Autonomous Agriculture for Resilient Food Systems

H1: Raising awareness (NOW – 2030)

Challenge
- Nitrogen and crop protection efficiency

Product/Service
- Plant Management and systems with sensors
- Market overview platform and community apps
- Crop monitoring and robust crops
- Weeding automatisation
- Seeding/sowing automatisation
- Precision farming for crop protection and fertilisers

Technology
- Artificial Intelligence systems for individual farms
- Customisation of equipment and Multi Purpose Robotics

Resources
Farmers
- Early adaptation of robotics
- Renewable energy supply
- Small scale testing
- Data collection

Stakeholders
- S1 Study groups of farmers for robotics and wellbeing
- S2 Demonstrations and technology evidence
- S4 Lease robotics
- S3 New curriculum in argi-education

Value drivers
Resilience against labor shortage and uncertainty

Narrative
Agricultural robots have undergone maturity, in which they work reliable, planting seeds with precision, monitoring soil conditions and autonomously tending to crops. They have significantly reduced the physical demands on farmers and made them resilient against external factors, leading to producing more food with less input, preserving precious resources.

H2: Community building (2030 – 2035)

Challenge
- Counter soil degradation and biodiversity loss
- Fair income for farmers
- Reduce fossil energy use

Product/Service
- High yield multifunctional farm
- Harvesting automatisation
- Disease and Insect Detection
- Multi Purpose Robotics platform

Technology
- Artificial Intelligence for open community
- Widespread precision farming techniques
- Internet of Things fully implemented in farms

Resources
Farmers
- Farms semi-automated and running
- Planet proof to more organic
- Data-sharing
- Soil conservation

Stakeholders
- S2 Resilient high value crops against extreme weather
- S3 Community networks
- S3 Well known training programs
- S3 Market and brand recognition

Value drivers
Remove social barriers and support economic factors

Narrative
The future of farming with farming communities have united to create a network of shared knowledge and resources to protect the longevity of farming businesses. Farming meetings to discuss the latest advancements in agricultural technology, crop protection strategies, and sustainable farming practices. Many of the younger generation are blending age-old wisdom with new technology to create an economically successful and sustainable future.

H3: Fostering wellbeing (2035 – 2040)

Challenge
- Satisfy consumers' changing tastes and expectations

Product/Service
- Integrated Crop Management with Digital Twins

Technology
- Widespread Sustainable practices
- Circular production / regenerative farming
- Fully automated germination, growing, monitoring and harvesting

Resources
Farmers
- Farmer wellbeing

Stakeholders
- S5 Resilient soil and high biodiversity
- S5 Low carbon footprint

Value drivers
Provide for rising demand for more food keeping sustainable farm productivity

Narrative
The world's population continues to grow, but farmers are no longer overwhelmed by the challenge of feeding them all. In this future, the integration of agricultural robots transformed the uncertain agricultural landscape into one that fosters the wellbeing of both farmers and nature. Farmers, empowered by technology and community collaboration, have not only maintained the longevity of their farm but have also preserved the environment for future generations.

Revolutionize Agriculture:

Empower nature and farmer well-being

FUTURE VISION

The future of agriculture is an automised and sustainable system which enables farmers to sustain the longevity and resilience of their farming business