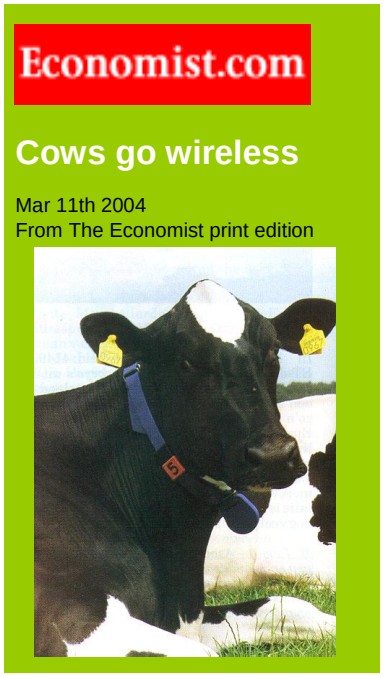
Koeien gaan draadloos

Dr.Ir. C. Lokhorst

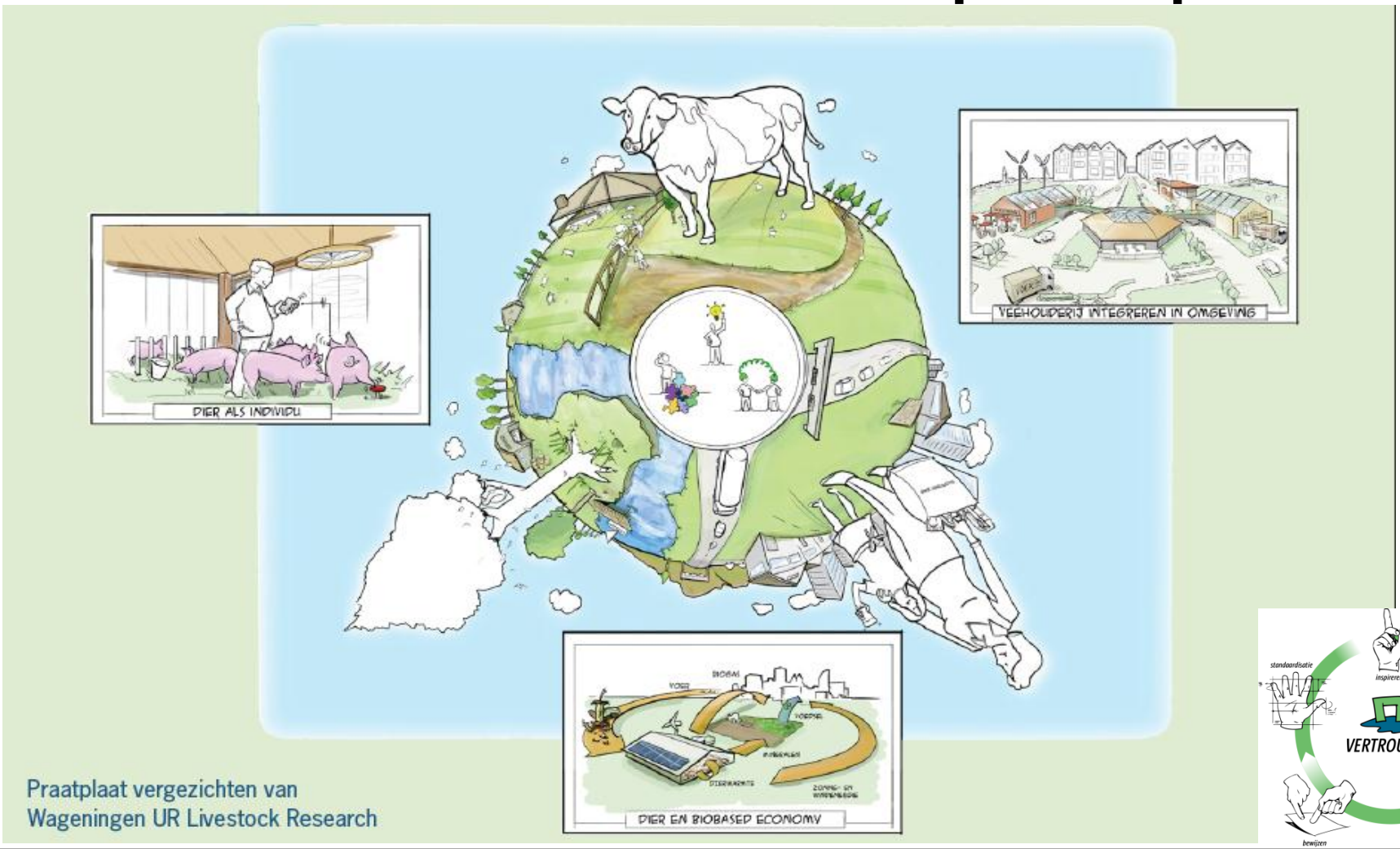
Wageningen UR Livestock Research

Inhoud

- Wageningen UR Livestock Research
- Veehouderij uitdagingen
- Draadloos?
- WASP ervaringen
- Afsluiting



Livestock Research ‘praatplaat’



