Final 5G EVE Webinar

5G EVE validation platform achievements

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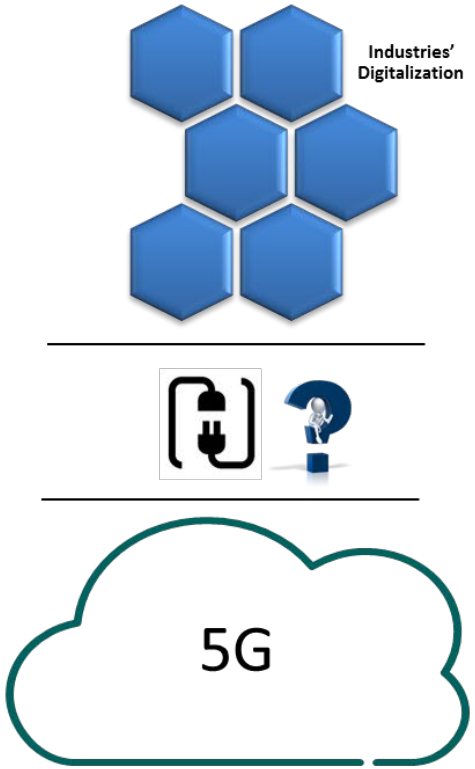
5G EVE Technical Manager

This Project has received funding from the EU H2020 research and innovation programme under Grant Agreement No 815074

