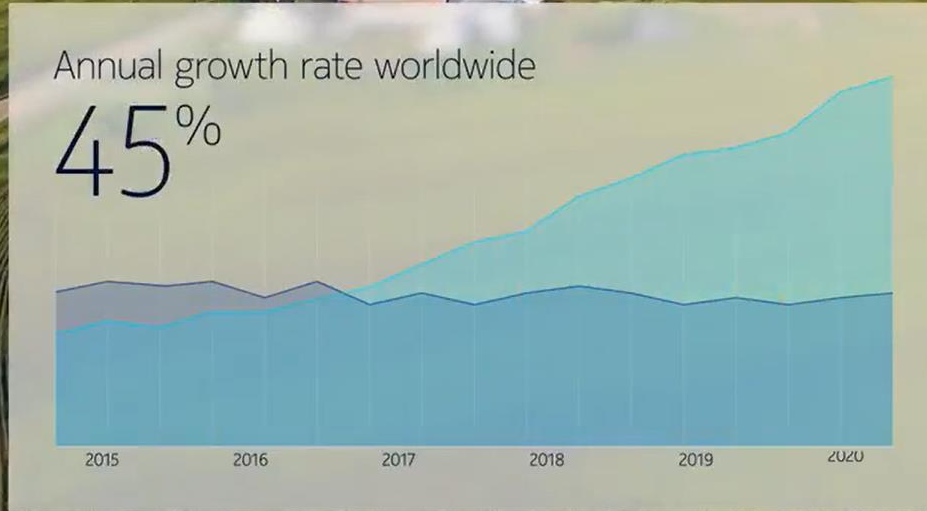


# Encontro Telesintese 50

## Agricultura de Precisão e IoT

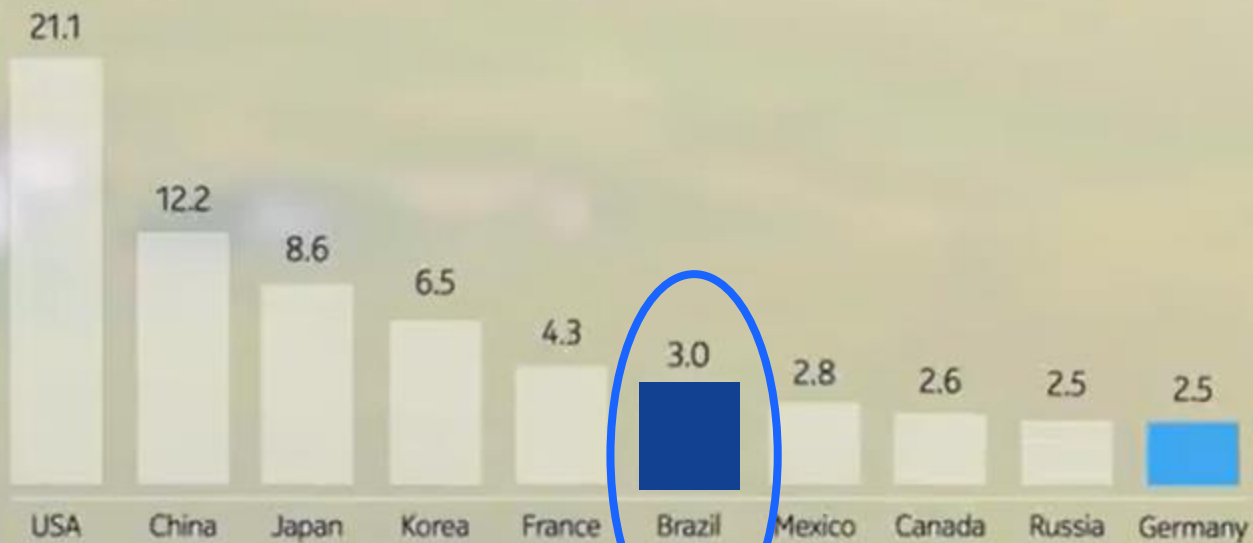
São Paulo, outubro de 2017

