ONE6G OPEN LECTURE L3 - 6G TESTBED/SIMULATION

PAVING THE WAY TOWARDS 6G TESTBED

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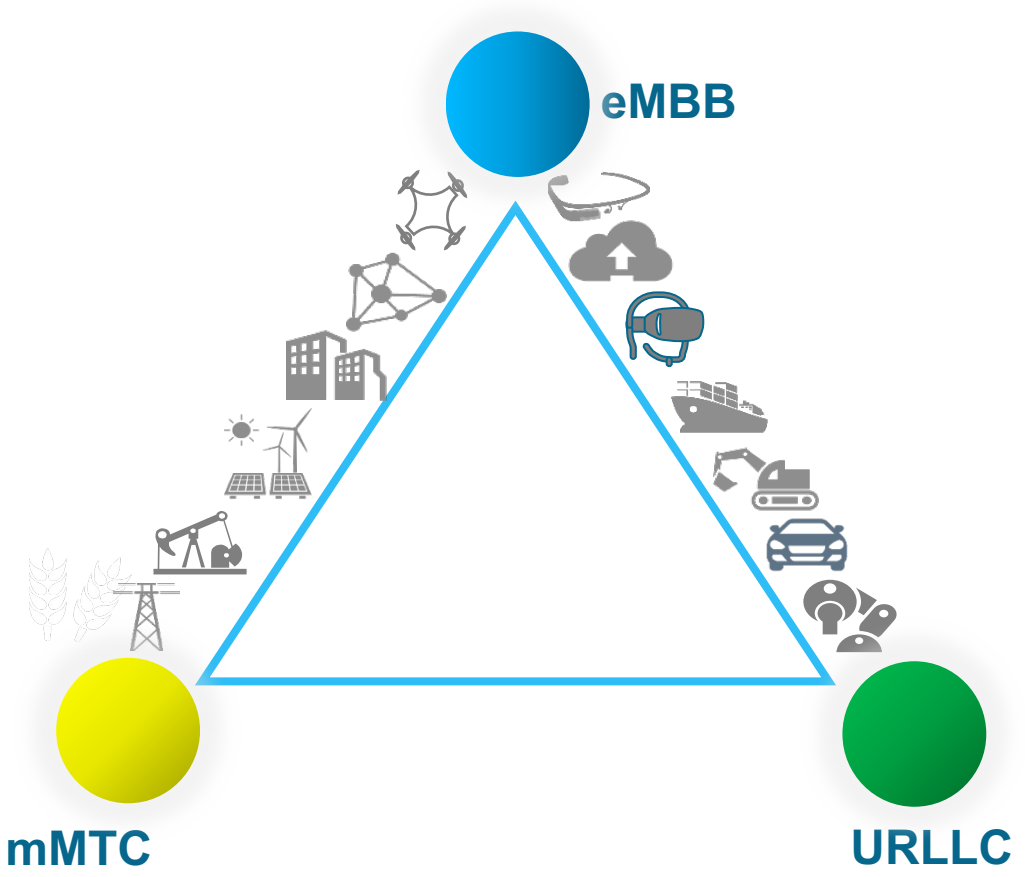
PAVING THE WAY TOWARDS 6G TESTBED

Lessons learned

- The so-called verticals were first addressed in 5G.
- It will continue with 6G and the impact of the use cases define will continue to increase.
- One of the findings is that the adoption of new wireless standards by “Verticals” is challenging.
- Study of standardization documents is insufficient and inconclusive.
- Verticals are still trying to understand the value of 5G years after Rel15, Rel16 has been finalized (5GAA, 5G-ACIA, …)