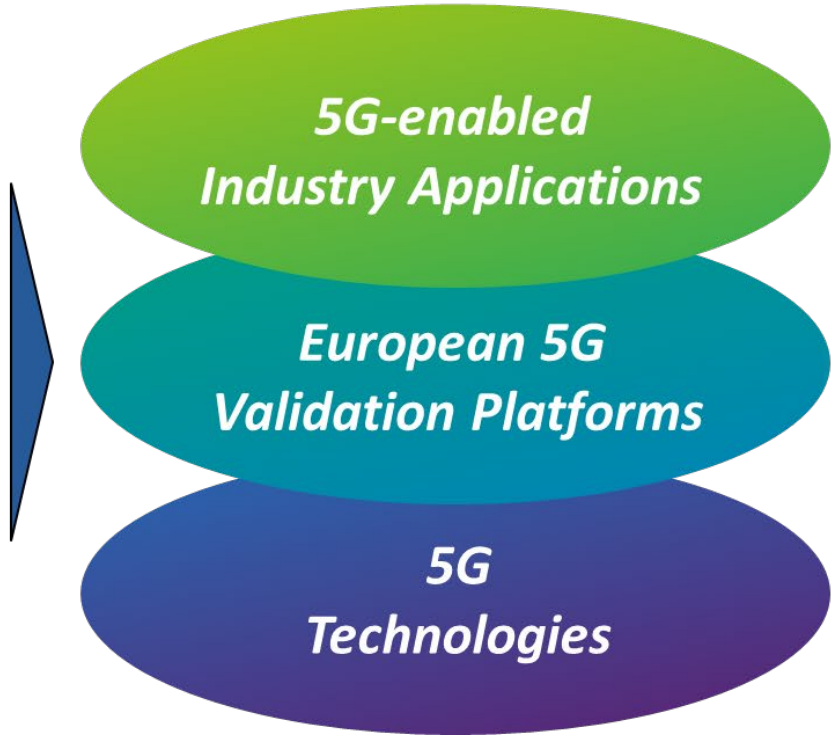
5G EVE

5G EVE's vision

From: Two Worlds



To: One Innovation Ecosystem



- Agile
- Diverse
- Specialized
- Transformative

1

- Open
- Ease-to-use
- Trustworthy
- Automated

2

- Performing
- Scalable
- Standard
- Secure
- Evolving

3

5G EVE

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5G EVE

1. 5G EVE Ecosystem
Participant Verticals

Spain
Madrid

Telefónica, ERICSSON, NOKIA, ASTI, Telcaria, SEGITTUR

France
Paris, Rennes, Sophia Antipolis

orange, NOKIA, b com, EURECOM, EDF

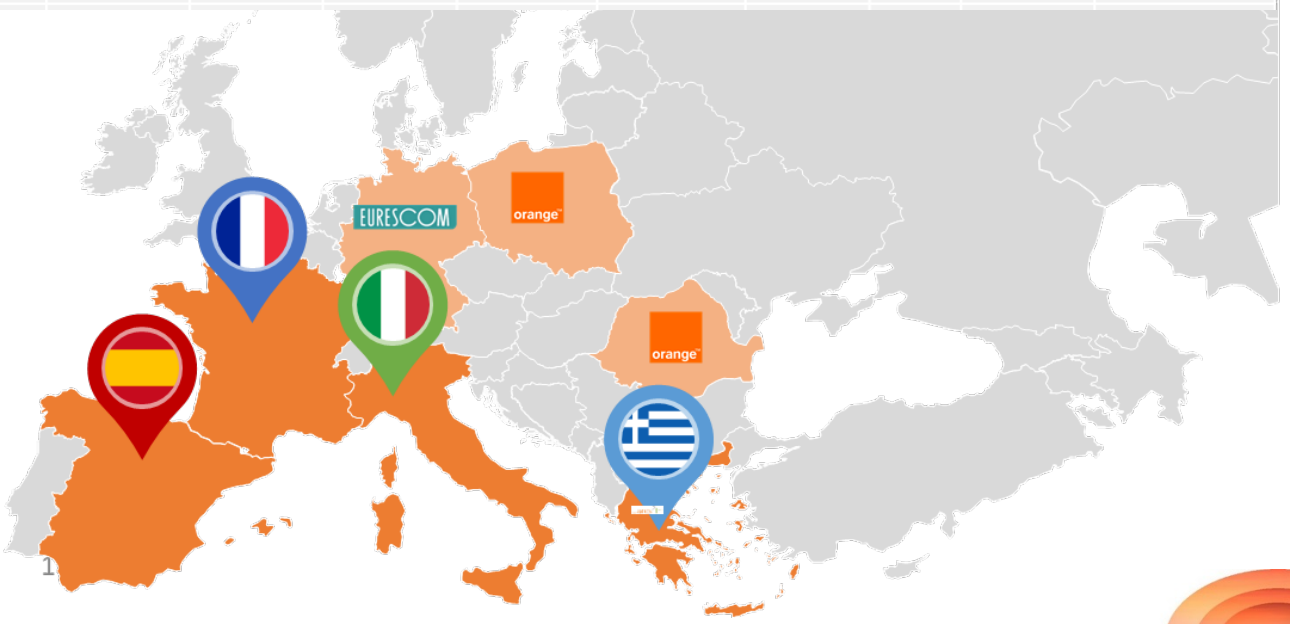
Italy
Turin

Città di Torino, IDC, PIIU, TIM, ERICSSON, NEXTWORKS, TRENITALIA, cnit, ...ares2t...

Greece
Athens

OTE, ERICSSON, NOKIA, WINGS ICT SOLUTIONS

Industry 4.0	Agriculture & Agri-Food	Automotive	Transport & Logistics	Smart Cities & utilities	Public Safety	Smart (air)ports	Energy	Ehealth & wellness	Multimedia & entertainment
√		√		√			√		√



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5G EVE

1. 5G EVE Ecosystem
Support to ICT-19 projects

Projects	Web site	Industry 4.0	Agriculture & Agri-Food	Automotive	Transport & Logistics	Smart Cities & utilities	Public Safety	Smart (air)ports	Energy	Ehealth & wellness	Multimedia & entertainment
5G EVE	https://www.5g-eve.eu/	√		√		√			√		√
5G Solutions	https://www.5gsolutionsproject.eu/	√				√		√	√		√
5G TOURS	http://5gtours.eu									√	√
5G!Drones	https://5gdrones.eu/				√		√				√
5G HEART	http://5gheart.org/		√		√					√	
5GROWTH	http://5growth.eu/	√			√				√		
5G VICTORI	https://www.5g-victori-project.eu				√				√		√

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5G EVE

2. 5G EVE Platform Services
Testing as a Service

Test design → Test preparation → Test execution & monitoring → Test PE and Analysis

Design your experiment
- Select a target 5G environment
- Browse a **wide portfolio of tools** and service components to build your experiment
- Bring **your own applications**
- Create new **blueprints** to easily reproduce your tests with different operational conditions

Vertical's VNF provider

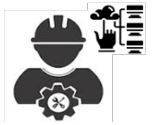
Experiment developer

Customize your experiment
- Configure your **experiment settings** using a wizard or an Intent-based Interface

Schedule your experiment
- Select a time slot to run the experiment and wait for the **environment preparation**

Experimenter

5G EVE Site Manager



Execute your experiment
- Build your own **virtual** environment and execute the tests
- **Monitor** the experiment **progress** and visualize monitoring graphs for your **metrics, logs and KPIs**

Experimenter

Assess service performance
- Check **statistics** about experiment results
- **Compare** KPIs from different experiment settings and **tune your service** configuration
- Use **diagnostics** for troubleshooting

Experimenter

5G EVE Portal (WEB)

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5G EVE

2. 5G EVE Platform Services Innovations

1 Intent-based interface towards verticals	A disruptive intent-based interface to simplify the access to the 5G end to end facility, specifying "what" is asked without details on "how" it is provided.
2 Multi-domain slicing and orchestration	A new orchestration framework with the necessary features able to manage effectively multiple site facilities, dramatically improve efficiency, prevent overload, and easily manage migration of networks components, while meeting performance requirements.
3 Performance Diagnostics (KPI Framework)	A completely new performance diagnosis mechanism and a new monitoring framework enabling the capturing of service and slice performance indicators, providing insight on performance.
4 5G VNF's (Openness Framework)	A new framework to provide a modular, reusable set of different SFs enabling the coexistence of proprietary and open source technologies; this will allow the modular replacement and chaining of components implemented with open and novel performance acceleration techniques.

