



5G-VINNI (5G Verticals INNOvation Infrastructure)

H2020 ICT-17 project

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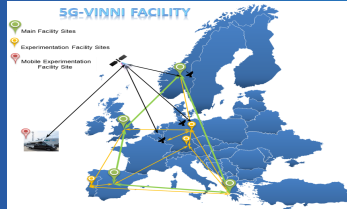
Mobil Agenda, Lysaker, 12.June 2018



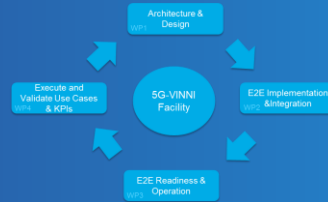
Outline



5G-VINNI Introduction



5G-VINNI Facilities



Methodology and time-line

Outline



5G-VINNI Introduction



5G-VINNI Facilities



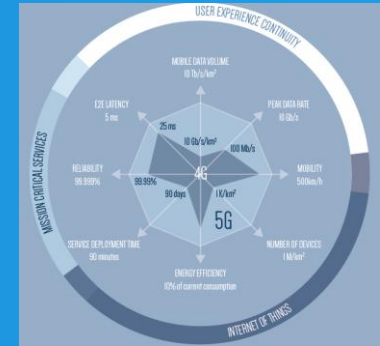
Methodology and time-line

5G-VINNI (5G Verticals INNOvation Infrastructure)

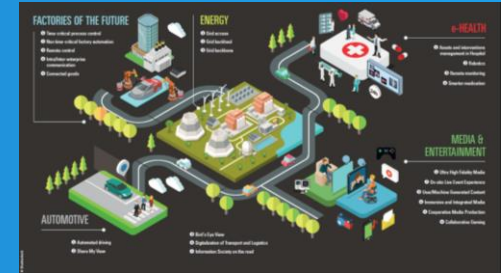
a project accepted for grant in ICT-17



- Build an open large scale 5G End-to-End facility that can
 - demonstrate that key 5G network KPIs can be met
KPIs: (capacity, ubiquity, speed, latency, reliability, density of users, location accuracy, energy efficiency, service creation time, network management capex/opex, ...)
 - be validated, accessed and used by vertical industries (e.g. in Kongsberg, other verticals, in ICT-19 projects) to test use cases and validate 5G KPIs.



Project Budget: 19,998 million €
Project Duration ~36 months (start July 2018)



Partners of 5G-VINNI

Partners are carefully selected to fulfil the objectives of 5G-VINNI for the ICT-17 call

External Stakeholder Board for vertical industry and other institutions important for vertical use cases is established, e.g.

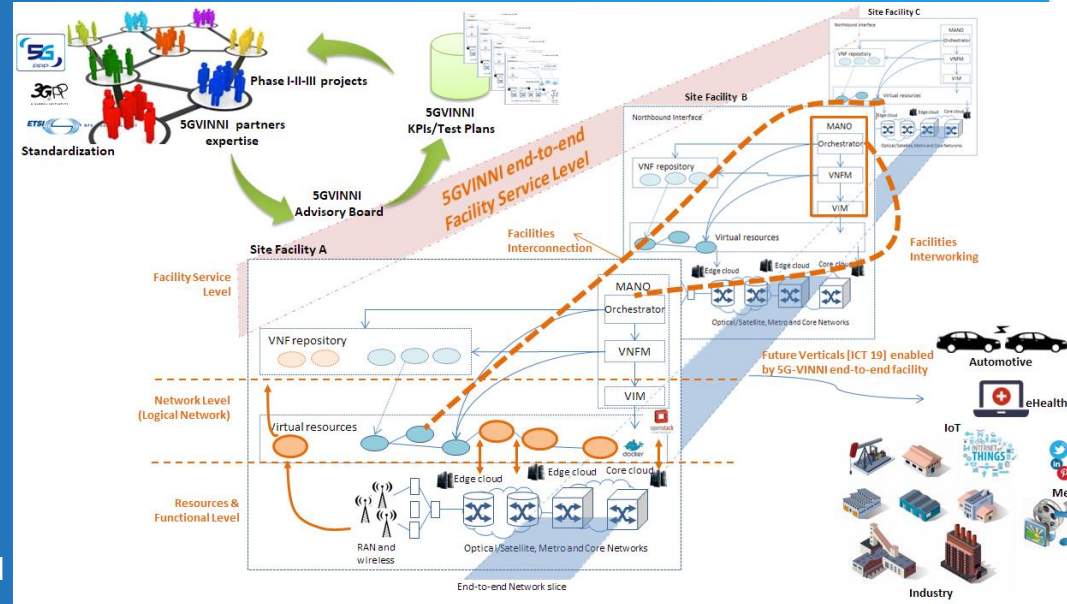
- Logistics
- Shipping
- Transportation
- Media & entertainment
- AR / VR
- Automotive
- Public safety / PPDR



