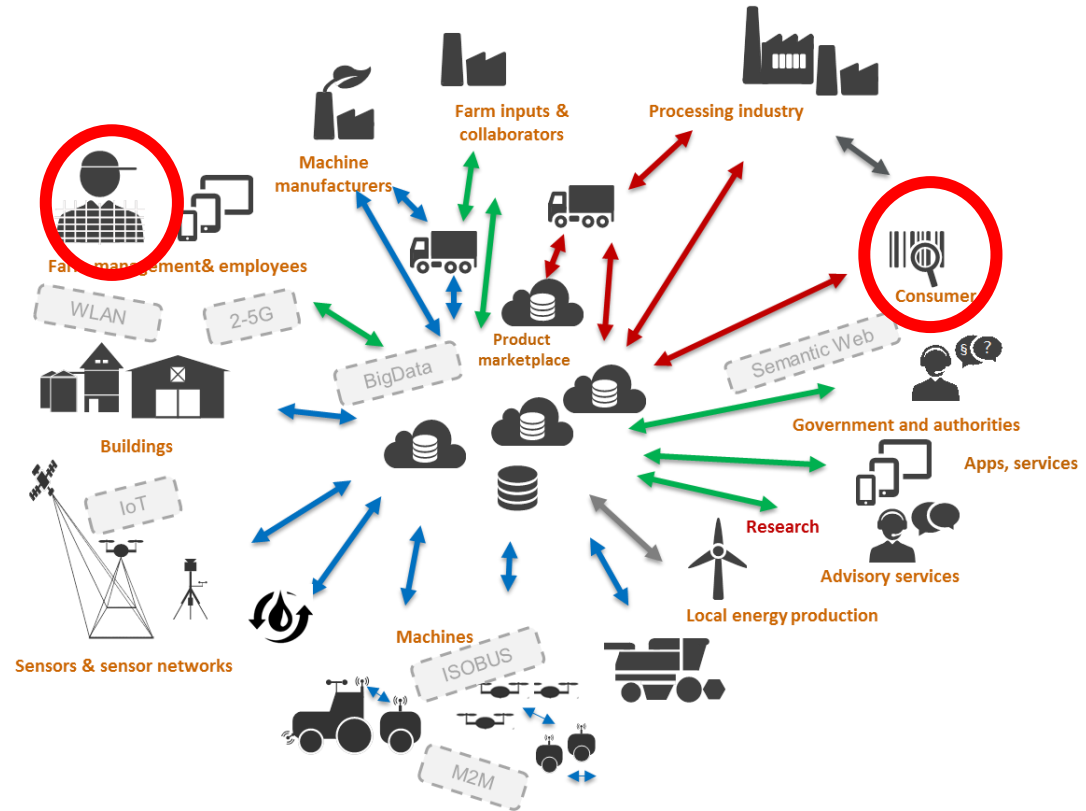
Farms could provide materials like production sidestreams and land for local power plants. They would be also an important customer of the energy entrepreneur.

Electricity, biogas, other biofuels.



Farm technologies

Marketing assistance

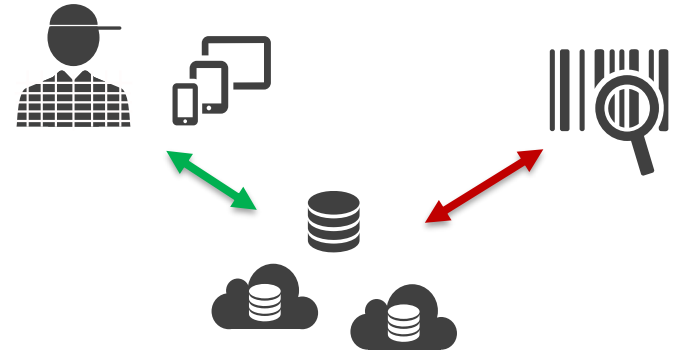


Marketing assistance

Farms would benefit a lot about external assistance in marketing and branding of agriculture.

Collaboration with local marketing and advertisement experts and video producers could give farms and agriculture as a whole new boost.

