

Federated Digital Platforms – Pilot Project Botswana

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Federated PLATFORM

Use Case: Small Scale Farmer(s)

SmartBots

Digital Transformation Strategy

- ✓ GDP based on 2-3% farming
- ✓ 70-80% of rural population depending on farming
 - ✓ Around 30% live rural
 - ✓ Urbanization Rate very high (70%)
- ✓ Challenges in farming
 - ✓ Arid climate
 - ✓ Limited access to farmland
 - ✓ 85% traditional farming, 15% commercial farming
 - ✓ < 60% women in farming
 - ✓ Climate Change:
Droughts, heavy rains, loss of live-stock



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Federated Platform

Use Case: Small Scale Farmer(s)



- ✓ Feature Small-Scale/Holder Farming
 - No advanced technology / traditional farming
 - Depending on rain
 - Little productivity
 - Workforce often family
 - Informal Economy
 - Vulnerably towards market change, volatility of prices and demand
 - Vulnerable towards climate change(s)
 - Limited /no access to financial support structures, markets, quality security
- ✓ Survival often based on (internal) remittances
- ✓ Subsistence farming with little surplus



Use Case: Small Scale, Small Stock Farmer(s)

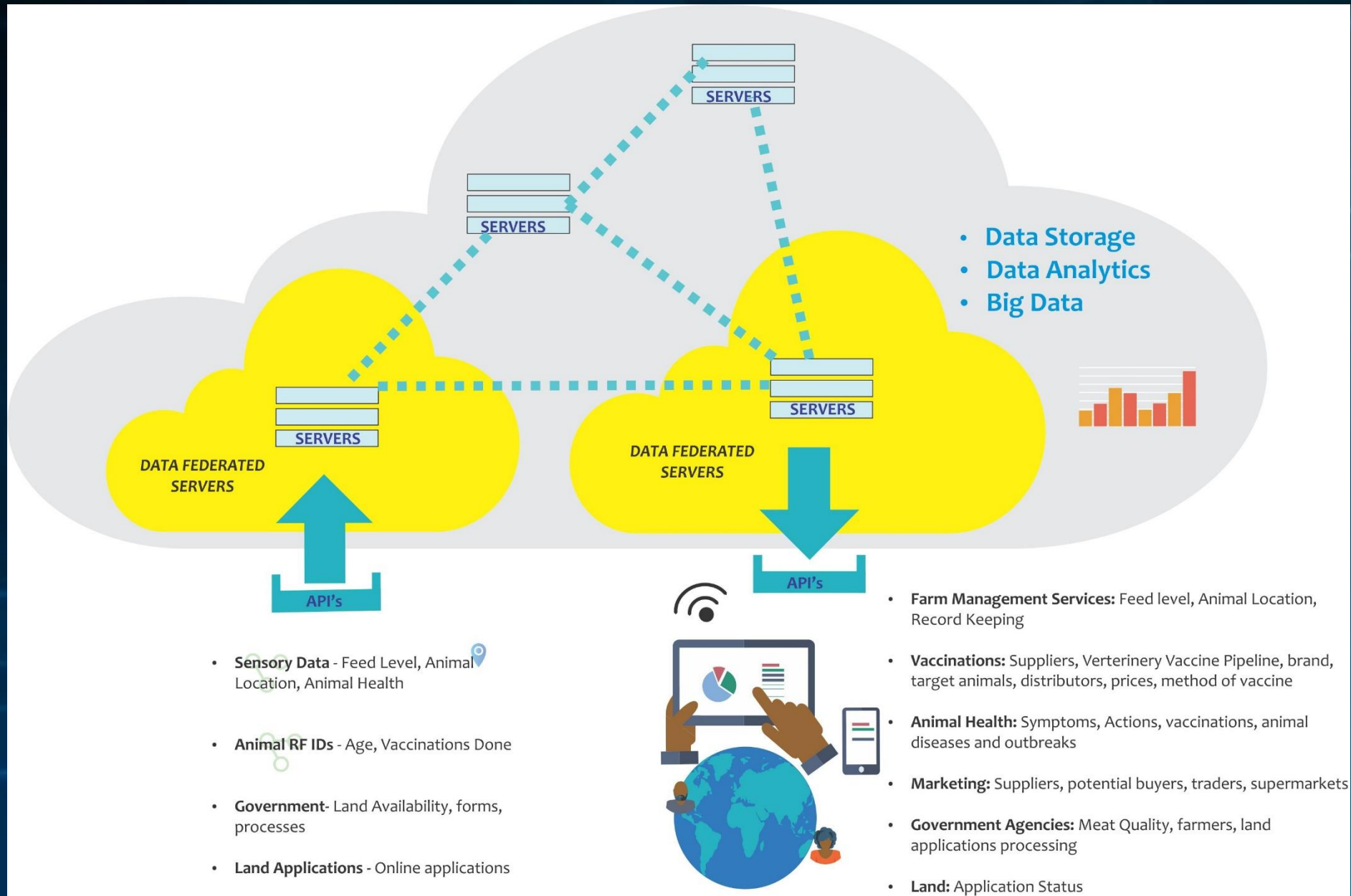
- Summary

Challenges Faced

- ✓ Communication
- ✓ Electricity
- ✓ Water availability
- ✓ Animal Theft
- ✓ Farm Management
- ✓ Land accessibility & availability
- ✓ Animal Health and Diseases
- ✓ Vaccination
- ✓ Marketing & Market access
- ✓ Control of Market Price

Technology Needed for

- ✓ Connectivity
- ✓ Electronic Ear Tagging
- ✓ Animal Tracking
- ✓ Land Management
- ✓ Farm Management
- ✓ Animal Temperature checking for Animal health and Breeding
- ✓ Remote Farm Monitoring
- ✓ Access to market
- ✓ Vaccination





Background

- The First Industrial Revolution was due to the advent of the steam engine. Water and steam power was used to mechanize production.
- The Second was due to electricity mainly which main lead to mass production.
- The Third used electronics and information technology to automate production.
- Now a **Fourth Industrial Revolution** is the digital revolution that has been occurring since the last few years. Its impact has already been felt since the Covid-19 Era started and now it seems the realization will be at an alarming rate.