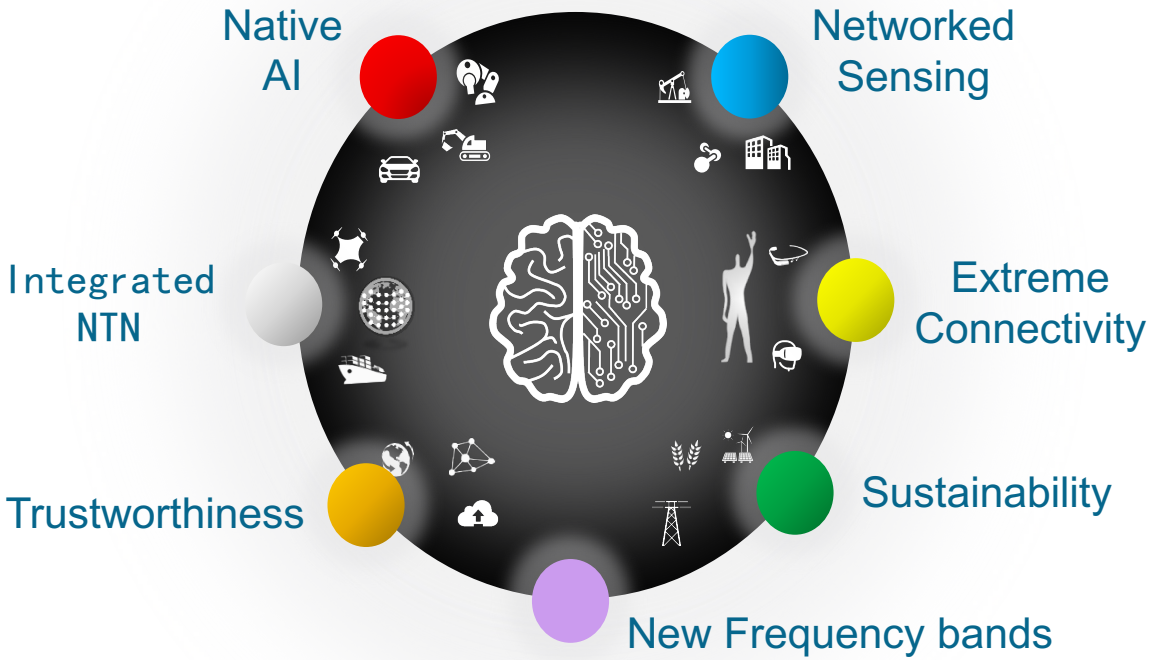


eMBB: enhanced Mobile Broadband
mMTC: massive Machine Type Communication
URLLC: Ultra reliable Low Latency Communication

PAVING THE WAY TOWARDS 6G TESTBED

Should we repeat what we did with 5G?

- With 6G, the complexity of the standard will continue to increase solely because of the additional user groups
- How can we gain confidence in the new technologies, how can we involve the future users?



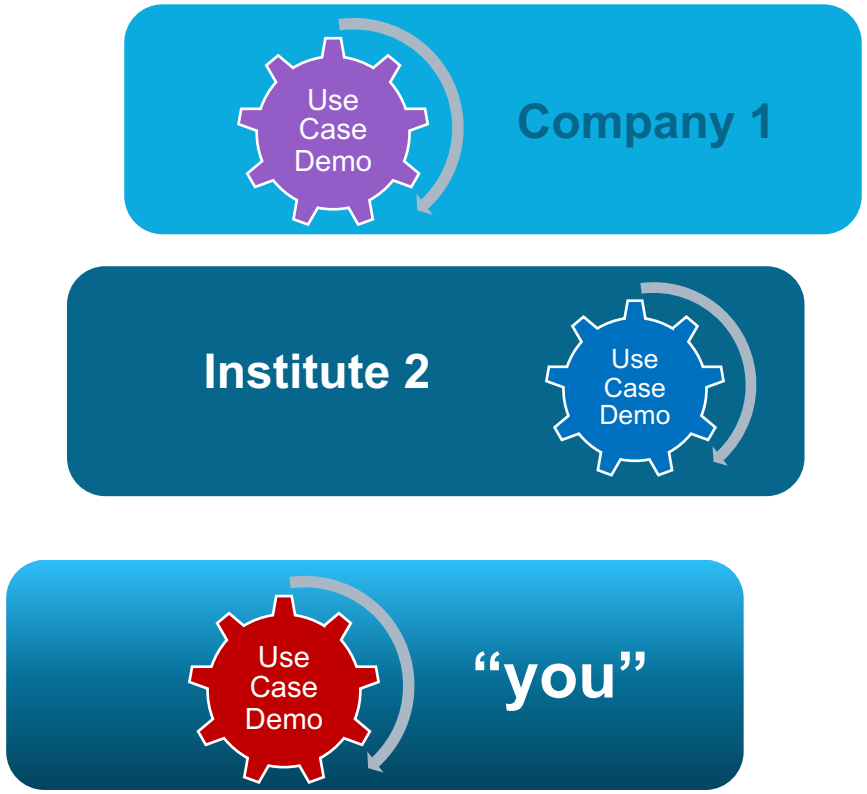
The proposed path to the 6G future is to start