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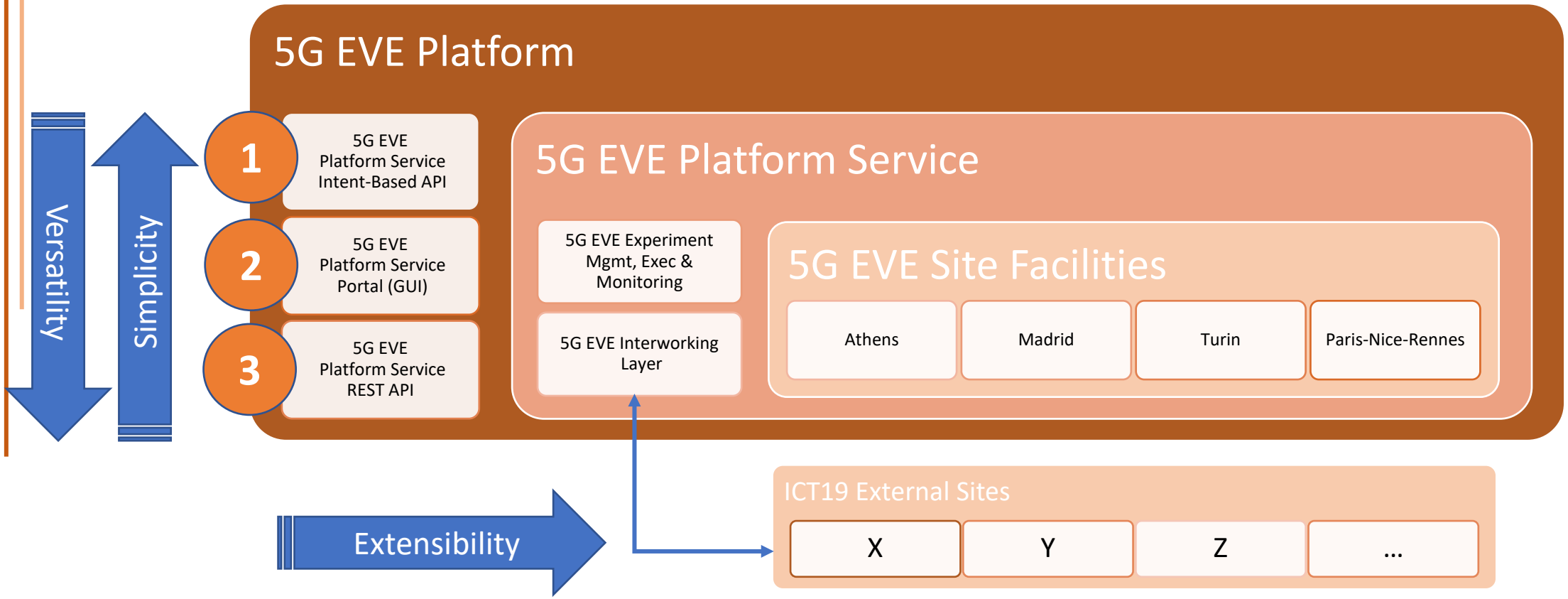
5G EVE

