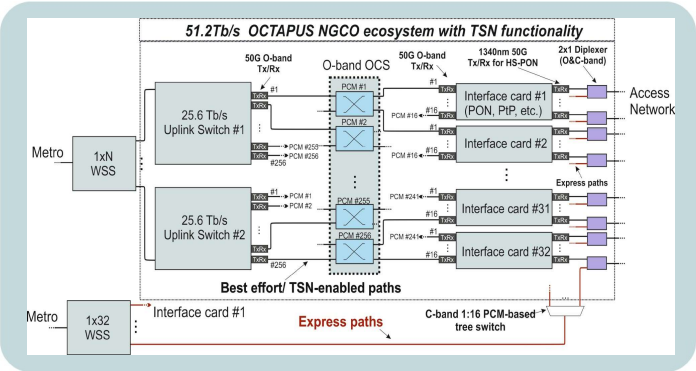
# OCTAPUS

## 1st Press Release of OCTAPUS project

**OCTAPUS** – "**O**ptical **C**ircuit switched **T**ime sensitive network **a**rchitecture for high-speed **P**assive optical networks and next generation **U**ltra-dynamic & reconfigurable central office environment**S - OCTAPUS**" – is a new 42 months long EU-funded project, with a budget of almost 5 Million € under the HORIZON-CL4-2021-DIGITAL-EMERGING-01 call, launched on September 1st, 2022, aiming to deliver an agile, low-cost and energy efficient Photonic Integrated Circuit (PIC) technology framework that will re-architect the Next Generation Central Office (NGCO) ecosystem, transparently upgrading its capacity to 51.2Tb/s and beyond, through an innovative reconfigurable optically-switched backplane and novel photonic transceiver toolkit.




Objectives: **OCTAPUS** has developed a concrete design approach targeting the following objectives:

i) to deploy novel non-volatile antimony (Sb) Phase Change Materials (PCMs) towards developing a range of zero-power and ultra-low loss SiN-based electro-refractive switches, featuring ns-scale reconfigurability with 2 orders of magnitude lower losses compared to conventional GST PCMs,

ii) to develop an energy- and cost-efficient O-band 50GHz On-Off Keying (OOK) component and I/O portfolio and demonstrate up-to 800 Gb/s optical transceiver engines for board-to-board and long-reach Passive Optical Network (PON) communication with an impressive 4× and 8× energy consumption improvement against respective state-of-the-art solutions and up to 37.5% cost reduction,

iii) to deploy a pool of advanced optical components to demonstrate a low-power and ultra-fast reconfigurable optically enabled backplane technology for NGCOs,

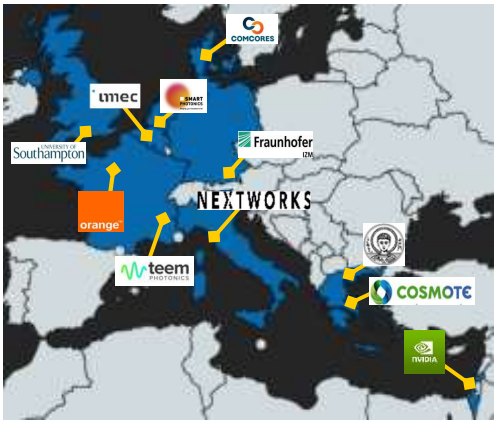
iv) to exploit its optically enabled backplane technology to architect a low-energy, high-capacity, scalable and Software Defined Networking (SDN)-reconfigurable NGCO ecosystem offering deterministic service guarantees for time-sensitive traffic by supporting a diverse set of the Time Sensitive Networking (TSN) family of protocols while providing reliable and ultra-low latency communications for telecom and industrial applications,

v) to demonstrate a scalable NGCO architecture with up-to 200Tb/s capacity and validate its advanced optical component technologies through a series of lab and field trials in time-sensitive applications scenarios.

OCTAPUS is an industrially driven innovation action with ambitious, but specific and well-defined, technical objectives designed to deliver on the promise of ultra-high speed, low latency, low power, and immense capacity of the NGCO infrastructure. The consortium has been strategically compiled to include the entire diverse technology development chain, comprising a high-quality blend of strong industrial and academic

partners satisfying all possible technological requirements and exploitation paths. In this rationale, the OCTAPUS team is built for success: it consists of 2 top European research centers (FRAUNHOFER, IMEC), 2 major network operators (ORAN, COSM), 1 major telecommunications equipment vendor (NVIDIA), 2 leading universities (AUTH, associated partner SOTON) and 4 established SMEs (NXW, SMART, TEEM, COMC). With this partner composition, OCTAPUS will provide a clear path towards transforming the project objectives into exploitable know-how with strong market potential. OCTAPUS' proposed approach combines directly exploitable technological solutions in all relevant technology sectors, i.e., optical transceivers, integration/packaging technologies, switching equipment and TSN/SDN network control.


| | |
|---|---|
| Grant Agreement | 101070009 |
| Programme | HORIZON-CL4-2021-DIGITAL-EMERGING-01 |
| Duration | 01/09/2022 – 28/02/2026 (42 Months) |
| Budget | Overall Cost: € 5,883,941.25<br>EU Contribution: € 4,789,661.00 |
| Coordinator | Aristotle University of Thessaloniki, GR |
| Contact | **Prof. Nikolaos Pleros**<br>email: npleros@csd.auth.gr<br>**Dr. Chris Vagionas**<br>email: chvagion@csd.auth.gr<br>**Dr. Marios Gatzianas**<br>email: mgkatzia@csd.auth.gr |
| Website | http://www.octapus-ict.eu |


https://www.linkedin.com/groups/9249210/
https://www.twitter.com/octapus_ict
https://www.facebook.com/WinPhoS/