Partners		
Operators	Telenor ASA (TnResearch, TnNorway, TnSatellite)	Norway
	BT	UK
	Telefonica	Spain
	SES	Luxembourg
Industry	Huawei	Norway & Germany
	Ericsson	Norway
	Nokia	Finland / Norway
	Samsung	UK
	Intracom	Greece
	Keysight	Denmark
	Cisco	Norway
	Altelabs	Portugal
Academia	Engineering	Italy
	AUEB	Greece
	UC3M	Spain
	Simula	Norway
	Uni. Patras	Greece
SME	Fraunhofer FOKUS	Germany
	EANTC	Germany
	Limemicro	UK
Admin	SRS	IR
	Eurescom	Germany

Key objectives of 5G-VINNI

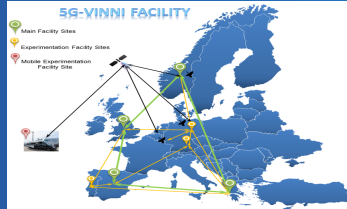
1. Design an advanced and accessible 5G end to end facility.
2. Build several **interworking** sites of the 5G-VINNI end to end facility.
3. Provide user friendly **zero-touch orchestration**, operations and management systems for the 5G-VINNI facility.
4. **Validate the 5G KPIs** and support the execution of E2E trial of vertical use cases to prove the 5G-VINNI capabilities.
5. Develop a viable **business and ecosystem model** to support the life of the 5G-VINNI facility during and beyond the span of the project.
6. **Demonstrate the value of 5G solutions to the 5G community** particularly to relevant standards and open source communities with a view to securing widespread adoption of these solutions.



Outline



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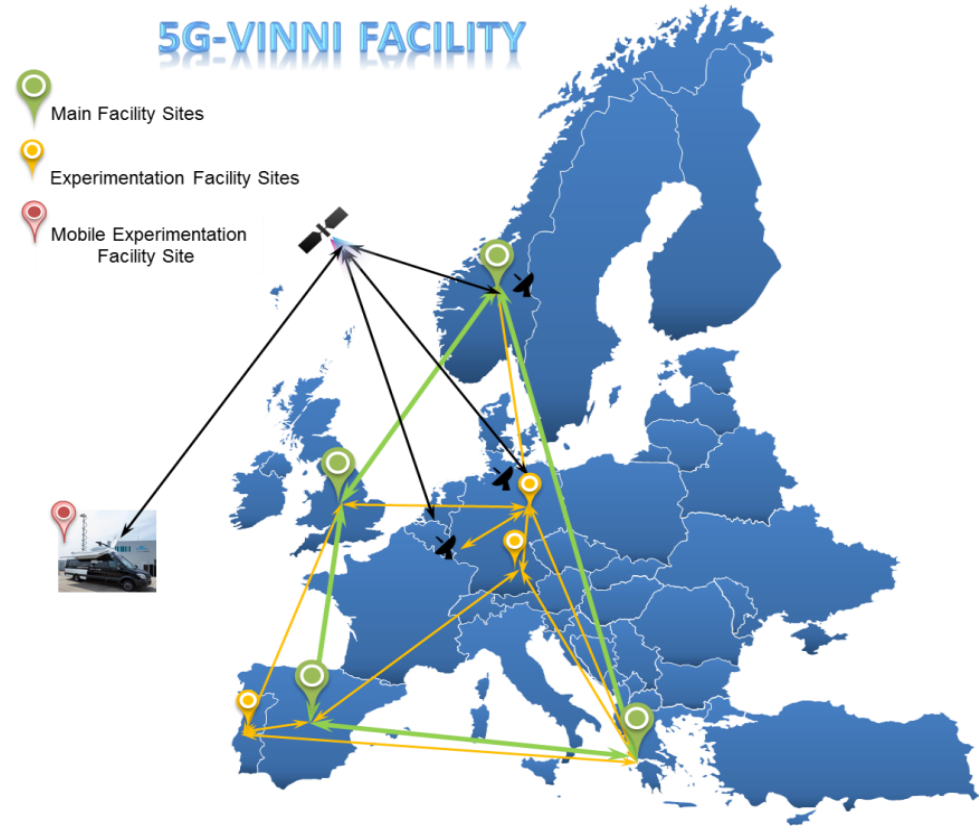
5G-VINNI Facilities