2. 5G EVE Platform Services
Interfaces supported



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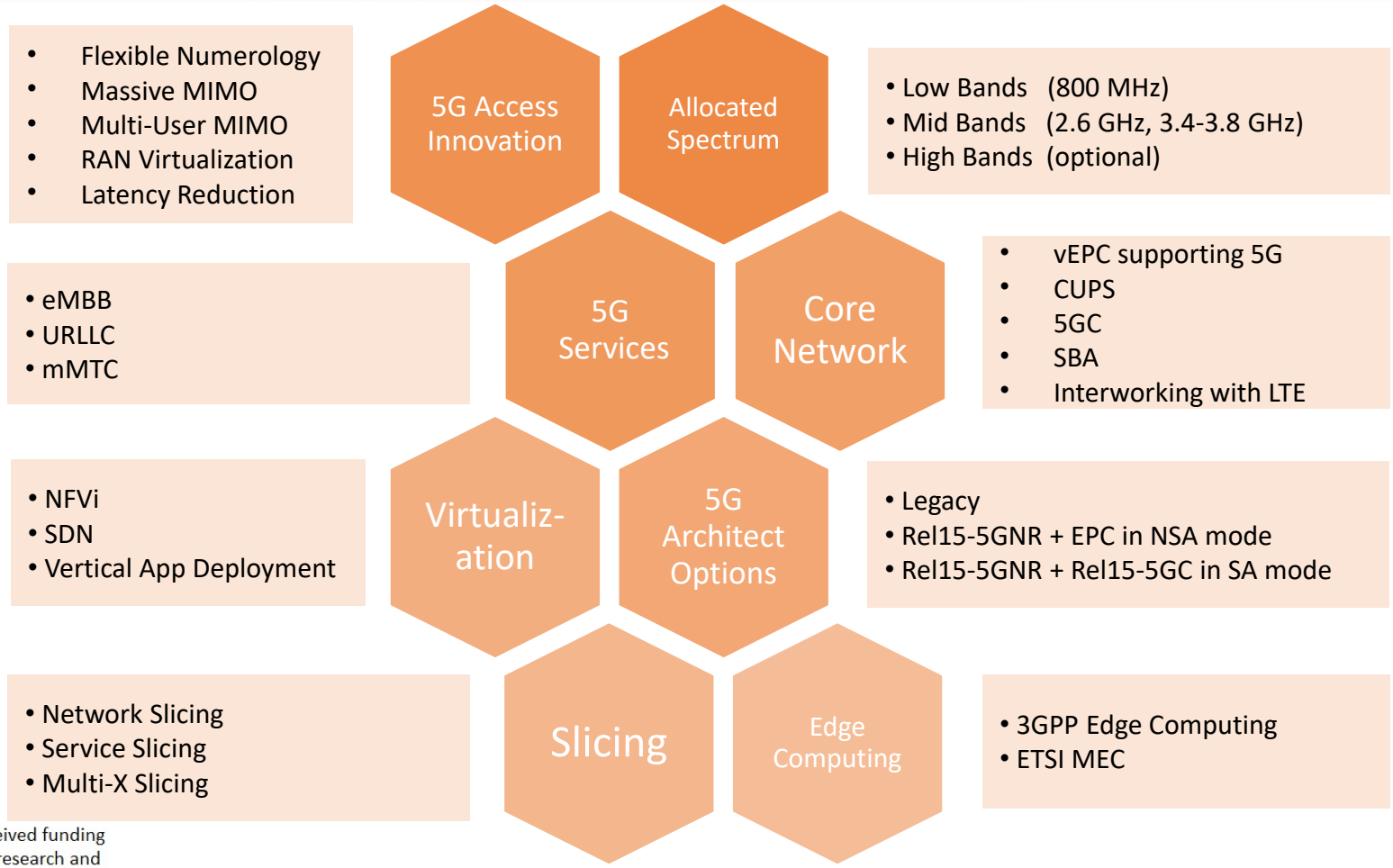
5G EVE

3. 5G Capabilities
Range of Technologies and Architectures



- Flexible Numerology
- Massive MIMO
- Multi-User MIMO
- RAN Virtualization
- Latency Reduction

- Low Bands (800 MHz)
- Mid Bands (2.6 GHz, 3.4-3.8 GHz)
- High Bands (optional)

- eMBB
- URLLC
- mMTC

- vEPC supporting 5G
- CUPS
- 5GC
- SBA
- Interworking with LTE

- NFVi
- SDN
- Vertical App Deployment

- Legacy
- Rel15-5GNR + EPC in NSA mode
- Rel15-5GNR + Rel15-5GC in SA mode

- Network Slicing
- Service Slicing
- Multi-X Slicing

- 3GPP Edge Computing
- ETSI MEC

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5G EVE

3. 5G Capabilities
Executed Roadmap

	May 2019	Jan 2020	Jul 2020	Jan 2021	Jun 2021
5G EVE's 5G Capabilities	- LTE+vEPC - Pre-Scheduling - NFVi + CUPS - LTE-M+NB-IoT+MBB	- R15 5GNR+EPC (NSA) - Massive MIMO - Network Slicing + EC - Sub-6 GHz	- R15 5GNR+5GC (NSA) - Multi-User MIMO - Service Slicing + SBA - 5G & 4G Aggregation	- R15 5GC (SA) - RAN Virtualization - Multi-X Slicing - Sub-6 Ghz + mmW	5G EVE Platform's 5G Capabilities fully deployed and consolidated
5G EVE's Added-Value Features	- Initial Testing Toolbox - KPI User Data Rate - Stand-alone Sites - First 5G EVE Verticals	- Limited Testing Portal - KPI RTT Latency+Rel. - Inter-connected Sites - All 5G EVE Verticals	- Full Testing Portal - KPI Peak Data Rate - Full Interworking - ICT19 Projects	- Advanced Diagnostics - KPI Capacity+Availab. - Multi-Site support - ICT19+Other Projects	Full-fledged 5G EVE Framework

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For a detailed roadmap of 5G EVE platform please visit:
https://www.5g-eve.eu/event/webinar-the-5g-eve-end-to-end-facility-for-vertical-industry-trials/