Praatplaat vergezichten van
Wageningen UR Livestock Research

Veehouderij uitdagingen

Schaalvergroting

Zet snel door

Dieren welzijn

Volop in discussie

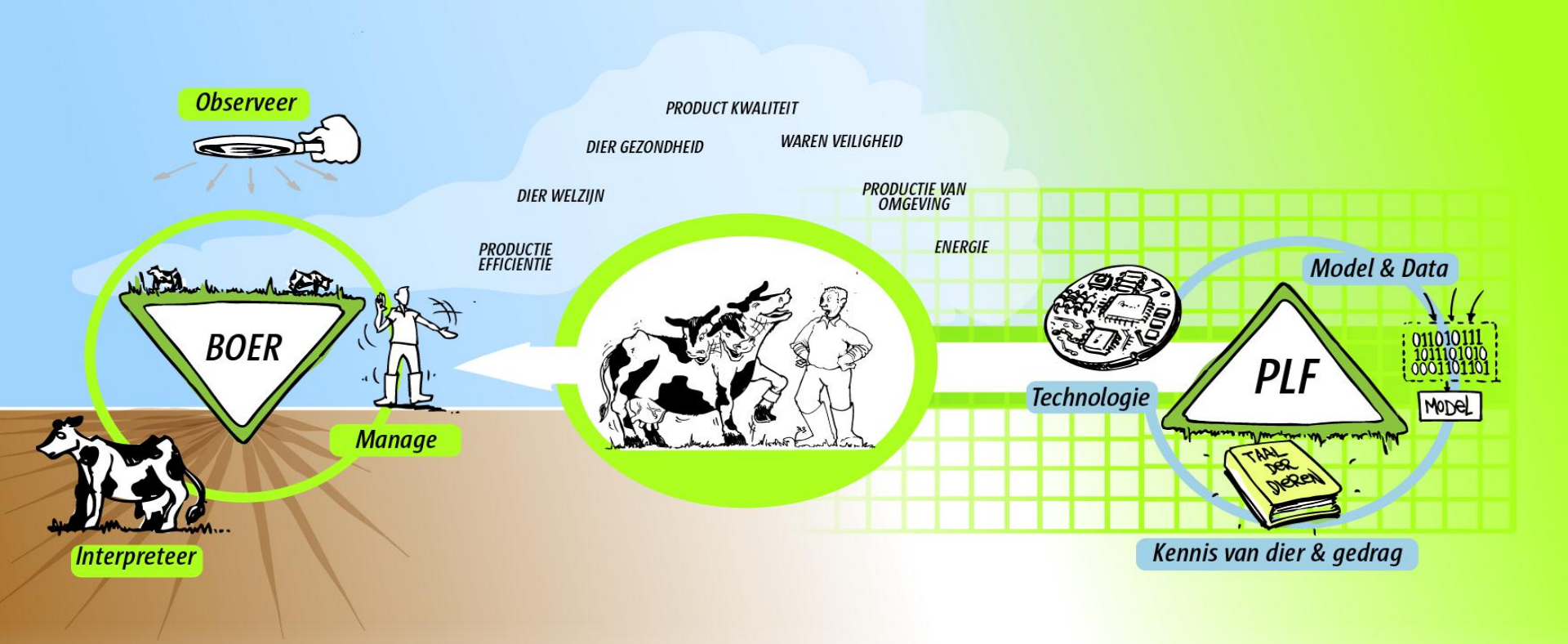
Diergezondheid

Van curatief naar preventief

