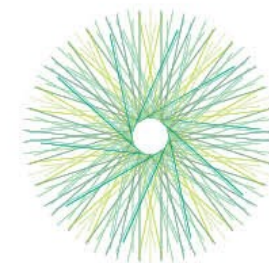


EIP-AGRI Seminar

Moving EIP-AGRI implementation forward

May 10 – 11, 2017 – Athens, Greece



eip-agri
AGRICULTURE & INNOVATION



funded by





EIP-AGRI Seminar 'Moving EIP-AGRI implementation forward' Wednesday 10 May 2017 – Athens, Greece

08:50 – 12:00 Social event: guided tour of the Acropolis Museum

12:00 – 13:00 Registration and buffet lunch

Setting the scene – Why are we here in this seminar?

13:00 – 13:10 Welcome by the host and by DG AGRI, European Commission

Charalambos Kasimis, Greek Secretary-General of Agricultural Policy and Management of European Funds

Alexander Bartovič, DG Agriculture and Rural Development

13:10 – 13:25 The bigger picture of the EIP-AGRI

Inge Van Oost, DG AGRI

13:25 – 13:30 Warm-up

Sebastian Elbe, EIP-AGRI Service Point

13:30 – 14:00 What EIP-AGRI is about – examples of Operational Groups (OGs)

- DE – Mecklenburg-Vorpommern, *Ulrich Knaus – Aquaponics, combining plant and fish production*
- SE – Sweden, *Samo Grasic – Innovative planning in reindeer herding*
- FR – Midi-Pyrénées, *Christophe Durand – Triple performance for pig farming*
- IT – Emilia-Romagna, *Matteo Gatti – Competitive and sustainable viticulture*
- BE – Flanders, *Koen Mertens – Testing the potential of sensors for GPS technology on pilot farms*

14:00 – 14:20 1st breakout session – “Getting to know each other”

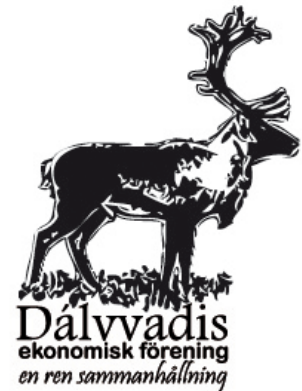
Introduction – *Sebastian Elbe, EIP-AGRI Service Point*

PLANNING TOOL FOR REINDEER MANAGEMENT COMPANIES

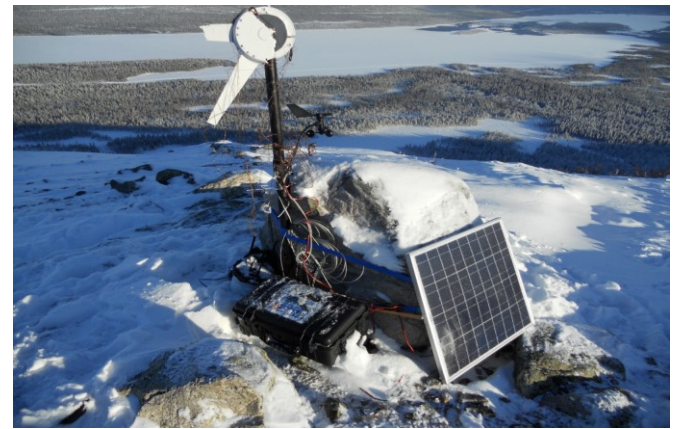
TECHNOLOGY DEVELOPMENT IN REINDEER
HUSBANDRY

Samo Grasic (PhD), samo@grasic.net
Dalvvadis, Jokkmokk, Sweden

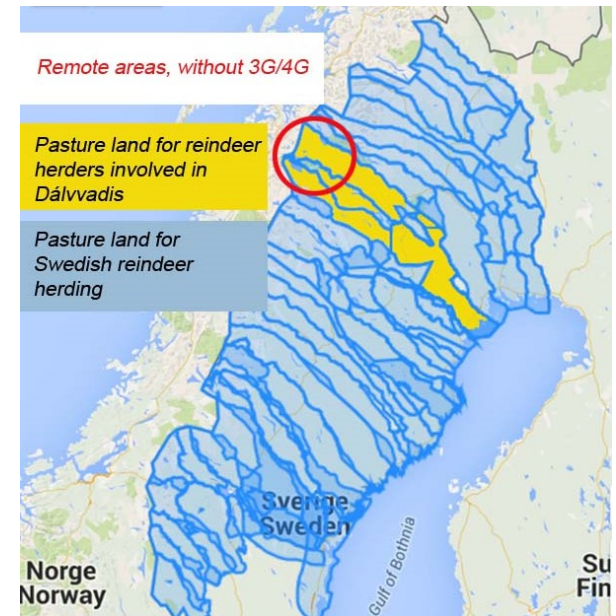
Project manager: Kerstin Kemlén, kerstin.kemlen@telia.com