5G EVE

… and last but not least! Exploitation & Sustainability

5G EVE Site Facilities

5G EVE supported ICT-19 Projects

5G Solutions for European Citizens

5G-TOURS

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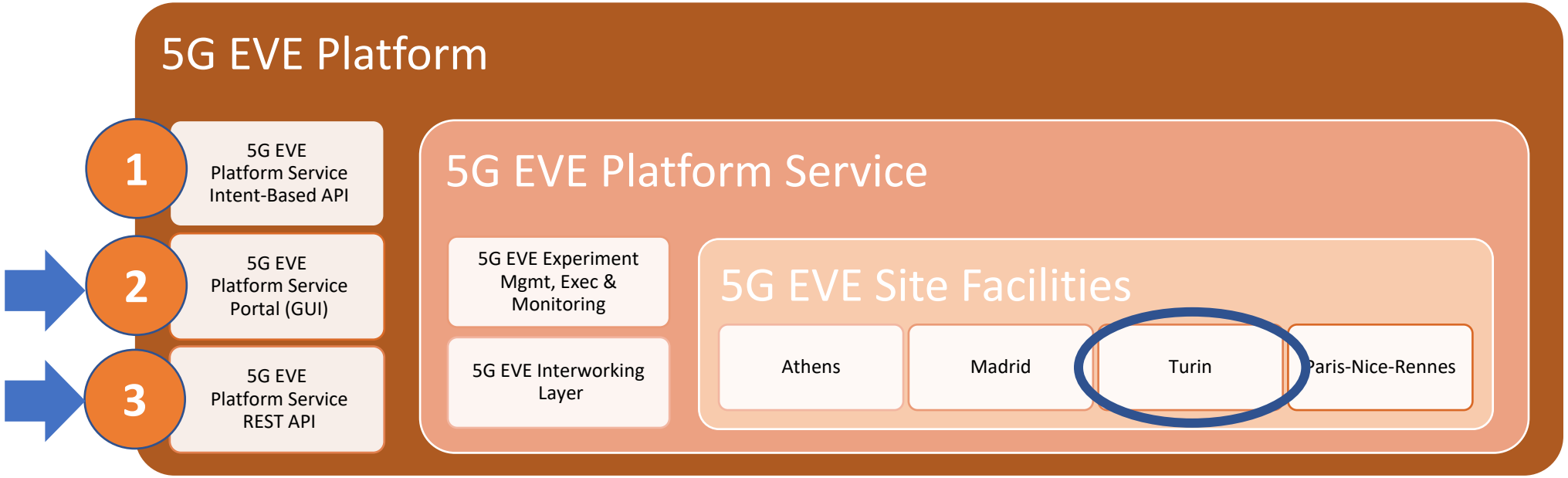
5G EVE

5G-SOLUTIONS



- 5G EVE Portal GUI for designing and managing experiments
- 5G EVE REST APIs for controlling the execution (programmatically) and consuming metrics and KPIs for enhanced service logic

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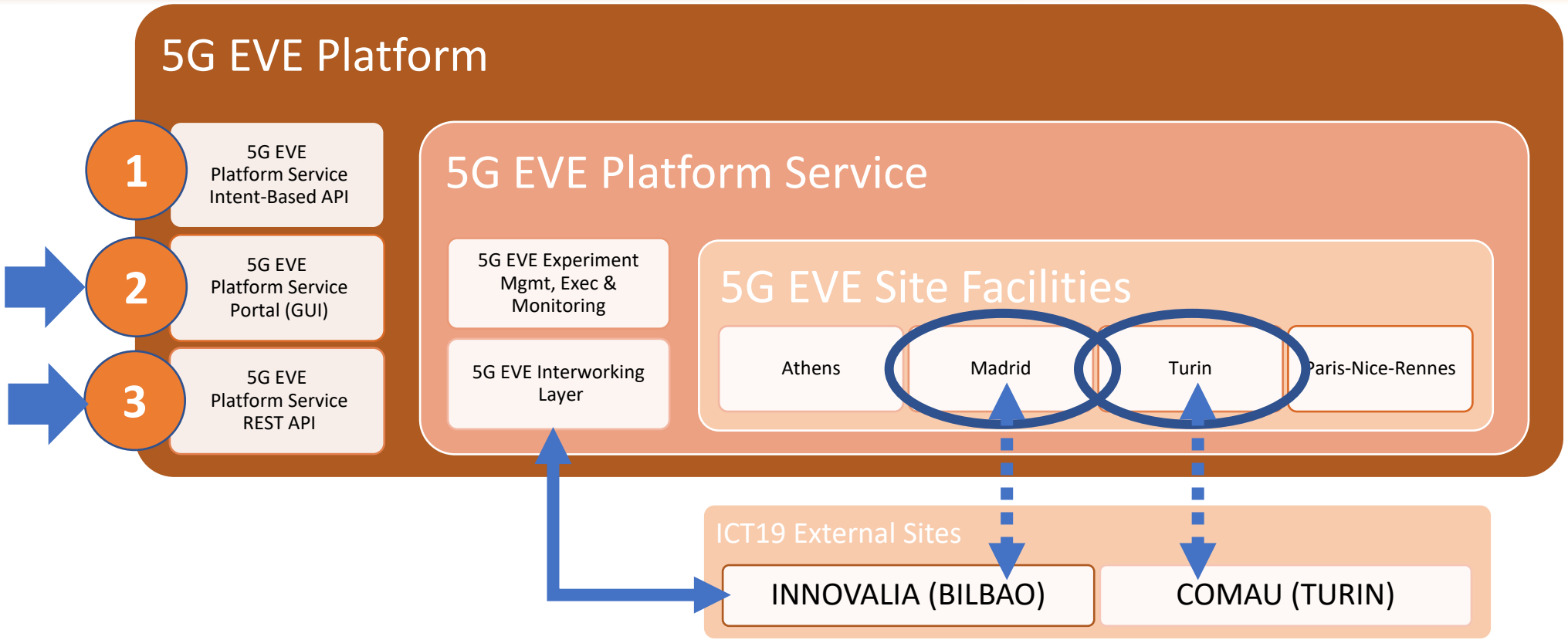
5GROWTH