- This is a very important theme and we must pay close attention to it in 2022 especially in developing countries. It is expected to transform the society into a modern and smart one driven by advanced technology, skills and innovation.



- With 4IR, we are expecting everything to become smart from smart homes, smart agriculture, smart factories, smart cars, smart traffic lights etc. 4IR urges us to think creatively about the manufacturing process, value chain, distribution and customer service processes.
- Some of the technologies enabling 4IR are artificial intelligence (AI), IOT, Big Data, Cloud services, Drones.
- A large number of Innovative Internet of Things (IoT) projects require **data** to be collected from sensors and then to be transferred to the internet. Service providers also generate and use large volumes of **data** such as from their manual records and websites.
- This **data** must be stored and analyzed. Based on this information, custom reports can be generated, notifications send depending on the project needs. The backbone for these numerous applications is therefore, cloud services and extracting useful information from **data**.
- A local Data Broker / Federator can lower cost of IoT implementations for SMMEs as well as transform peoples lives.



- A Data Broker is a business that aggregates information from a variety of sources; processes it to enrich, cleanse or analyze it; and licenses it to other organizations.
- **Federated data structures** provide access to emerging data economy and has the ability to foster the innovation of new digital products, services and projects.
- The main participants in a digital federation platform are **data owners, providers, consumers and users.**
- The sharing and reusing of data can help to improve the value chain and hence enhance infrastructure productivity and affordability.
- Use cases are at the center of transformation towards a future to infrastructure planning and delivery. It also suggests how new business models and innovative projects can be implemented.
- **The overall aim of the project is to foster new digital services and business models for smaller digital players based on a digital-federation framework.**