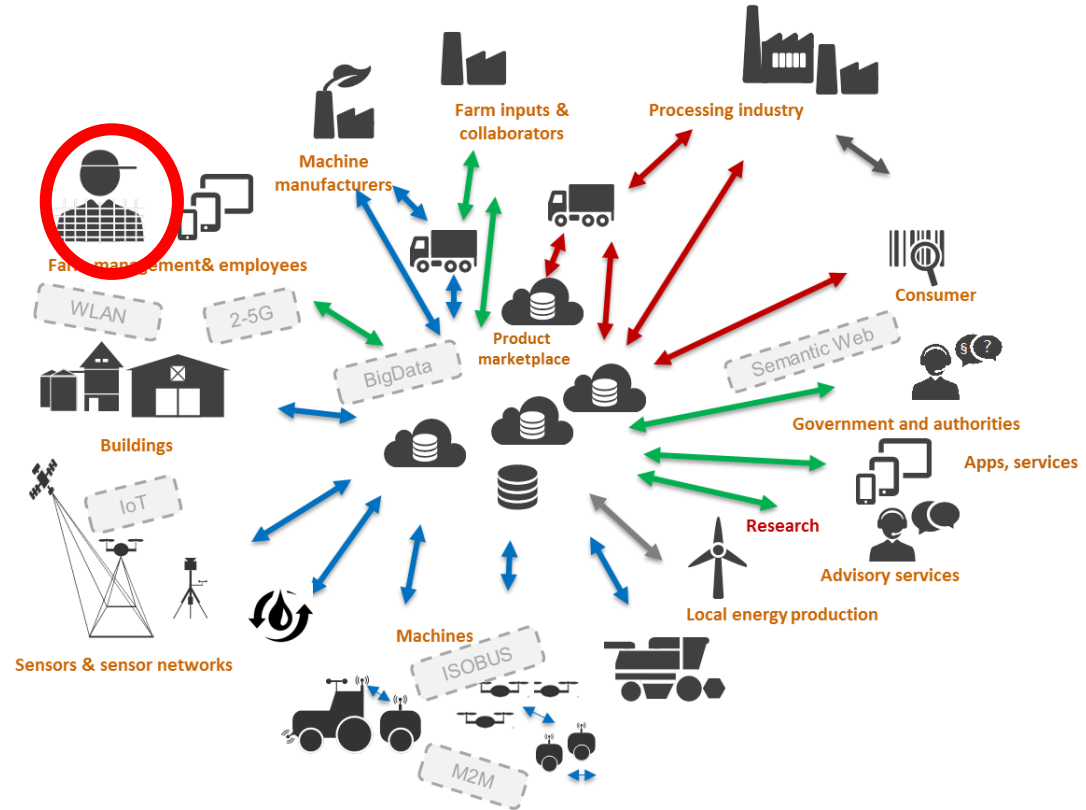
Ideas how to tell consumers the real value of farm products will be essential to gain all the benefits of smart farming.





Farm technologies

Caretaking services

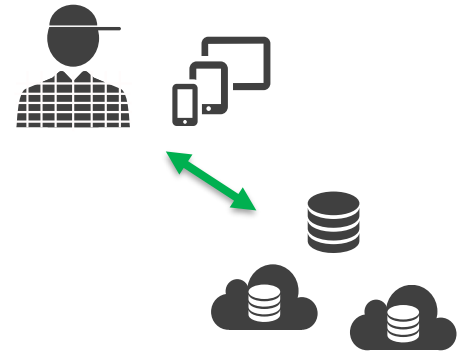


Caretaking services for farms

Highly technical farms will need caretakers to look after infrastructure, machinery and automation processes, especially when the farmer is travelling or in sick leave.

This could provide opportunities for automation engineers and ICT experts to establish new type of services to villages.

Also, other entrepreneurs and even household (smart houses) would benefit of these experts being around.



Smart environment – nice base for livelihoods

Farms will need collaboration with local actors when building a smart operational environment, starting from efficient internet connections to assistance in farm operations and marketing.

Similarly, farms as a multi-task and also, multi-problem actors may benefit their neighbours by acting as drivers to push the modern farming and village infrastructure and environment forward.

It seems that local business ecosystems, enhanced by smart techniques would make villages as multifunctional places for diverse livelihood.



Big changes need collaborative approach and co-design!

Thank you!

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