- 5G EVE interworking layer for enabling technical validation campaigns at 5G EVE sites and additional ICT-19 sites

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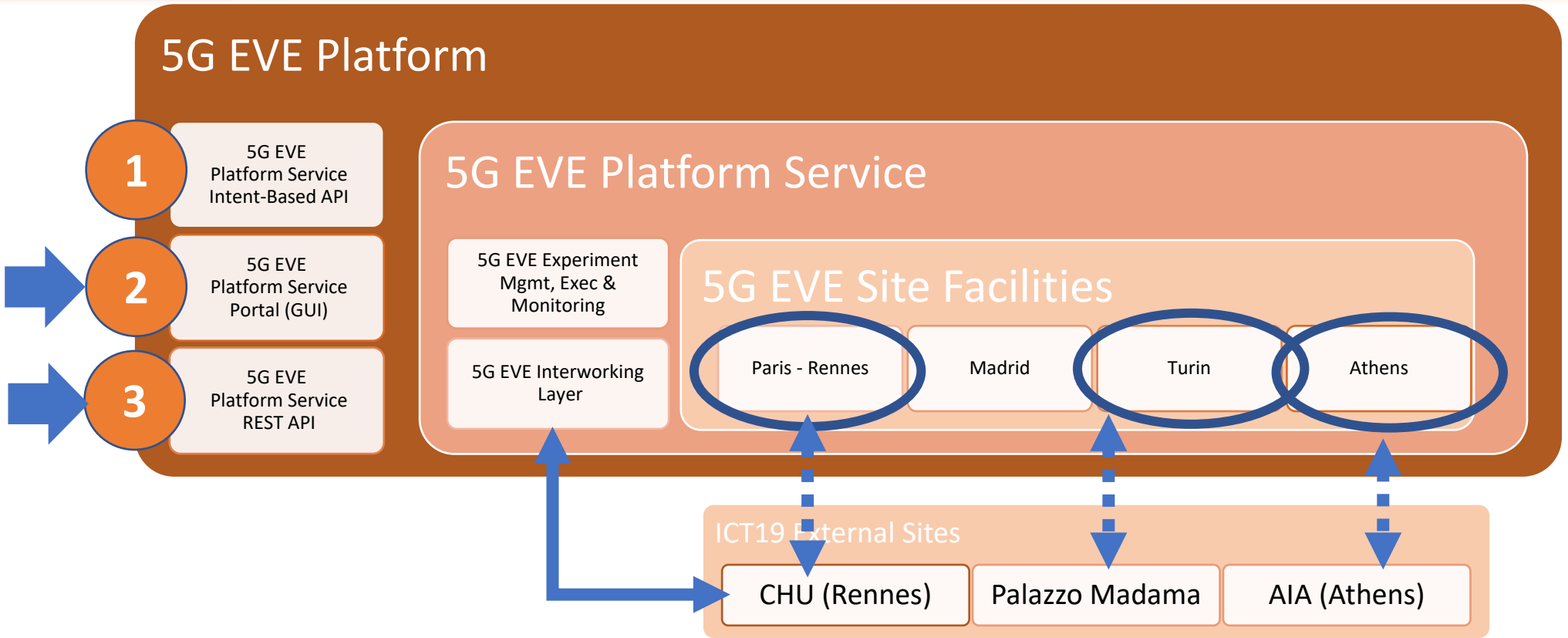
5G EVE