Background



- Initiated and co-ordinated by the economic association of Dálvvadis, Jokkmokk, Sweden
- 4 Sami villages, 192 companies, 30 000 reindeer, 115 000 acres, above the Arctic Circle
- Partners: Sirges Sami village, Tuorpon Sami village, Jåhkågasska Tjiellde sami village, Udtja sami village (Sweden) and Luleå Technical University (Sweden)
- Reindeer herders have access to the existing national planning tool – Renbruksplan (RBP)
- Remote grazing areas often lack 3G/4G connectivity (national parks) and other infrastructures, costly maintenance

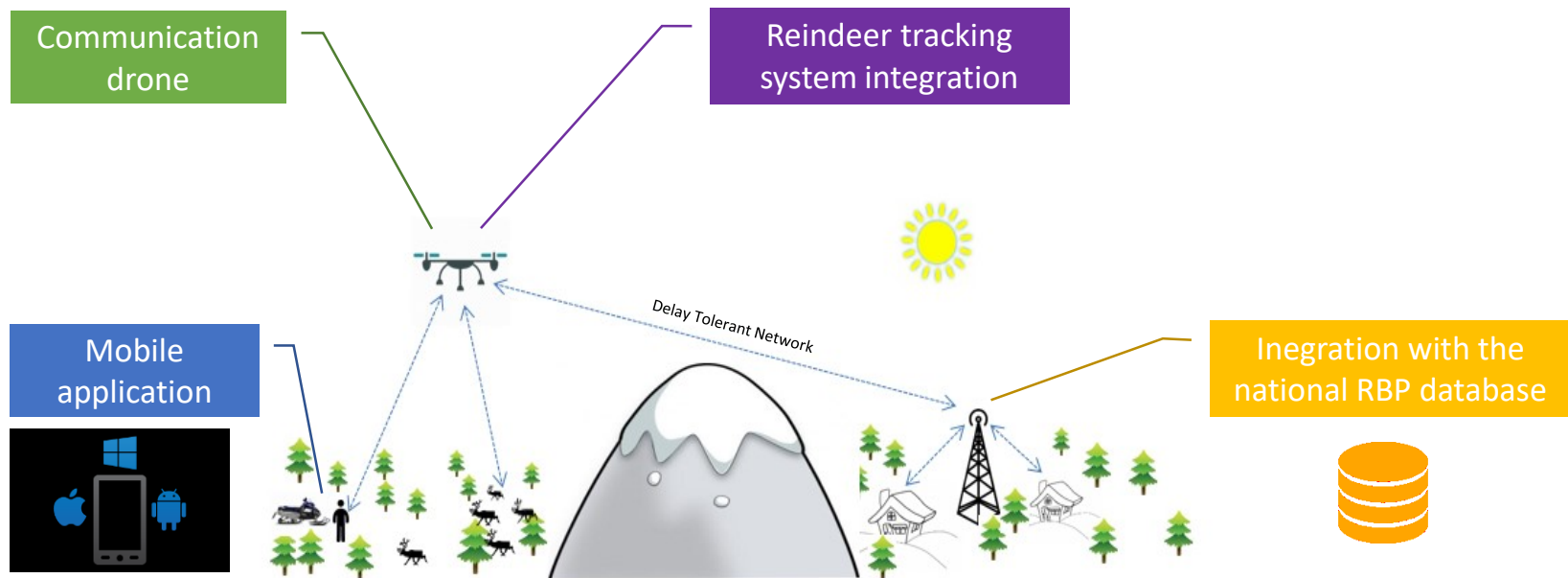


Complementary skills within the group

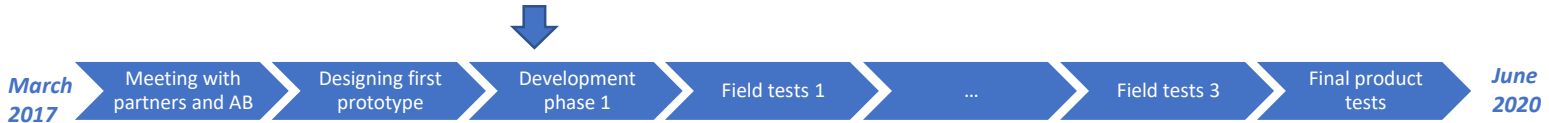
- **Kerstin Kemlén:** reindeer husbandry consultancy, system development, entrepreneur with 10 years of experience in project applications and evaluations
- **Sámi village representatives/Innovation Group:** own reindeer husbandry companies, experiences within reindeer herding as well as the Arctic environment, **Annelie Paivio** - administrator
- **Maria Uden (Professor in Gender and Technology):** interdisciplinary research, development in working life studies, engaged in the development of alternative solutions for communications and internet access, primarily the DTN technology
- **Samo Grasic (Phd):** development and deployment of ICT infrastructures for sparsely populated remote Arctic regions, network protocol development (standardization), social aspects of ICT deployments, maintenance of meteorological and radiological systems, power harvesting, low power embedded systems, software development, social

The objective

To develop a planning tool for reindeer herders that can be used while working on field with or without access to the mobile Internet. This is to **reduce cost** and **optimize** work when gathering the animals during different types of husbandry activities.



Current status and key challenges



Conducted activities (since March 2017):

- Meeting with all the partners in Jokkmokk
- Established contact with herd tracking producers
- Establishment of communication with the national air traffic control as well as local county administration regarding the use of drones
- Purchase of equipment
- Meeting with the Technical Advisory Board: Vint Cerf and Scott.C.Burleigh (IPNSIG)
- Started to evaluate different tracking systems

Key challenges:

- Drone flight-time optimization
- New drone regulations in Sweden
- Restricted flight zones in the military and national parks of Sweden
- Cloud based herd tracking services (data ownership problem)
- Integration of already purchased and deployed tracking technologies
- Lack of international herd/wildlife tracking standards
