

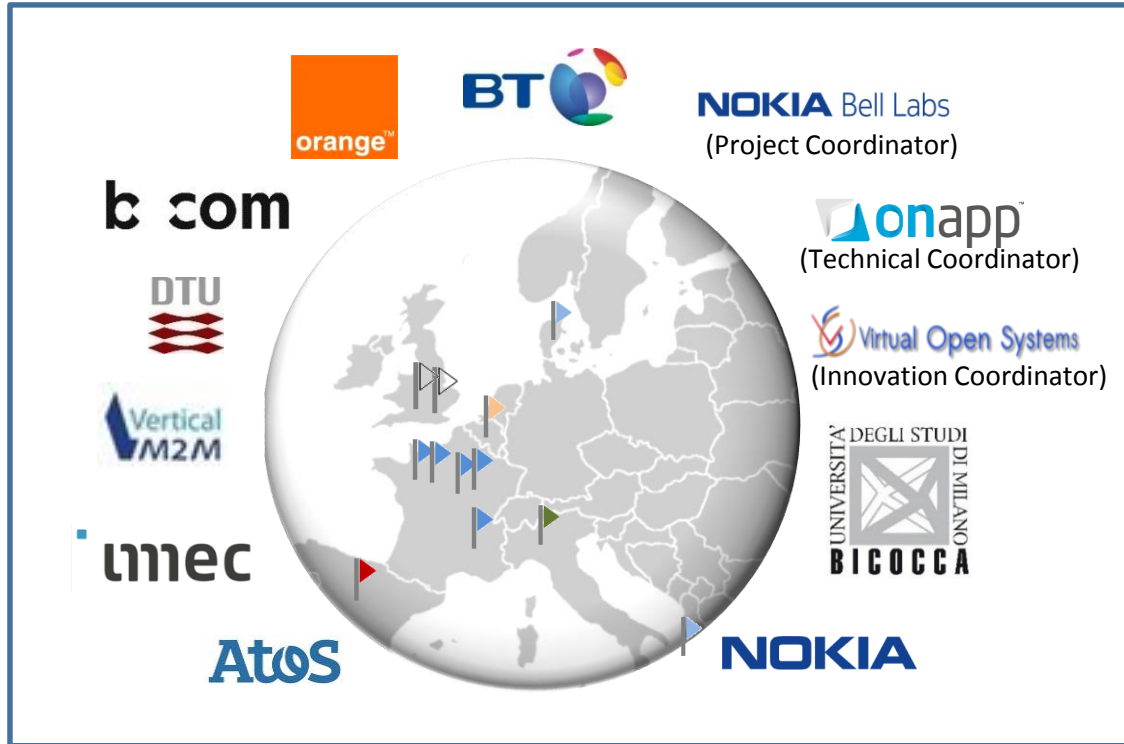
# NEXT GENERATION PLATFORM AS A SERVICE

Bessem Sayadi, Ph.D.

Nokia Bell-Labs France

Project Coordinator

[bessem.sayadi@nokia-bell-labs.com](mailto:bessem.sayadi@nokia-bell-labs.com)



## NGPaaS in a nutshell

EU funded R&D project (Horizon 2020) and part of 5G-PPP Initiative, aiming on building next Generation Platform as a Service: be customizable, support acceleration and flexibility, enable transformation across the industry (operator, IoT/verticals and vendors).

Duration: June'17 – May'19 (24 months)

Project Mgmt: Bessem Sayadi, Nokia Bell-Labs

Tech. Mgmt: Julian Chesterfield, OnAPP

Innov. Mgmt: Michele Paolino, VOSYS

Connect to NGPaaS

Web: <http://ngpaas.eu>

5GPPP: <https://5g-ppp.eu/ngpaas>

Email: [contact@ngpaas.eu](mailto:contact@ngpaas.eu)

- 5G must become the ubiquitous fabric blending universal connectivity (to humans, robots, sensors...) with cloud versatility and scalability.



- Another model than IaaS must be adopted, a model derived from the cloud service providers themselves, a model made by developers for the developers, the Platform-As-A-Service (PaaS).