- with the proof of concepts, with real-world trials
- together with all kinds of stakeholders.

“THE SAME PROCEDURE AS EVERY YEAR (GENERATION)”

Phase 1: Use Case Demo

- Focus on visions
- Demonstration of 6G Use Cases
- Feasibility demo
- Should not be limited to RAN features
- Very simplified



Still necessary for many new 6G use cases

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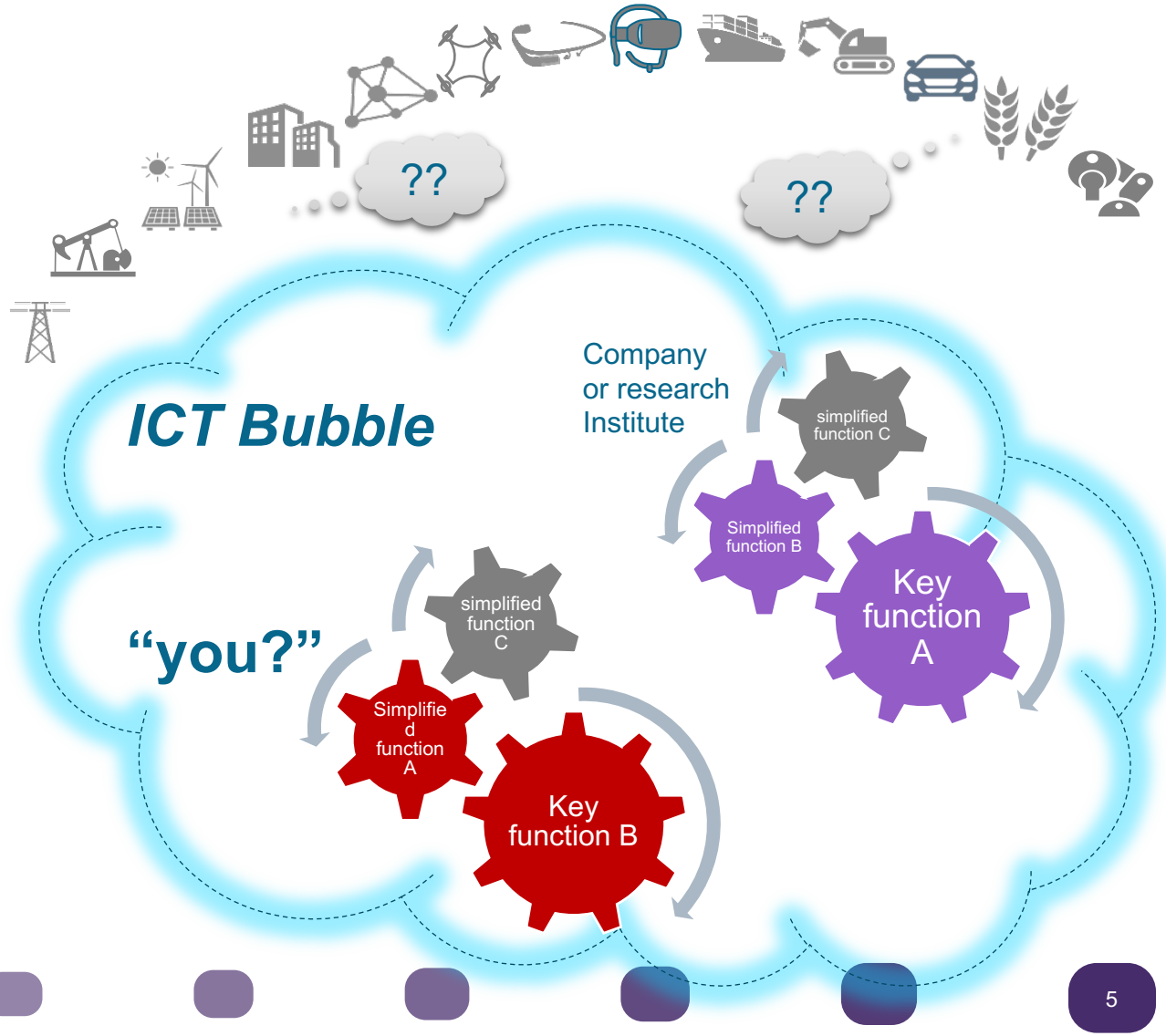
“THE SAME PROCEDURE AS EVERY YEAR (GENERATION)”