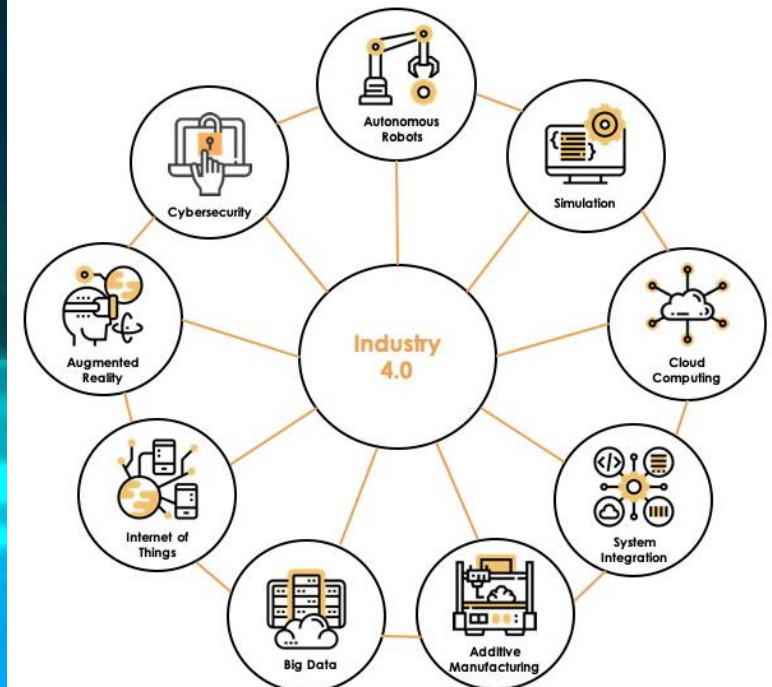
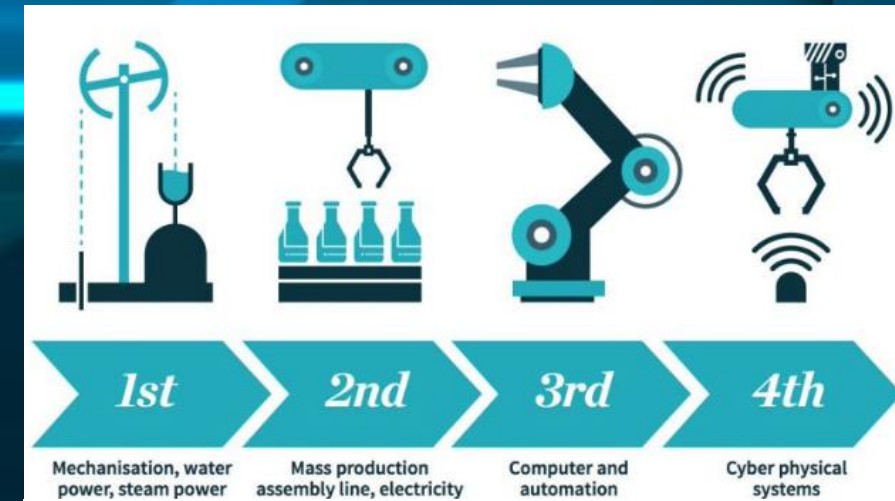


Advantages of having Federated Digital Platforms:

- Data sharing and open data spaces can foster new digital services and business models
- Optimal use of information based on interoperability derived from efficiencies generated by shared integrated data
- Fosters collaborative innovation
- Improve efficiency, affordability and productivity benefiting the end user

WHY BOTSWANA – Fourth Digital Transformation Strategy (SmartBots)

“SmartBots (Botswana Cabinet Approved Digital Transformation Initiative) adopts a whole of government approach to transform the public sector to efficiently provide services to citizens and businesses, reform the education with a focus on building the human capital towards a knowledge-based economy and effectively monitor and evaluate programmes and projects through a digital dashboard to ensure the attainment of the national visions and improved citizen satisfaction” (Strategy Paper: 12)