Technologische vooruitgang

Innovaties volgen elkaar snel op

Intersectoraal en internationaal

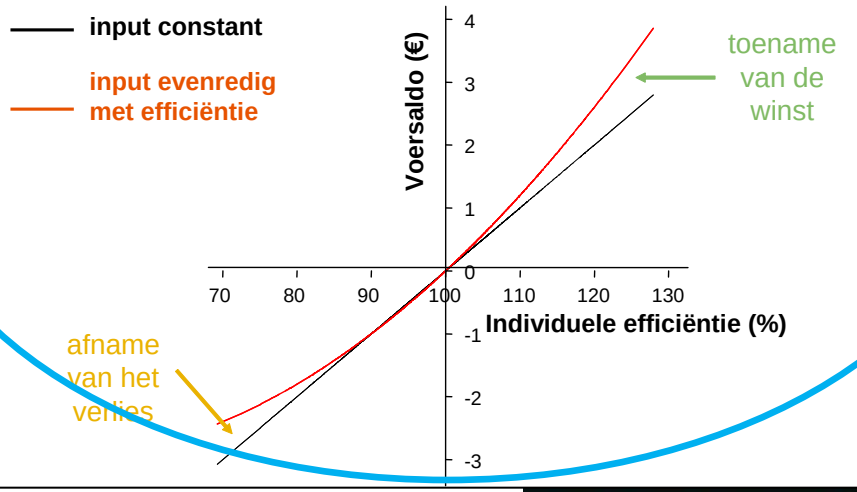


AGRO SYSTEM TRENDS KNOWLEDGE SYSTEM

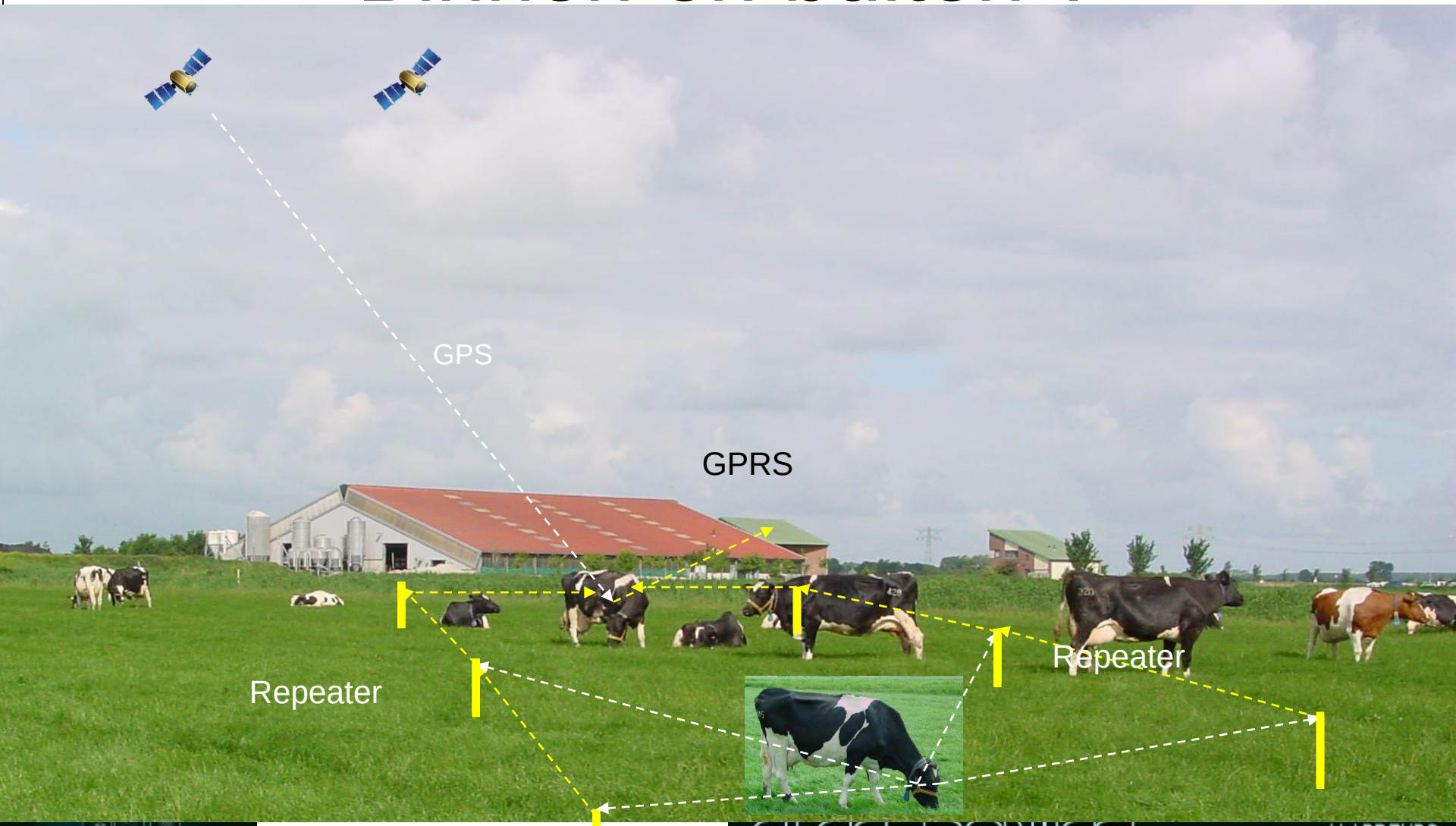
'CREATING A SMART FOOD & FEED ENVIRONMENT'