- The Arctic winter conditions
- The user interface

Practice Abstract

Reindeer herding practices in Swedish Lapland take place in vast remote areas and require environmental consideration as well as coordination among reindeer herders. Efficient planning of reindeer husbandry practices are thus crucial for sustainable operations. In the last decade, reindeer herders have started to adopt various GPS solutions to track and monitor the location of parts of their herds. This is to reduce the costs of herding and husbandry activities. Saying this, as most of the affordable tracking solutions today require access to mobile network infrastructures, tracking cannot be used on huge parts of the grazing areas as they lack connectivity. Alternative tracking solutions that are based on its own radio infrastructures or satellite connectivity have turned out to be costly, mainly due to high maintenance costs and high satellite fees.

Since 2010, and as a means to improve organization, Swedish Sami villages have access to the national reindeer husbandry planning database (Renbruksplan, RBP). While this service is used for seasonal planning of reindeer herding, it is currently not used by individual reindeer herders in their daily work. The software is developed for personal computers only and the task of (manually) importing herd tracing data is time consuming and besides, difficult to share with others.

The main objective of this project is to develop a reindeer husbandry planning tool that will provide reindeer herders with:

- access to the national reindeer husbandry planning database on the field even in remote areas that lacks Internet connectivity,
- seamlessly integration of new and existing herd tracking solutions for real-time monitoring,
- the possibility to record and share on-field relevant information from the grazing areas with other reindeer herders and organizations.

The following innovative products will be developed in the project span:

- Communication drones: A hovering drone equipped with directional antennas will be relaying data from 3G/4G masts to herder on the ground. Thus, significantly extend mobile networking coverage in remote regions.
- Reindeer tracking module: Additional drone module for seamless collection of reindeer positions in areas lacking connectivity infrastructure.
- Reindeer herding mobile app: An app for Apple, Android and Windows mobile platforms that will integrate GPS tracking, national reindeer husbandry planning database (RBP) and reindeer herders private records from the field.

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**All seminar presentations and
documents are available on
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