- One size PaaS does not fit all 5G business cases and verticals markets (public/private clouds, specific requirements on latency...), since

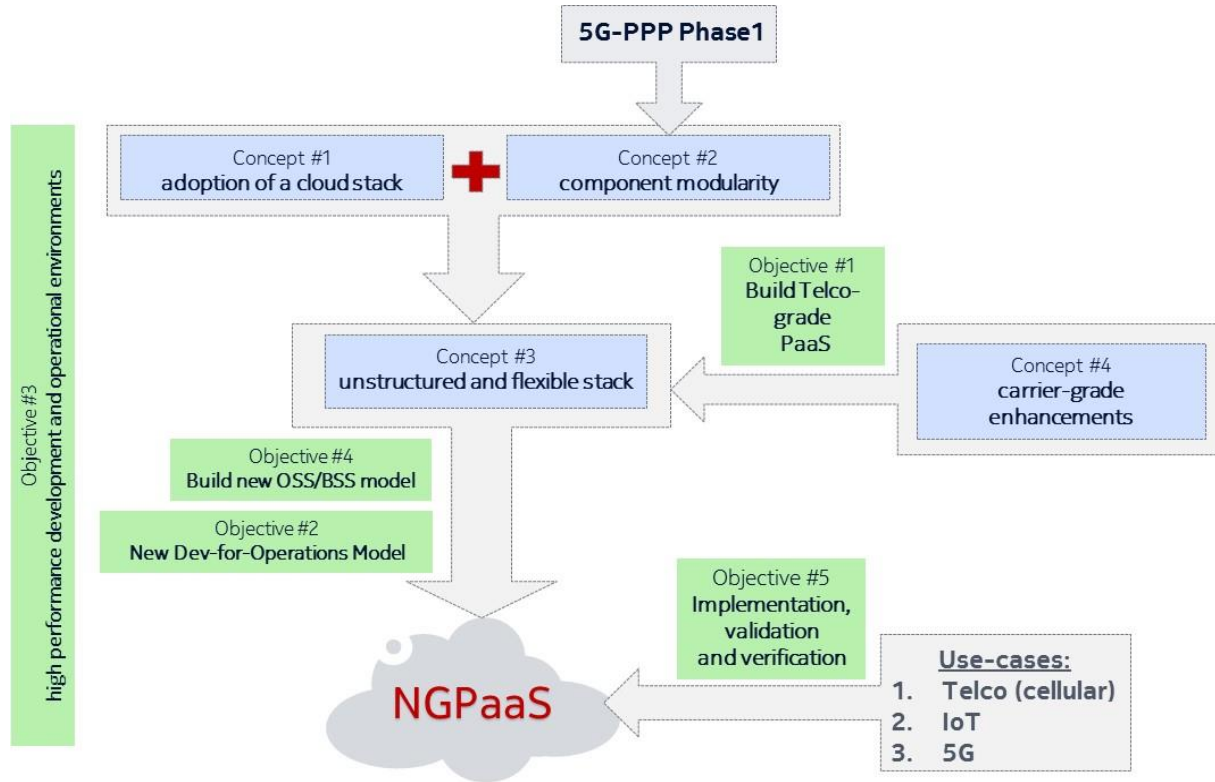
- **Complexity**: many  $\mu$ -services with different SLA distributed over various cloud types
- **Real-time**: stringent latency and throughput requirements requiring offloading/pinning to processing units
- **Heterogeneity**: hybrid technologies (e.g. various virtualization, control and orchestration), multiple sources of components including 3<sup>rd</sup> parties, security including multi-tenancy



Need to support “microservice/components assemblies”



NGPaaS



Are to build

- **Telco-grade PaaS:**
  - to support different configurations and a large set of deployment options such as FPGA/ARM/x86, private/public cloud in a scalable and unifying manner.
- **Dev-for-Operations model:**
  - to remove silos not only between different teams of the same organisation, organisations of the same industry but also between different industries (vendor, IoT/Vertical, operator).
- **High quality and high performance development and operational tools:**
  - based on same ones used in telecom environment for ensuring same quality and SLA.
- **OSS/BSS model:**
  - for interfacing with the cloud resources supporting the Telco-grade PaaS optimised for cost and performance in a highly dynamic environment.