Methodology and time-line

5G-VINNI Facility sites

- **Main Facility sites:** E2E 5G-VINNI facility that offers services to ICT-18-19-22 projects with well-defined Service Level Agreements.
- **Experimentation Facility sites:** provide environments for advanced focused experimentation and testing possibilities on elements and combinations of elements of the E2E model.
- **Mobile Experimentation Facility site:** moving satellite terminals.

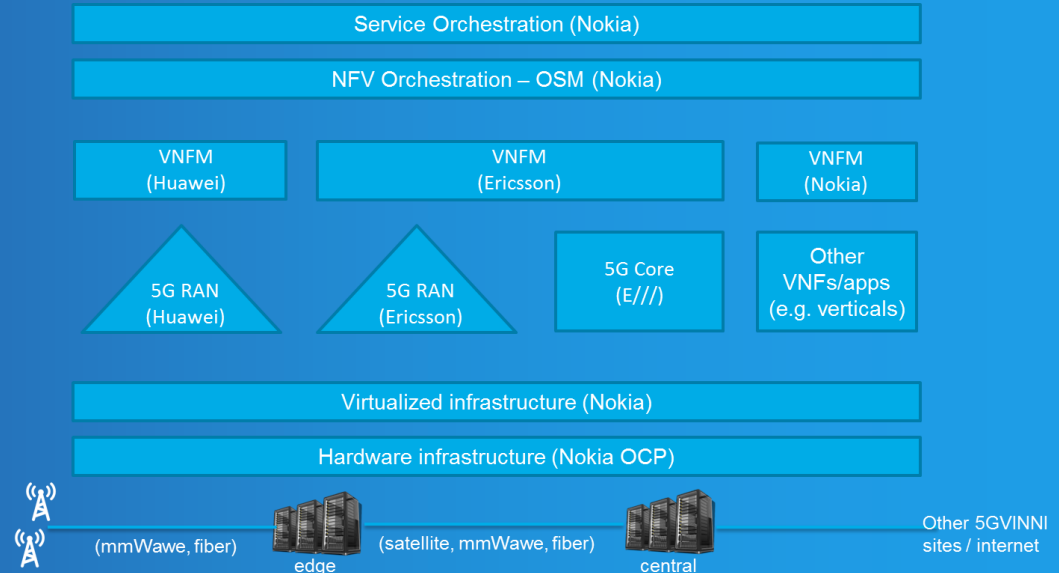