Smart Farming

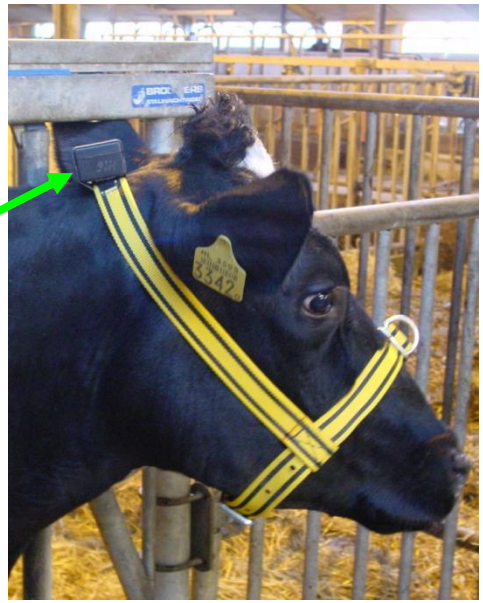
Variatie in efficiëntie:
het mes snijdt aan twee kanten

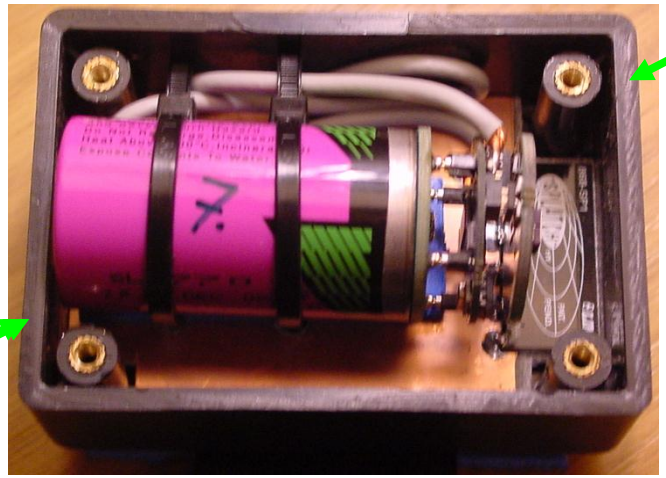


Binnen en buiten ?



Draadloos ?