NGPaaS «BUILD-TO-ORDER» principles demonstrated through:

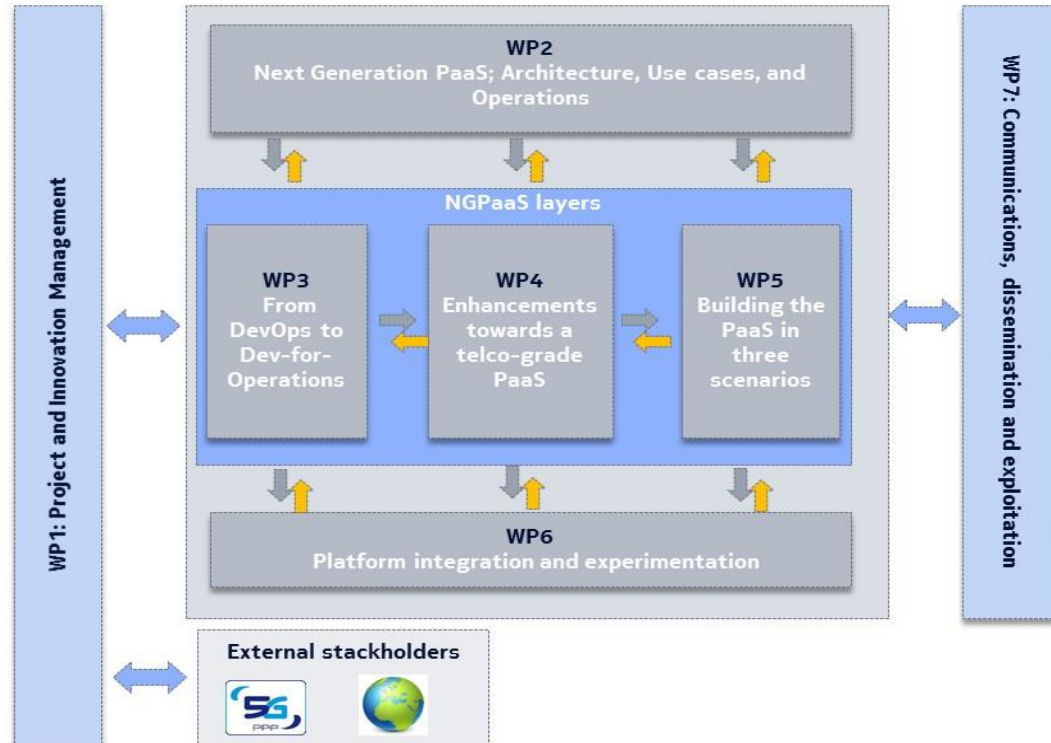
- Telco Use Case: « X-as-a-Service »,  $X \in \{\text{RAN, EPC, xHaul}\}$
- IoT Use Case:
  - Energy Monitoring
  - Intelligent Agriculture
- Mix of Telco and IoT Components
  - Local Analytics

Heterogeneous IaaS will be considered

- Threefold validation:
  - “virtual system validation” using “component of components” capabilities (5G digital sibling).
  - “local indoor loop validation” using a reconfigurable software-defined access point for testing real connectivity. Rest of the system except the access point can remain in the cloud. This step enables to scale to a few devices in the lab;
  - “local outdoor validation” on Paris-Saclay site using selected frequency, real transmission equipment and a much greater number of devices in near operational conditions.



- build a reference stack for future 5G networks, ready to be deployed for industrial usage.
- create a new ecosystem and the opportunity for all players to collaborate and develop new business models they can each benefit from.
- deliver innovative technologies enabling and accelerating the telco-grade PaaS transformation across the industry (operator, IoT/verticals and vendors), increasing the market scale and improving market economics.



**Thank you.**