Phase 2: Feasibility of key functions

- Focus on selected key technologies
  - Demo of the feasibility
  - All other functions are very simplified
- Main drivers are ICT companies
- Verticals are not involved !!! → ICT bubble
- Very small scale demo because of
  - Missing know how
  - Limited resources

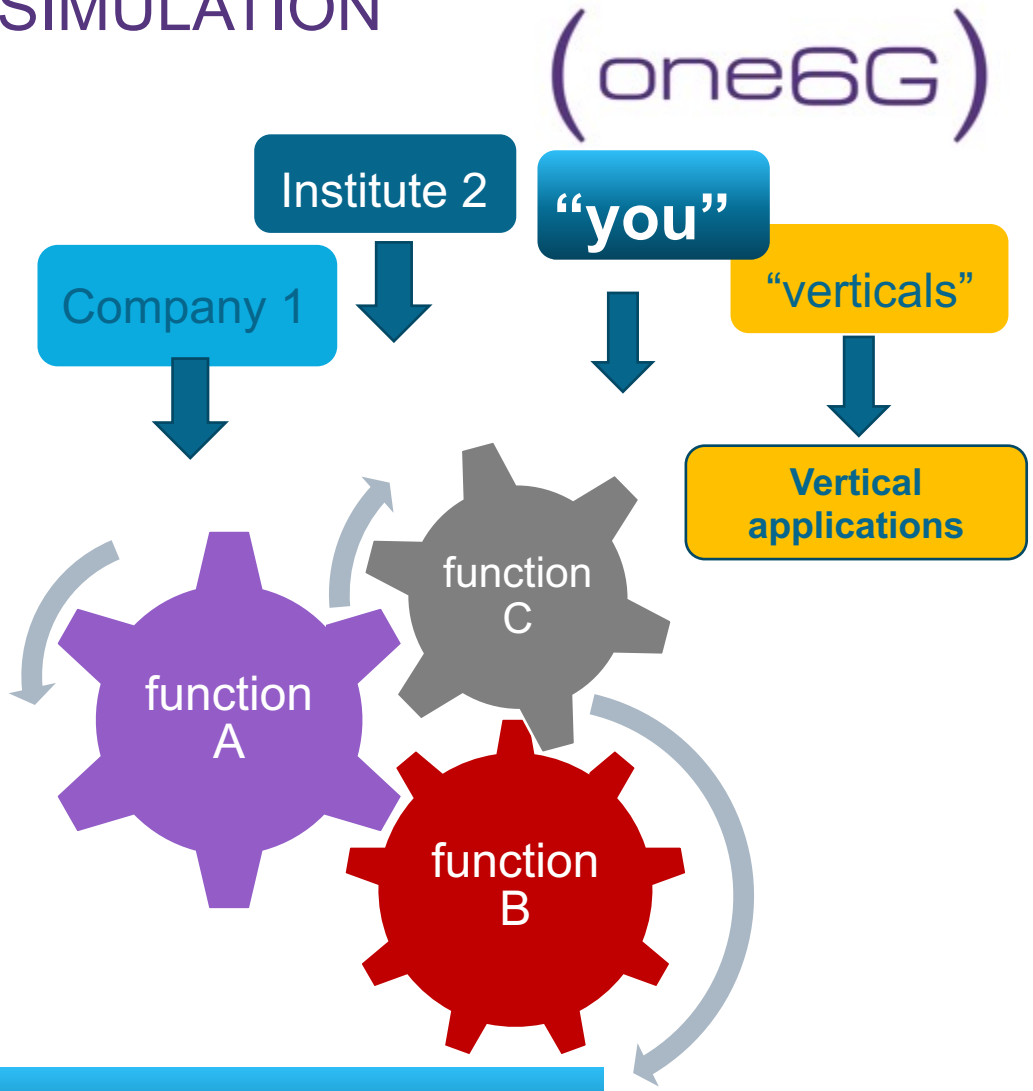
That’s where we are with 6G right now



YOU GOT IT?

Phase 3: Recommended is Partnering