PHILIPS

TU/e technische universiteit eindhoven

WAGENINGEN UR For quality of life

Imperial College London

CENTRO RICERCHE FIAT

FhG Gesellschaft

STMicroelectronics

TECHNISCHE UNIVERSITÄT KAISERSLAUTERN

INRIA ROCQUENCOURT

RWTH AACHEN RHEINISCH-WESTFÄLISCHE TECHNISCHE HOCHSCHULE AACHEN

csem

WASP
IST-034963

UNIVERSITÄT PADERBORN

EPFL ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

Microsoft

CEFRIEL FORGING INNOVATION

imec

SAP

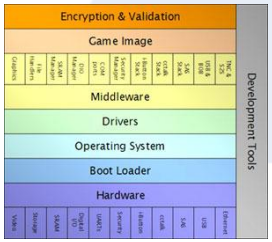
HTN HEALTH TELEMATIC NETWORK

WASP

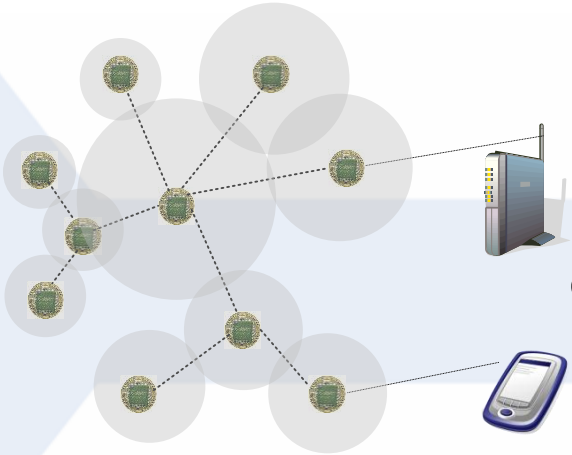
'From sand to applications'

Node platform

hardware & software



Network protocols



WSN services

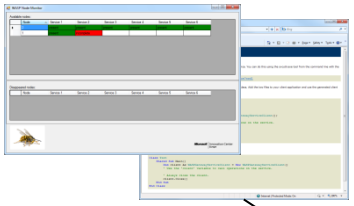
applications

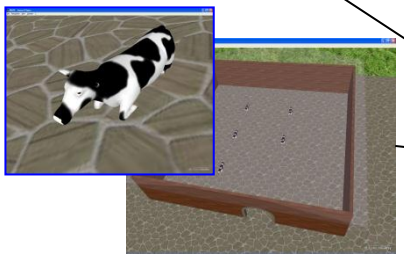
EU-project WASP - *remote (activity) monitoring of individual cows*

various remote web applications

dairy cows wearing (battery-powered) activity sensors with wireless readout

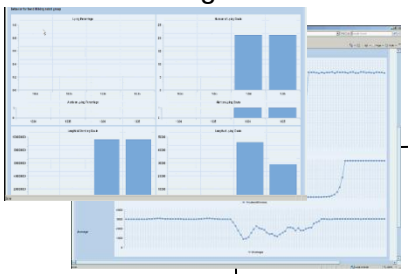
Various tools to easy & check deployment
(e.g. check quality of wireless communication)





3D viewer for localization of individual cows
(and status check of sensors)

Data storage, analysis, alert generation



application focus is on **claw health**
by remote monitoring of daily activity patterns i.e.

lying

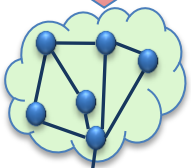
standing

Walking & step analysis

Remote application(-s)
on PC / laptop (smart phone)