# Agriculture market summary

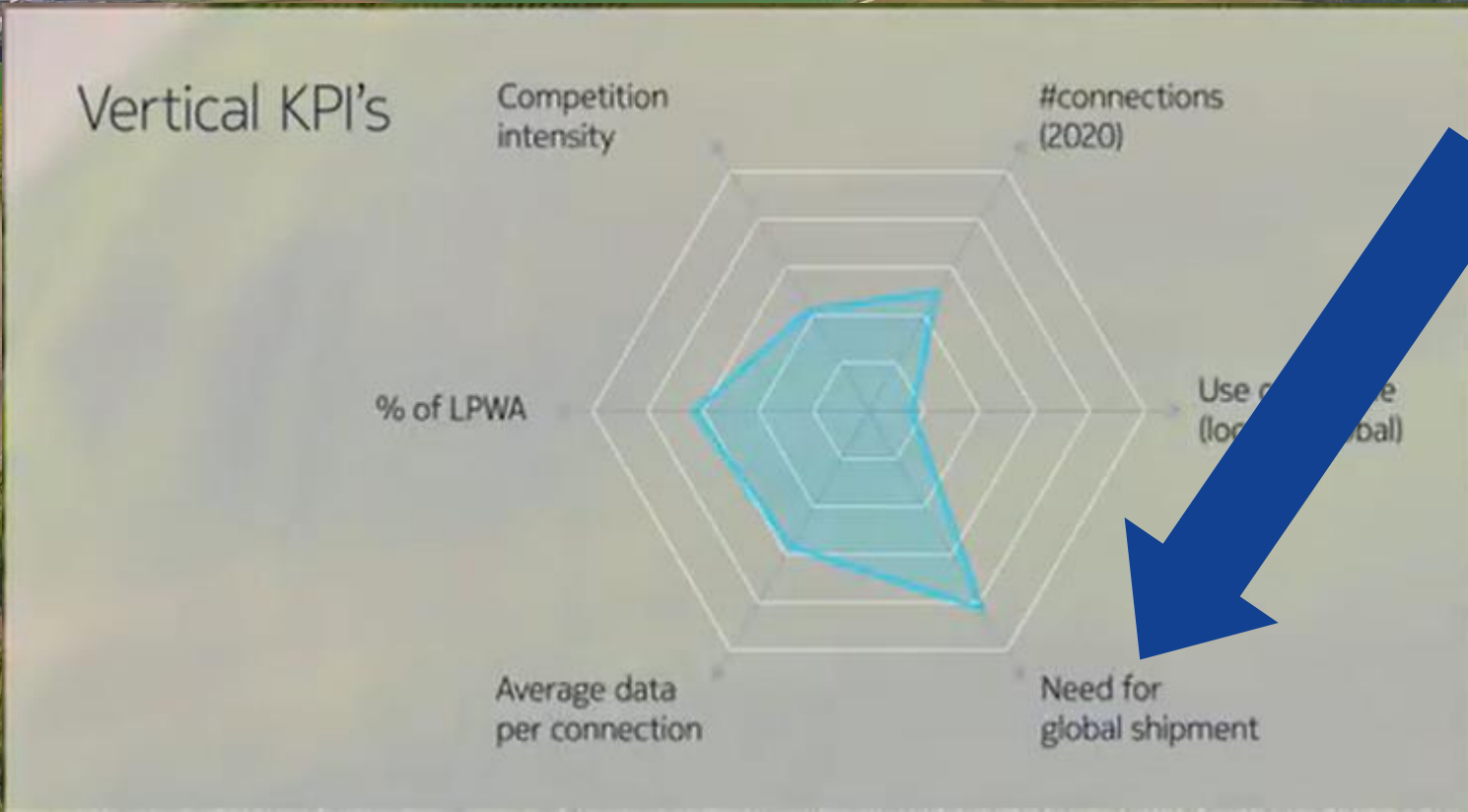


# Agriculture market summary

Top countries (in terms of M connections in 2020)



