

Drones in Cities – an infrastructure love story



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Background:	Information Technology + Literature
Equals:	Science Fiction





Perspective...

Why would we want drones?

- Faster Access to **Critical Services** (e.g. Medical Deliveries)
- Reduced Road **Congestion** and Pollution
- Increased Services in **Underserved** Areas
- Improved Public Safety and **Emergency** Response
- Job Creation and **Innovation** Ecosystem Growth



But

For there to be
improvements to an
infrastructure

There must be an
infrastructure

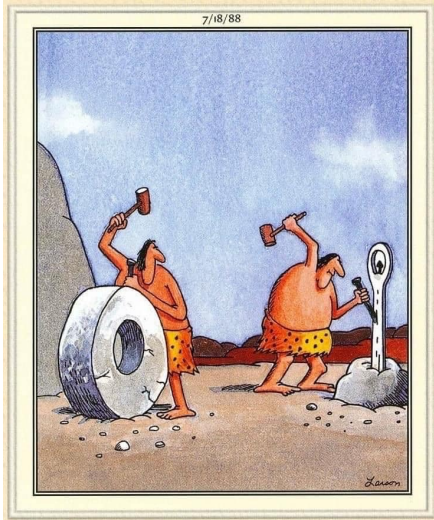
The beginning:

A bar
A beer
An Englishman
Hubris*

*refers to excessive pride, overconfidence, or arrogance, often leading to a downfall.



Where to start?



Drone ecosystems and dedicated, shared infrastructure for drones in cities and rural areas is currently **non-existing**.

A small part of the **To-do** list:

- Innovative **landing** technologies
- Innovative **communication** technologies between drone, dock and the rest of the world
- Innovative **energy** harvesting and **wireless** charging
- Innovative Infrastructure **Architecture**

So, we started with technology



tietoenvy

AURORA
POWERTRAINS

MERUS POWER

LAPIN AMK
Lapland University of Applied Sciences

UNIKIE

nokian
TYRES



tietoenvy
xenergic

RI
SE



SVARMI



Tyndall
National Institute
Advanced Technology

netfeasa
Intelligent Connectivity



amun

CISC
semiconductor



aiXACCT systems
Control
Con. für Leistungselektronische
Systemlösungen mögl.