Norway Facility Site - Architecture

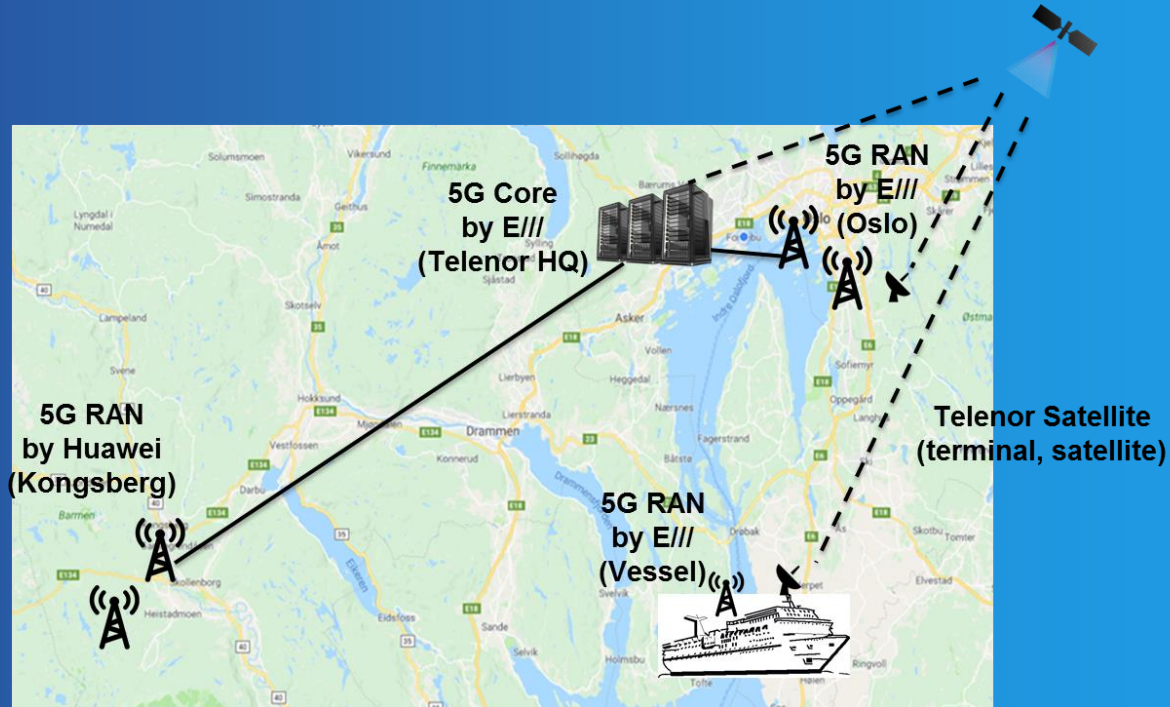
- Key architectural components

- Hardware infra (datacentre, RAN, transport, ...)
- Virtualization infra (OpenStack, KVM, SDN ...)
- Virtual Network Functions (5G core, 5G RAN, other apps)
- NFV Orchestration (target Open Source MANO)
- Service Orchestration
- IoT Data Fabric Service (Cisco)

- Multi-vendor setup

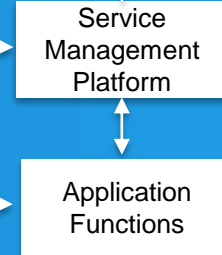
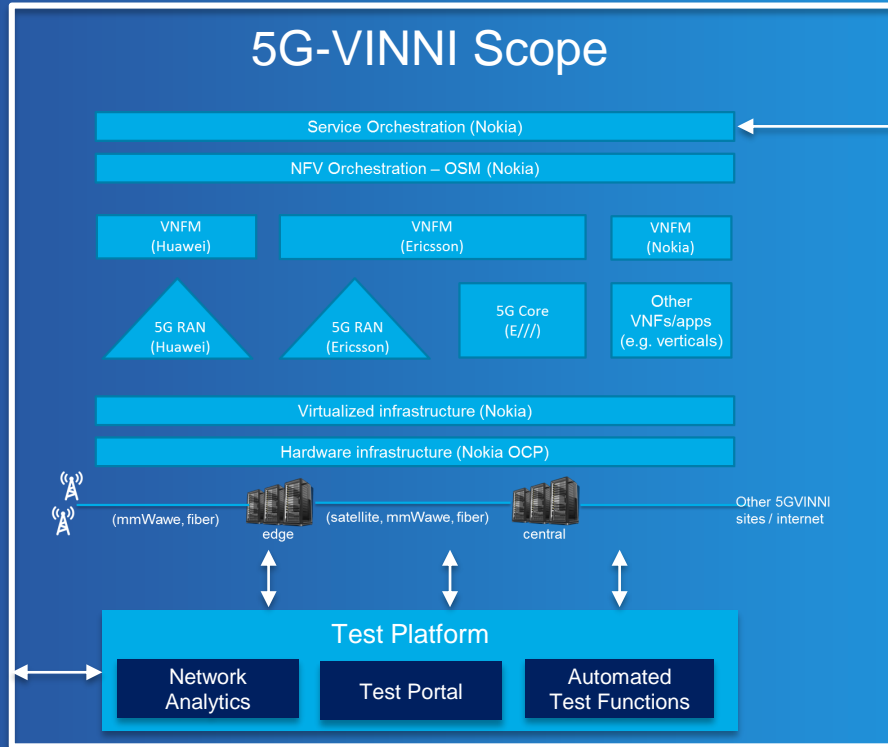
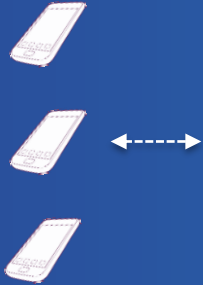