# Agriculture market summary



# Agriculture market summary

Annual volume per device

205.98<sup>mb</sup>

Total daily traffic: 1,7 TB

# Remote monitoring

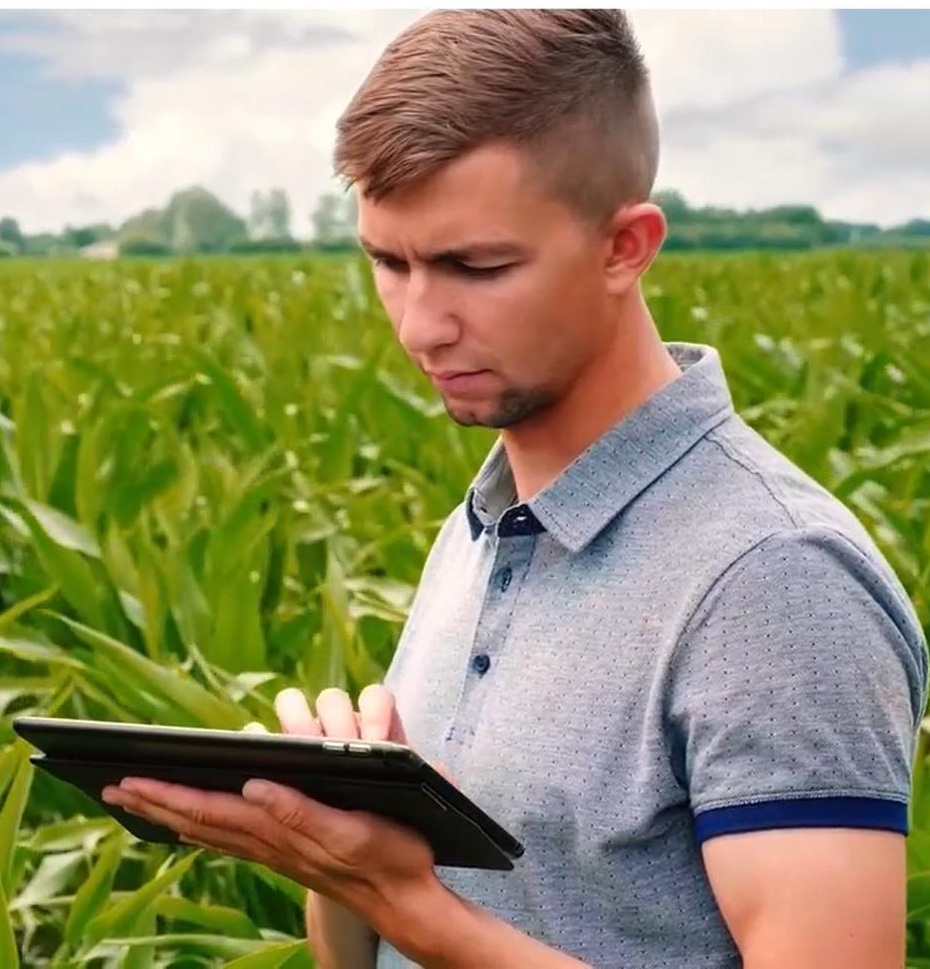


♥ | 84 bpm    🐄 | 12 inseminations  
📍 | LN 51.228 LT 10.203    📏 | 23 km

♥ | 79 bpm    🐄 | 7 inseminations  
📍 | LN 51.231 LT 10.198    📏 | 21 km



# Remote monitoring

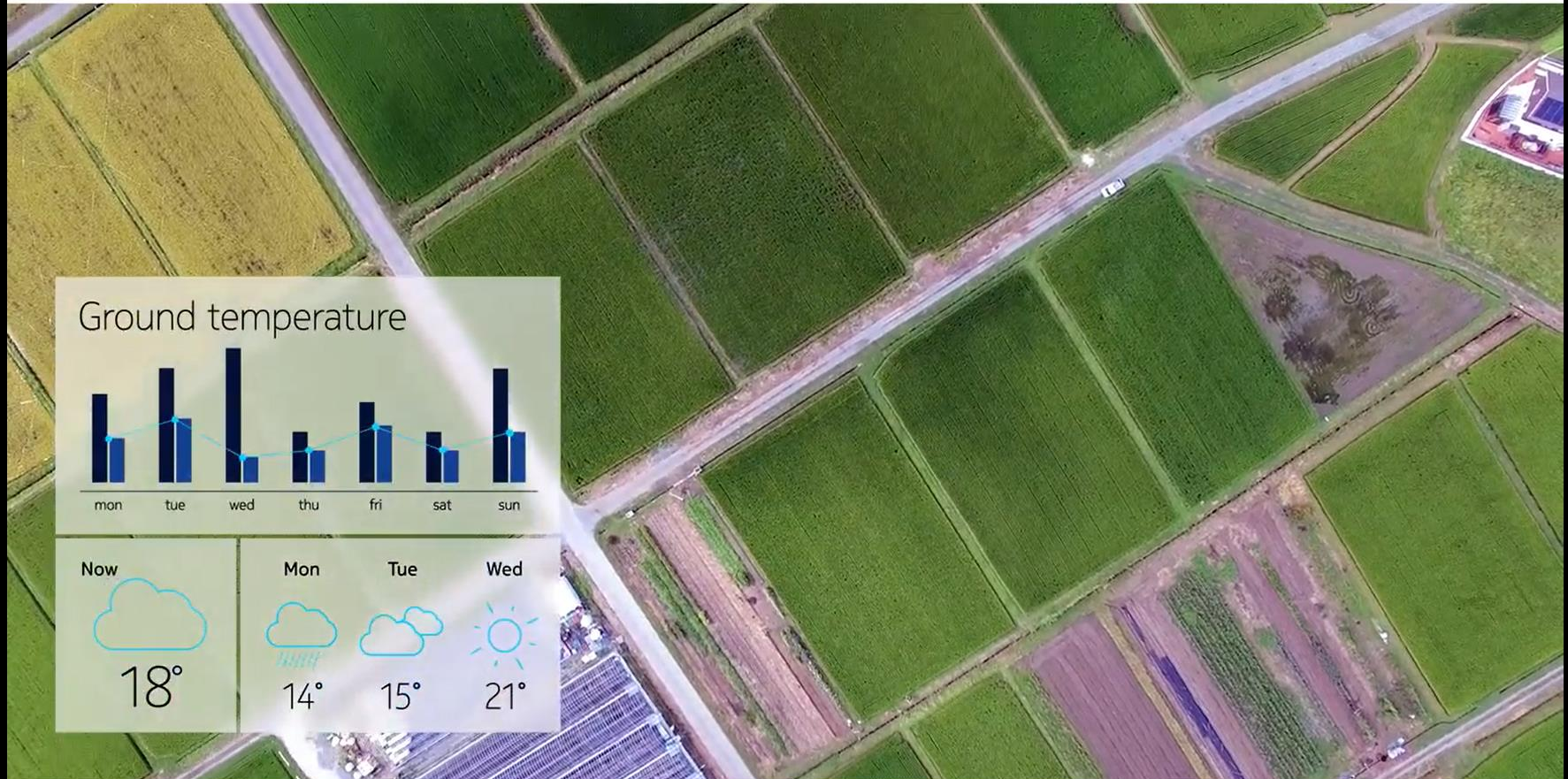


# Ground analysis

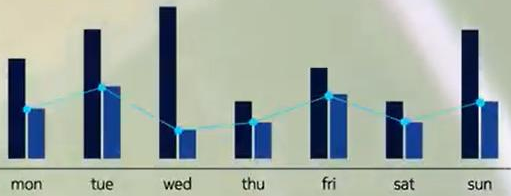




# Ground analysis



## Ground temperature



Now



18°

Mon



14°

Tue