www

WSN gateway
Running on PC

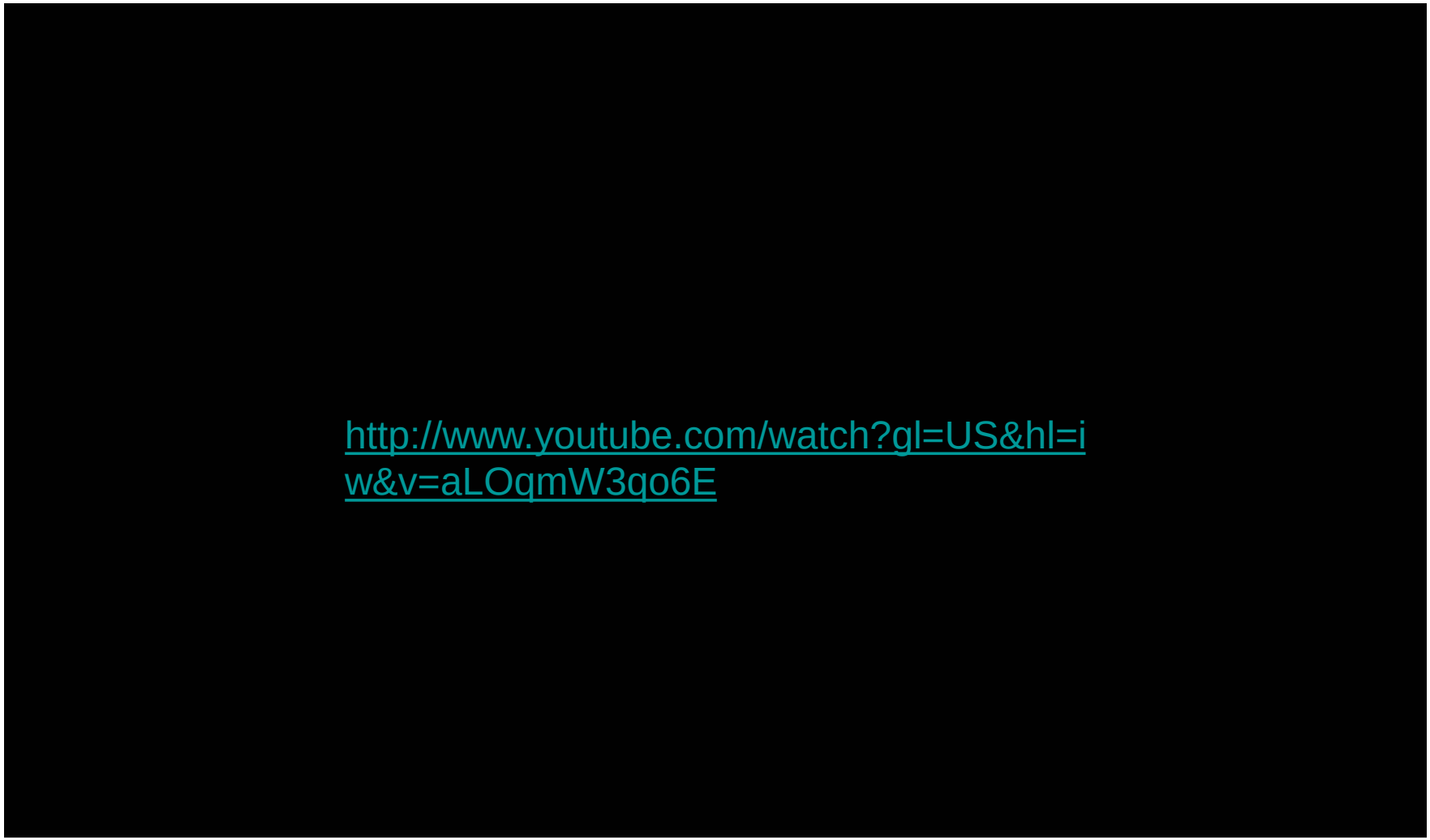


WAGENINGEN UR
For quality of life

A first impression of a HC test bed result

- Step detection algorithm
- Cow with WASP node on left hind leg
- Detecting the steps a cow takes

Large scale test (79 nodes) with cows in Lelystad



http://www.youtube.com/watch?gl=US&hl=iw&v=aLOqmW3qo6E

WASP HC test bed and prototype lessons learned

- Reduction of radio traffic:
  - On node classification (mode lying, standing, walking)
  - Circumstances based activation (step detection)
    - Reduction of power consumption
- Re-programming of nodes:
  - Updating algorithms
  - Installing additional functionality
- Location awareness:
    - Measure the position of cows
- Scaling effects:
  - Showed large scale deployments with 127 and 79 nodes
  - Customer has to perform detailed analysis of network and node modes

Afsluiting → vervolg

- Werken met ‘real time’ individuele koegegevens draagt bij aan een lonende zuivelketen die werkt aan integrale duurzaamheid

- Smart Dairy Farming