- Challenge: who has implemented function A,B,C?
- Radio guys are looking for high layer functions
- Protocol guys for support by radio experts
- Feedback from “verticals” is mostly missing

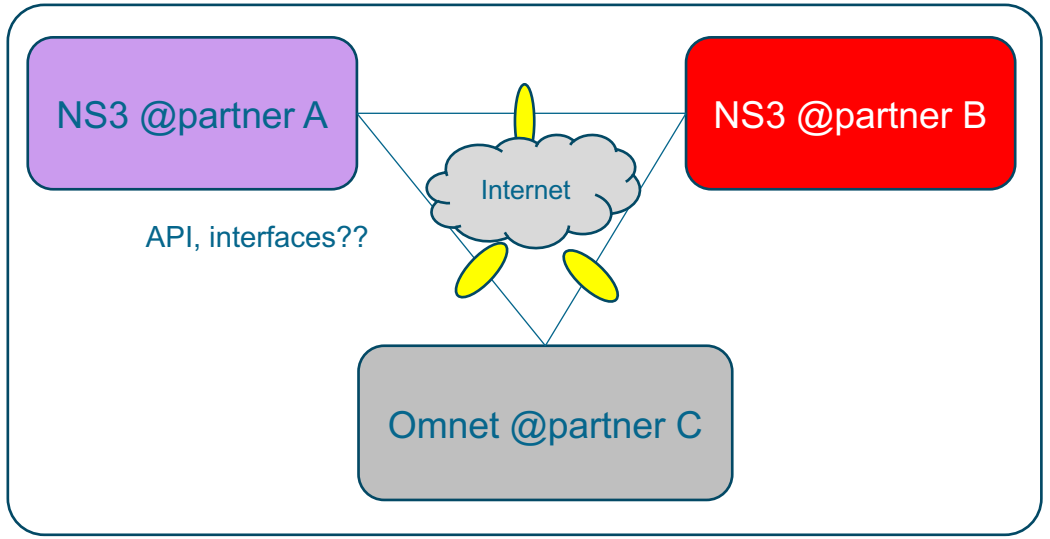


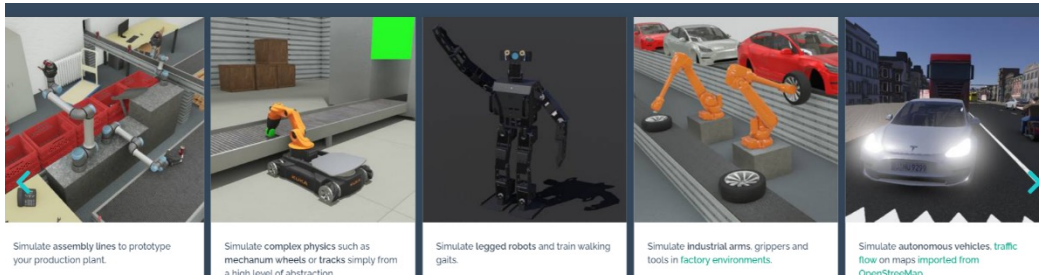
Remember: 6G is going to support much more functionalities than 5G
Example: native AI, integrated Sensing and Communication, etc,

OPEN (VIRTUAL) PLATFORM FOR JOINT TESTS?