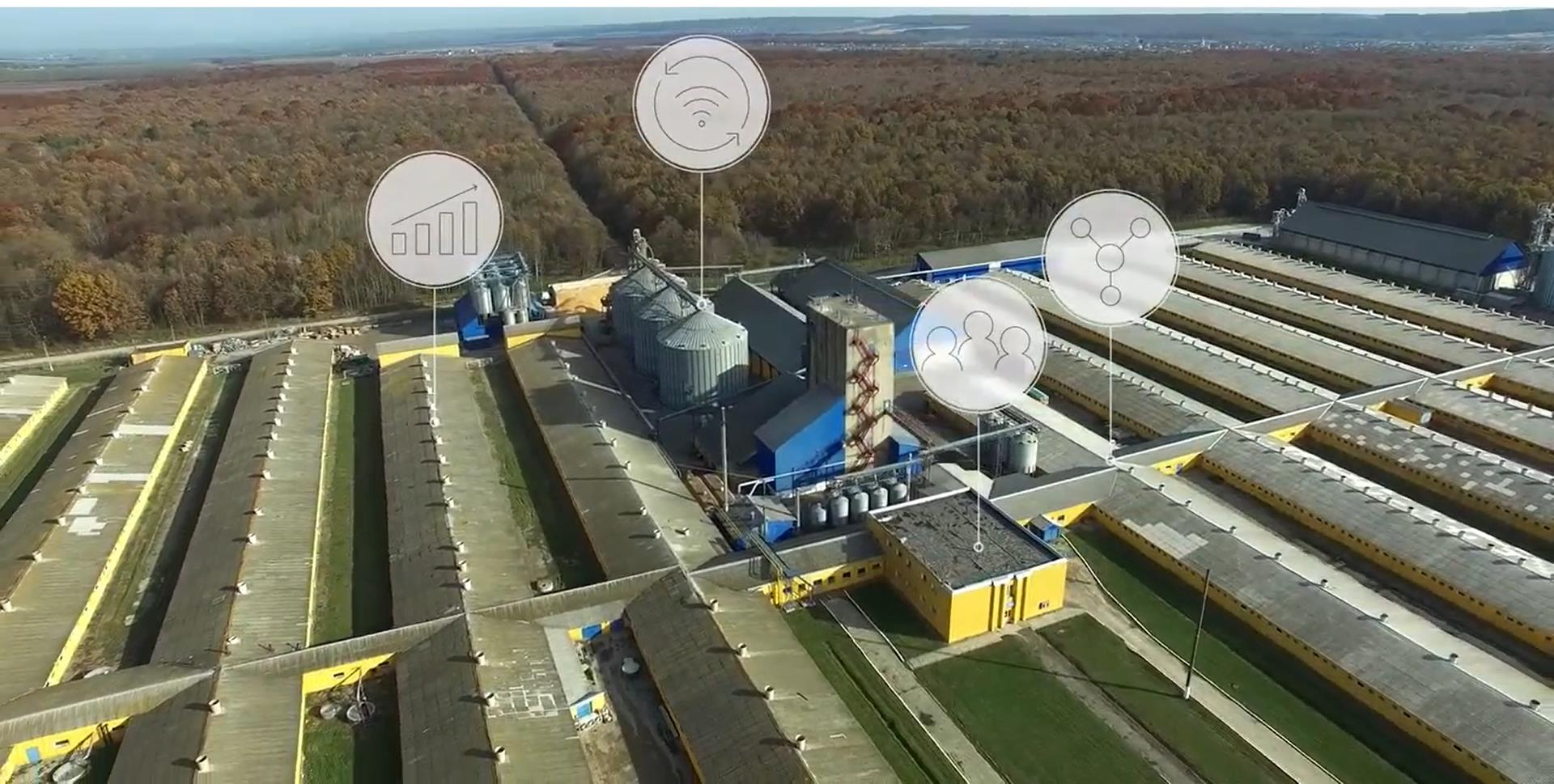
15°

Wed



21°

# Analyzing business metrics



# Analyzing business



Business growth



Network usage

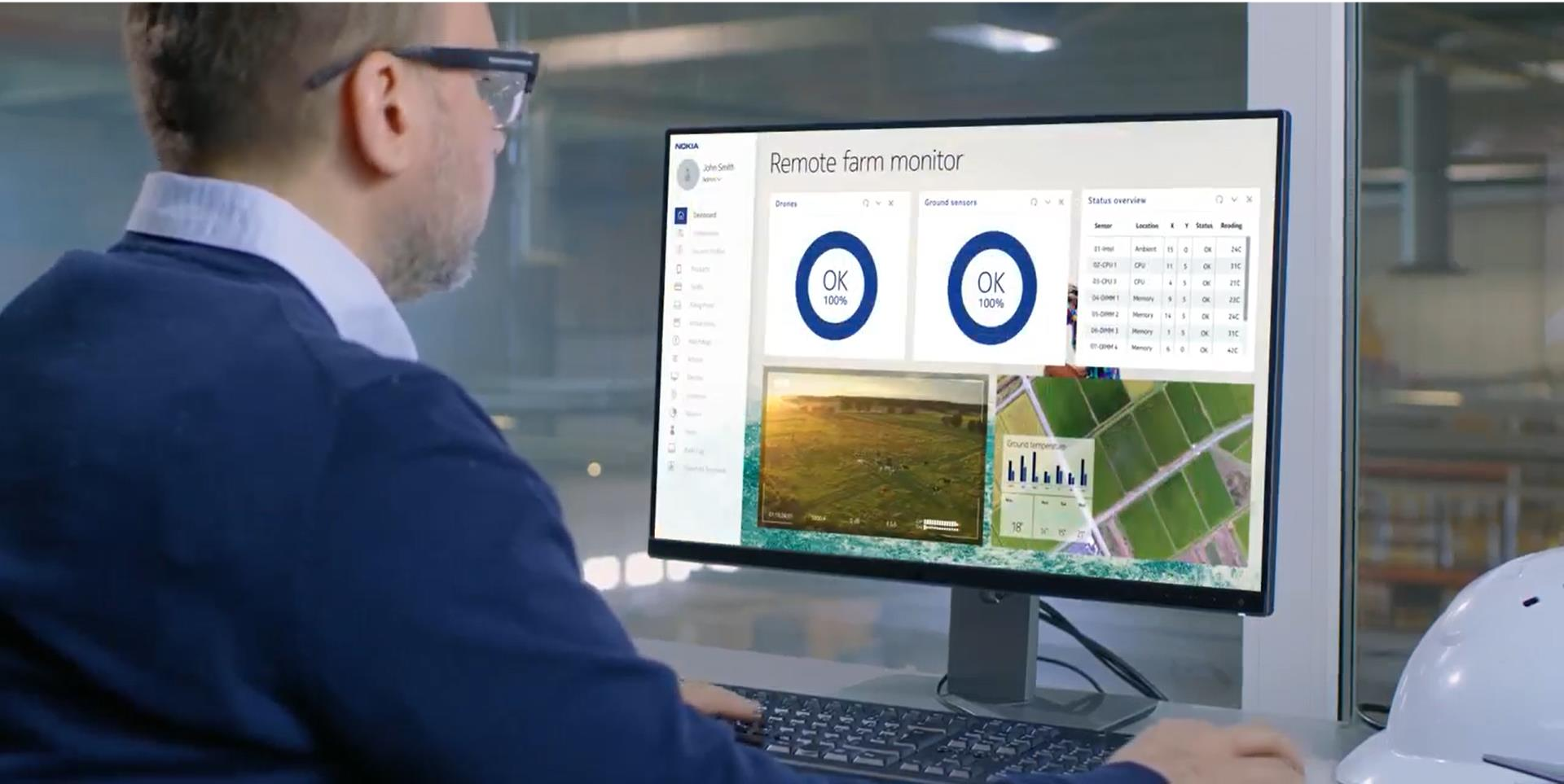


Business size

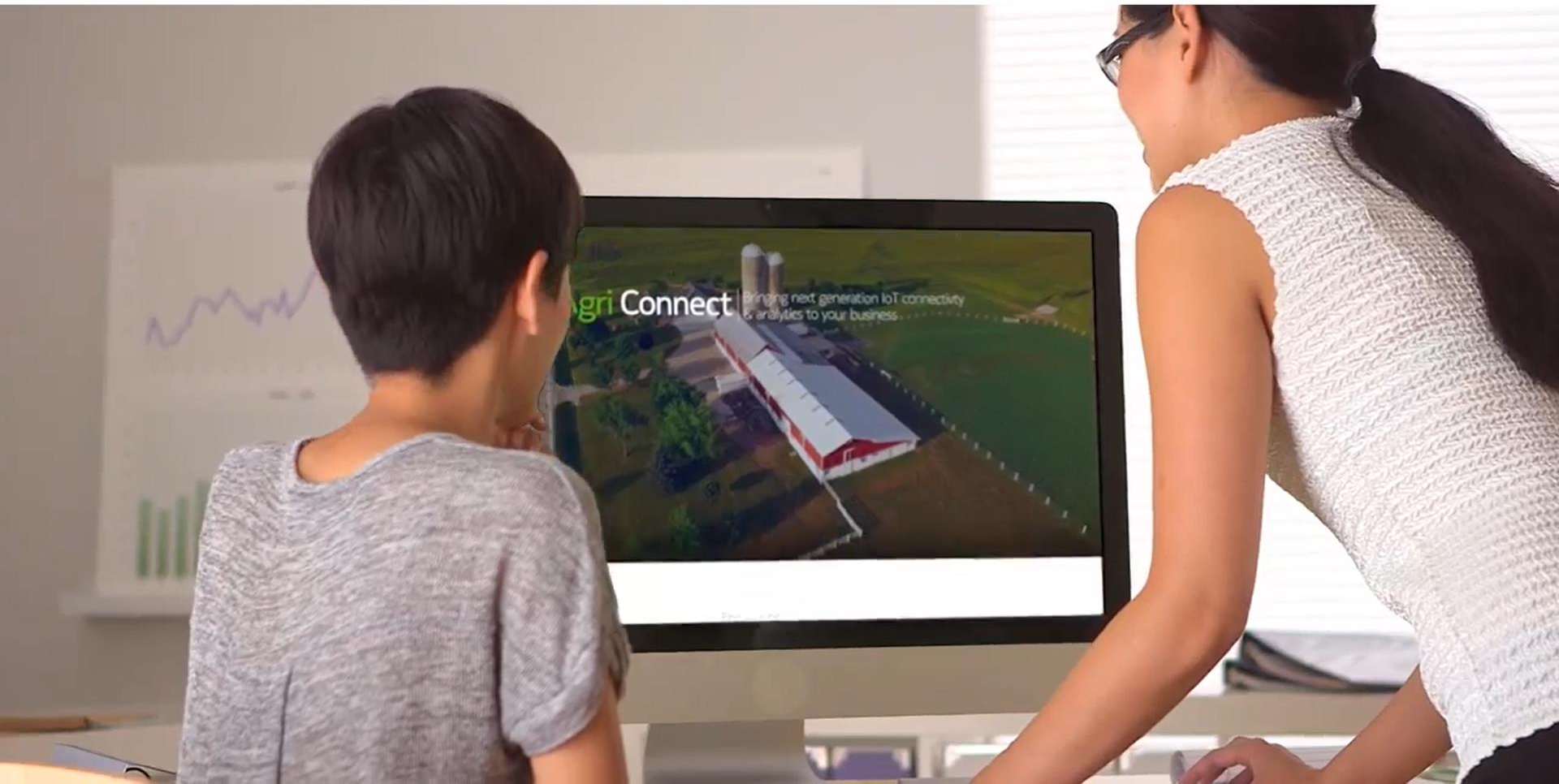


IoT usage

# Service offerings & pricing model



# Market entry & product launch



# IoT agricultural

Agriculture must overcome changing climate conditions while managing costs and increasing productivity and quality to meet population growth and changing consumer demand.