BOTSWANA – 4IR Objectives

- ✓ No one is left behind: connect the country
- ✓ Build a knowledge workforce: provide knowledge and tool to be competitive
- ✓ E-Government: build a citizen/costumer experience
- ✓ Good leadership: co-create data-driven products and services
- ✓ Support young start-up(s): priorities and invest in ideas to compete in global market

SmartBots aligned to

- 👉 World Bank [Digital Development Plan](#)
- 👉 [Sustainable Development Goals](#)
- 👉 [UN Boradband Commission](#) Targets 2025
- 👉 AU 2020-2030 [Digital Transformation Strategy](#)
- 👉 [SADC Broadband](#) Targets 2025

SmartBots

Digital Transformation Strategy

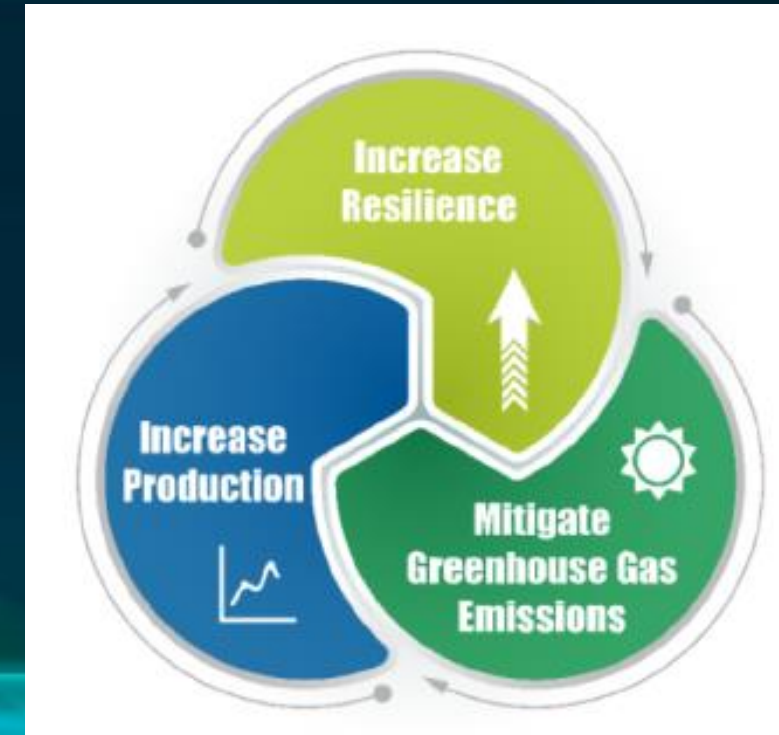


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Federated Platform - AIMS

- ✓ Knowledge and Information Resource for small data users
 - Climate Smart Agriculture (CSA)
 - Climate and disaster resilience
 - Provide access (low key) to data on markets and prices, etc.
 - Improve/Enable access tailor-made Services (support services, educational services, disaster social services, etc.)
- ✓ Link Small Scale Farmers – clients – knowledge – markets
 - Strengthen socio-economic immune system of farmers
- ✓ Document and archive local knowledge on farming and climate change adaptation
- ✓ Document existing agile solutions (ethno-metalingual knowledge): Positive Deviant



Federated Data Platform– Method

- ✓ Human-centred Design Thinking
- ✓ Qualitative interviews with Small Scale Farmer(s) in Botswana
 - What are (post-)Covid19 challenges
 - What are local solutions towards these challenges
 - How is technology (4IR) part of their work-life reality
 - Knowledge about SmartBot und 4IR
 - Is digitalization part of the solution in their view
 - What do they expect from a digitalized platform
- ✓ Analysis = Federated Platform meets the work-life reality of farmers
- ✓ Federated platform = 'Connect2Recover'