Norway Facility Site – geographical setup



Basic separation of responsibilities between 5G-VINNI and verticals / ICT-19 projects

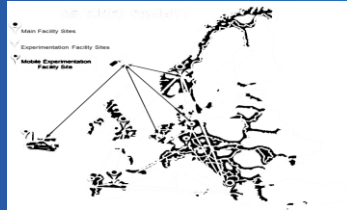
User Equipment



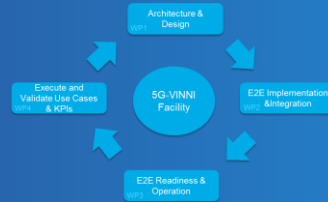
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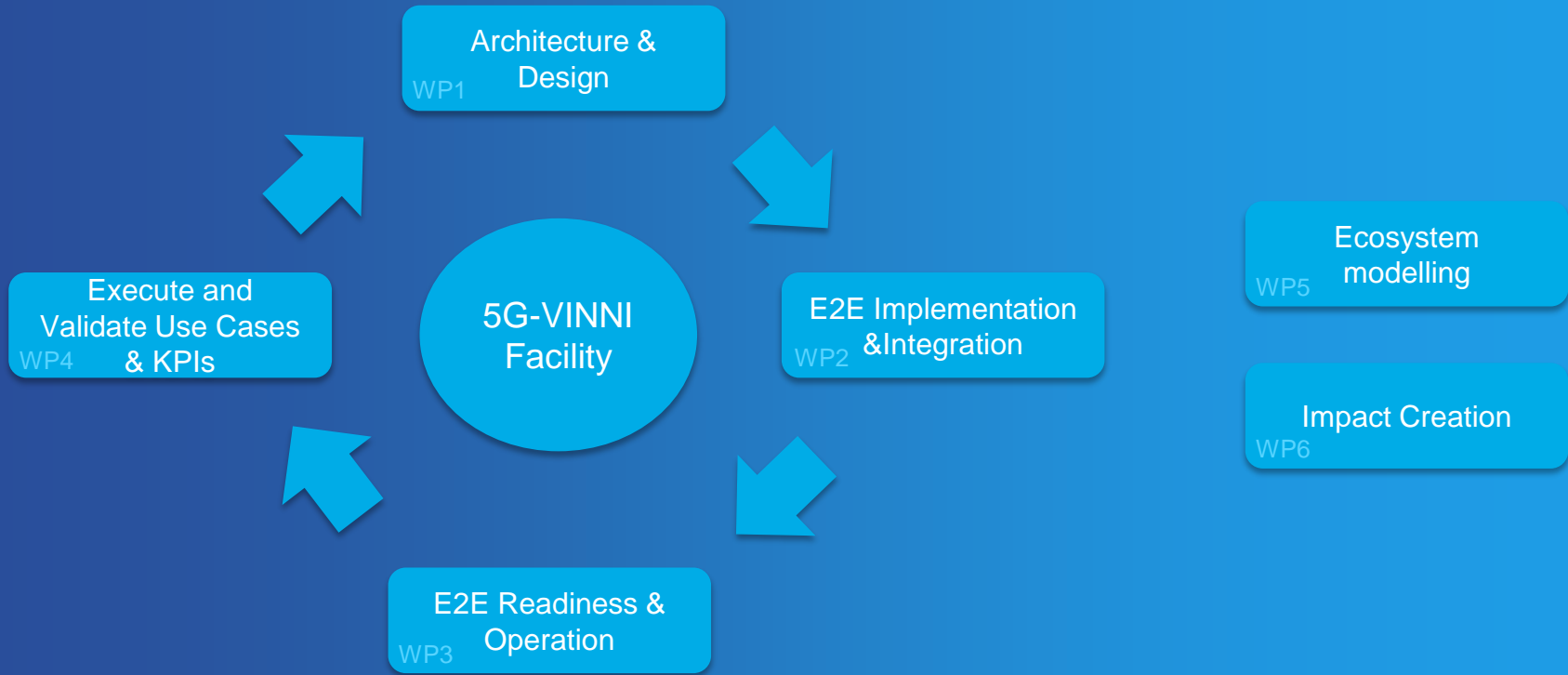