## Application opportunities and challenges

- IoT solutions in the agricultural sector can be used to enhance farming in many ways, such as crop quality, yield, worker safety and improved logistics.
- Applications may include: controlling micro-climate conditions in greenhouses, monitoring soil moisture and trunk diameter in vineyards, forecasting ice formation, rain, drought, etc, controlling humidity and temperature levels in wheat silos, livestock tracking, UAV field monitoring, etc.

## Solution highlights

- Nokia has demonstrated an eMTC-based vineyard monitoring solution at MWC 2016.

# Local development in Brazil



- Cultura: Soja
- Problema: Ferrugem Asiática. Um dos problemas mais severos da cultura da soja.
- Causa: Dadas as condições climáticas envolvendo Temperatura, Radiação Solar e Molhamento Foliar, há a predisposição para o surgimento da praga
- Objetivo: Desenvolver um sistema de sensoriamento usando a arquitetura de referência para (1) gerar alarmes em tempo real indicando que as condições para surgimento da praga foram atingidas e (2) criar um sistema de predição baseado no histórico de medidas por meio de estudos analíticos
- Benefício: O agricultor poderá realizar a aplicação de fungicida apenas quando forem dadas as condições antecipadas pelo sistema de monitoramento, e não como se faz tradicionalmente com aplicações sistemáticas

# Blocking points for IoT adoption in Brazil

- Lack of coverage → should improve with 700 MHz during next years but still a challenge
- FISTEL for IoT devices → a revision is needed
- Insertion of Brazil into the newest regulations for cold chain and phytosanitary control.
- Future 5G services will require new frequency (600 MHz) will be an option.



**NOKIA**