5G-TOURS



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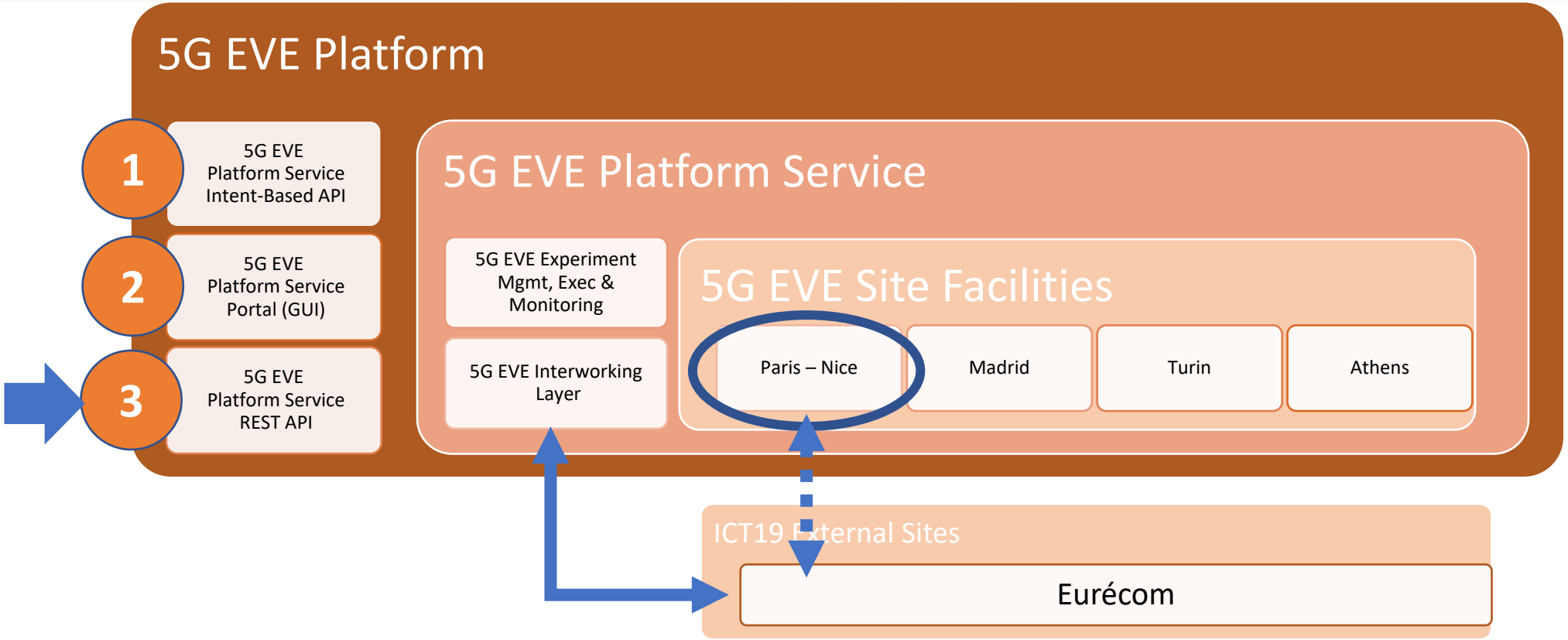
5G!DRONES



- 5G EVE French sites infrastructure in Eurécom
- Open Source virtualized network infrastructure – Cloud Native solution