Phase 4: Proposed Trusted Simulation Platform

- Not limited to hardware prototypes.
- Even more easy with software based prototypes.
  - Connect simulators e.g. NS3
  - Careful interface definition allows to combine different simulators and software platforms
- Small size partner can use complex functions provided by other partners
- Tool for future SNS projects



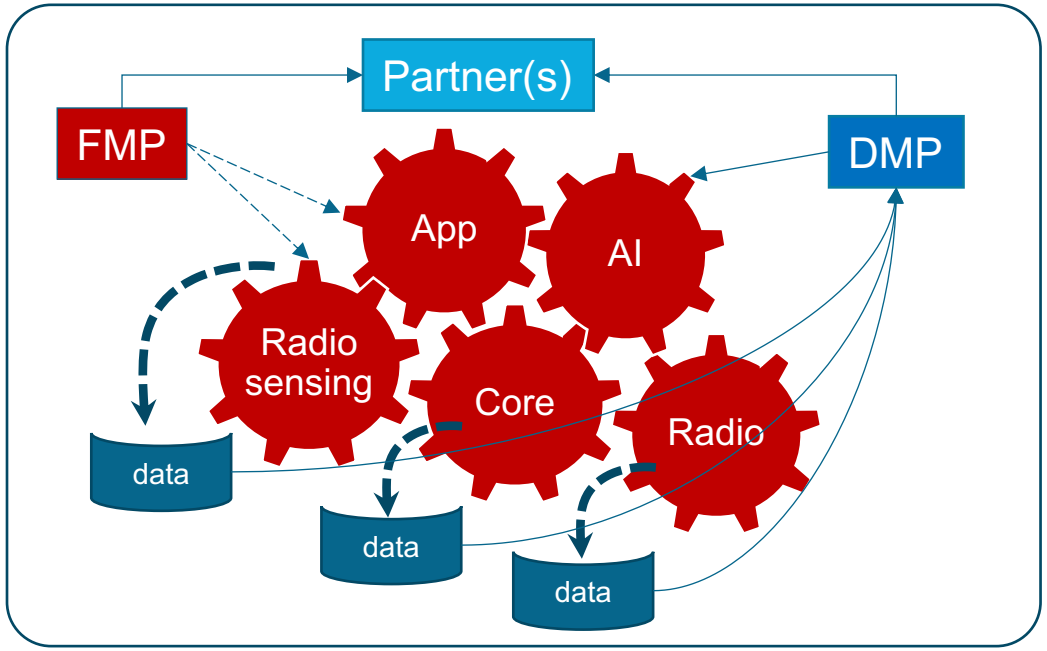


Source: Digital Twin simulation tool Webot

OPEN (VIRTUAL) PLATFORM FOR JOINT TESTS?

Phase 5: Trusted Market Places for research and trials

- Market place for functions (FMP)
  - Lowers the effort for verticals to cooperate
- Market place for “data” (DMP)?
  - Logfiles for debugging generated by partner A becomes valuable data for training of AI for partner B