SCAN TINEL
PHOTONICS
Scan | Detect | Navigate

DIGITAL TWIN
TECHNOLOGY

Fraunhofer
IMS
Fraunhofer
IZM



csem
FIXPOSITION

Swiss Airtainer

amun



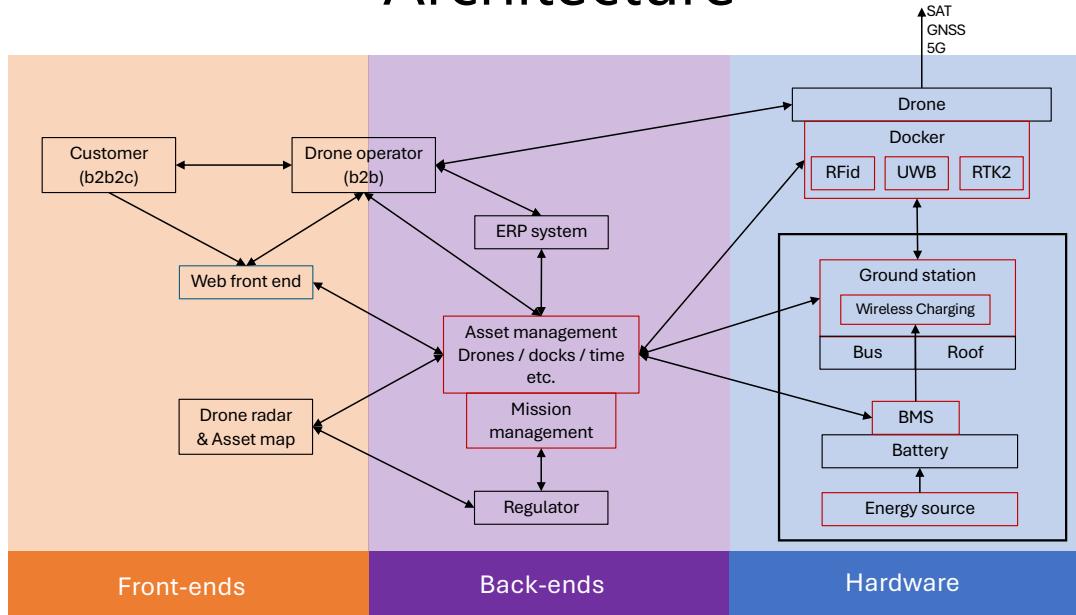
LGE
Technology

IU.NET

APPLIED
MATERIALS

UniBo,
UniPg,
Polito,
UniUd

Architecture

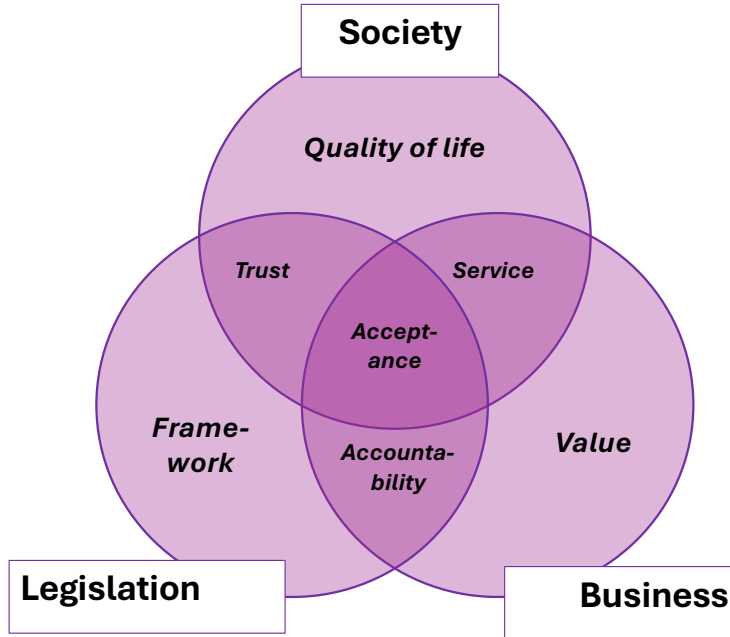




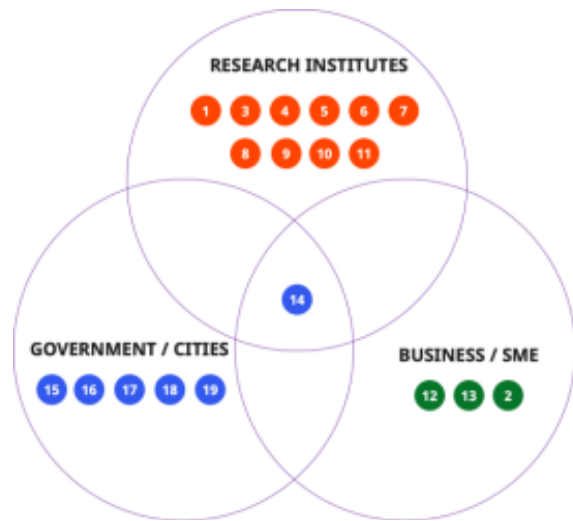
Conclusion:

Technically, we can probably
do this

But what about
everything
else?