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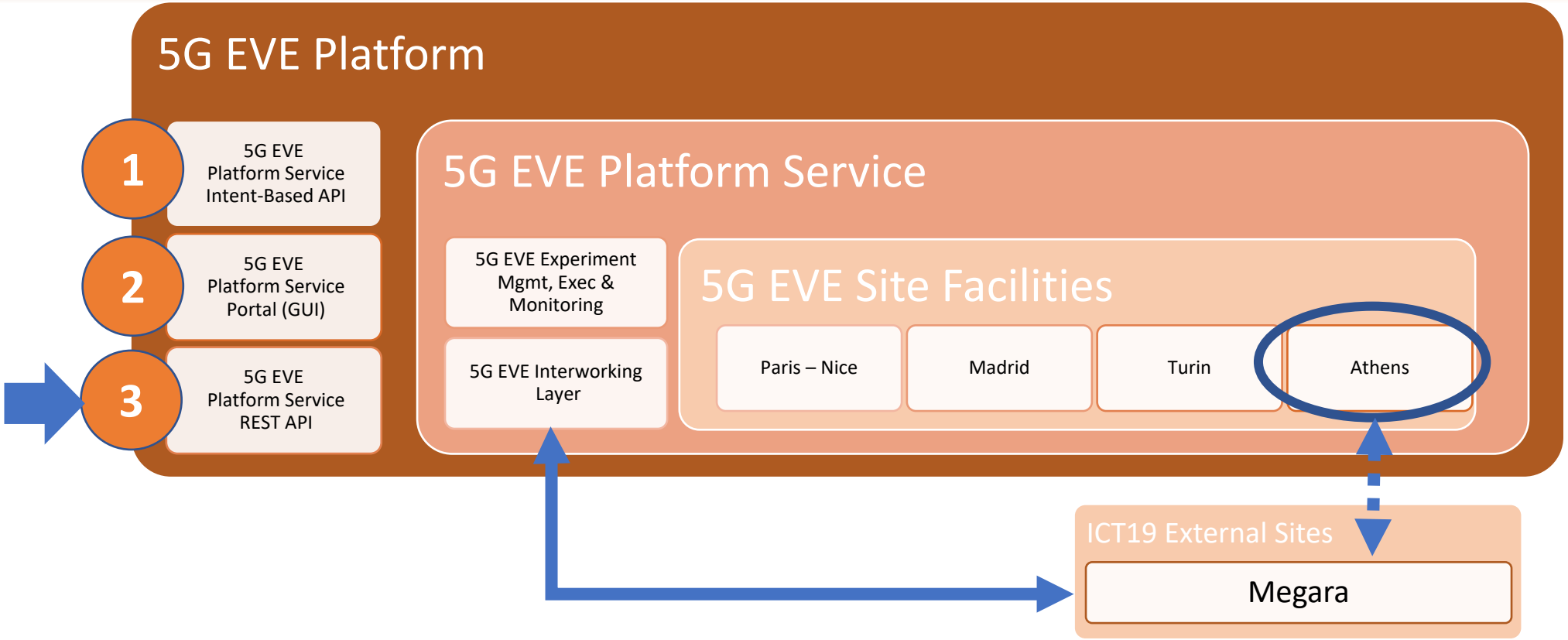
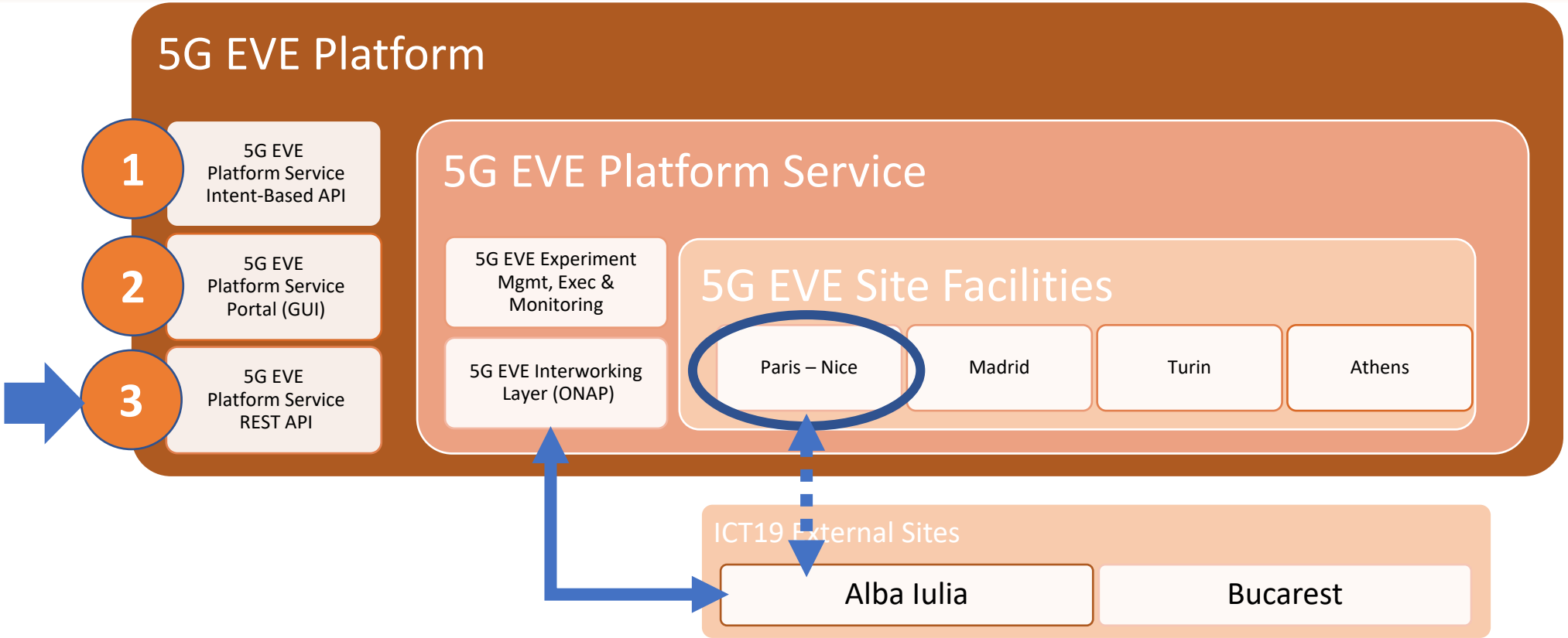
5G EVE

5G-Heart



- 5G EVE Greek sites infrastructure in Megara (Skironis)
- 5G EVE REST APIs for controlling and consuming metrics and KPIs

5G-VICTORI



- 5G EVE French sites infrastructure extended to Romania
- Duplicate Open Source French platform in Romania

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Thank you!

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