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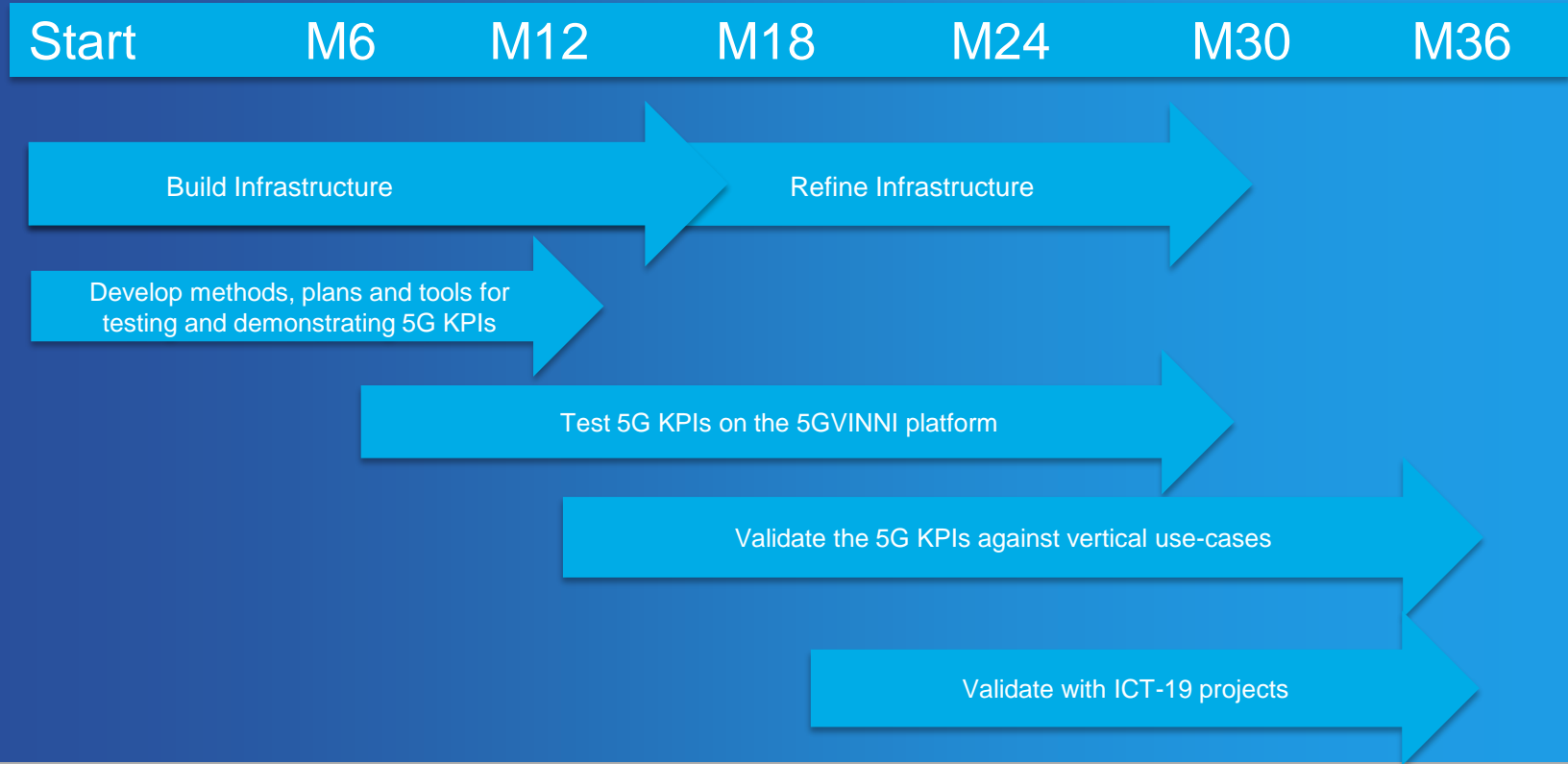