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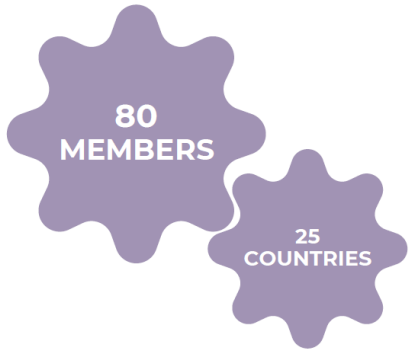
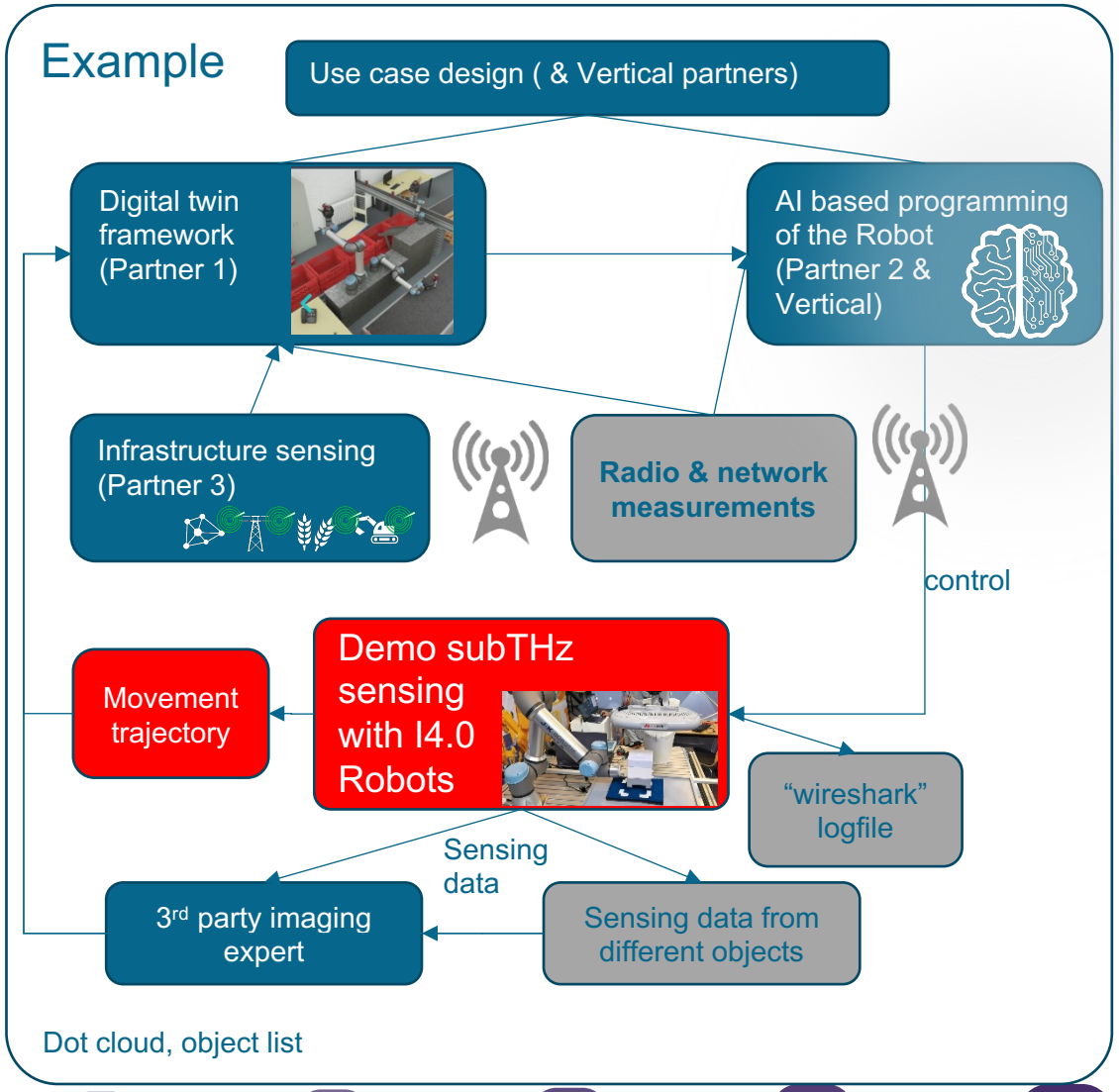
OPEN (VIRTUAL) PLATFORM FOR JOINT TESTS?

How to start?

- one6G as host for the 6G (virtual) trial and verification platform
- Big member base with academia, vendors, end-users, telco operators etc.
- Join one6g WG4 please





THANK YOU FOR YOUR ATTENTION

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