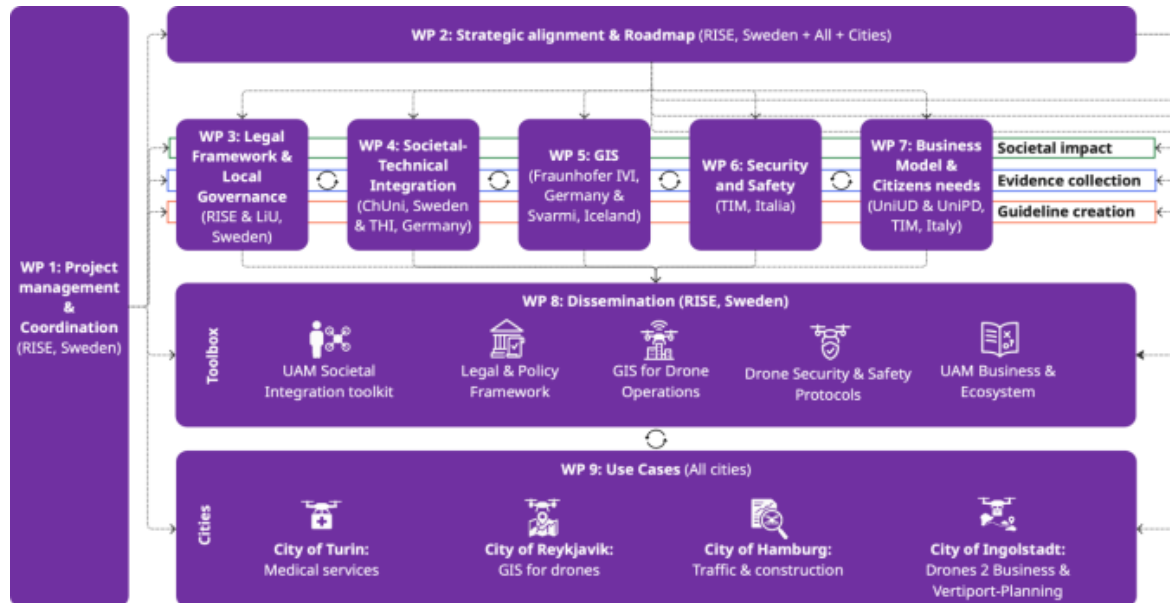


So, we put together another Team...



- 1 RISE (Sweden)
- 3 Fraunhofer IVI (Germany)
- 4 Technische Hochschule Ingolstadt (Germany)
- 5 Politecnico di Torino (Italy)
- 6 Chalmers University of Technology (Sweden)
- 7 Chalmers Next Labs (Sweden)
- 8 Linköping University (Sweden)
- 9 University of Macerata (Italy)
- 10 University of Udine (Italy)
- 11 University of Padua (Italy)
- 12 TIM (Italy)
- 13 Svarmi (Iceland)
- 2 Straeto (Iceland)
- 14 CRIAQ (Canada)
- 15 City of Ingolstadt (Germany)
- 16 City of Reykjavik (Iceland)
- 17 City of Torino (Italy)
- 18 City of Odense (Denmark)
- 19 City of Hamburg (Germany)

The Project



The Use-Cases



City of Turin: Medical services

This use case focuses on the rapid and efficient delivery of critical medical supplies, such as organs, blood, and medication, within the urban environment. This addresses the urgent need for expedited logistics in healthcare, demonstrating the life-saving potential of IAM.



City of Reykjavik: GIS for drones

This use case centers on developing and validating advanced Geographic Information System (GIS) capabilities tailored for drone operations. This includes precise 3D mapping, airspace management, and dynamic routing, crucial for safe and efficient navigation in complex urban topographies.



City of Hamburg: Traffic & construction

This use case investigates the application of drones for monitoring urban traffic flows, assessing construction site progress, and conducting infrastructure inspections. This aims to enhance urban planning, reduce congestion, and improve efficiency in large-scale city development.



City of Ingolstadt: Drones 2 Business and Vertiport-Planning

This use case focuses drone services, above all cargo and logistics, demonstrating the potential and operational feasibility. Furthermore, we will focus the planning of an vertiport in Ingolstadt and glance on the challenges and obstacles that may exist for a City.

Ok, yeah, fancy, but what about...?



That's it.

Questions?