Methodology and time-line

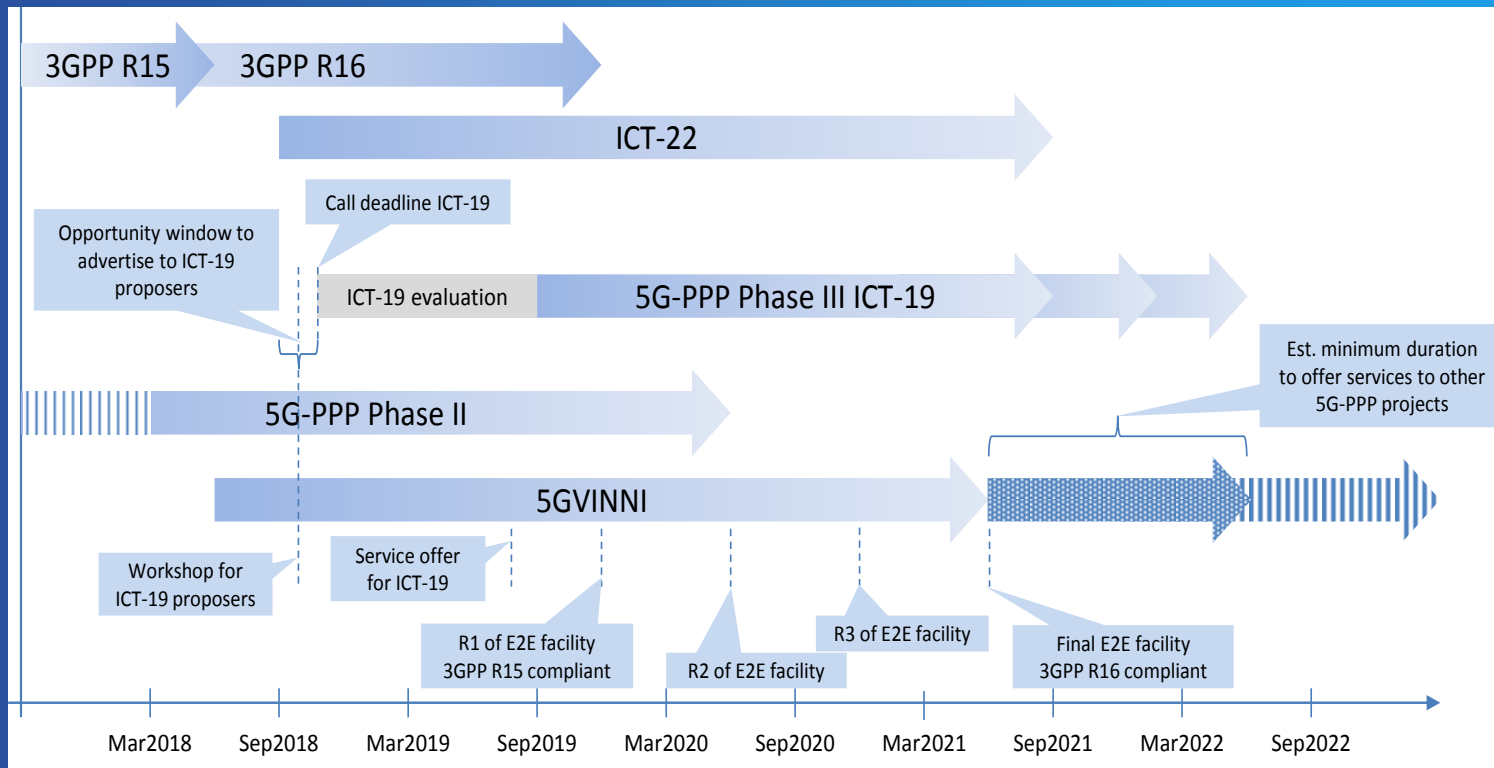
5G-VINNI Methodology



5G-VINNI activities at high level



Global timing alignment with 3GPP and 5G PPP



In summary

5G-VINNI will build an open large scale 5G End-to-End facility that can

- demonstrate that key 5G network KPIs can be met
- be validated, accessed and used by vertical industries to test use cases and validate 5G KPIs

