



## **A cybersecurity platform for virtualised 5G Cyber Range services: The SPIDER Project**

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# EIGHT BELLS at a glance 1/3

## Our Company



Eight Bells (8BELLS) is a 4-years old **SME** based in Nicosia, Cyprus. In 2020 8BELLS established a **new branch** in Athens, Greece.



Delivers customizable solutions that enhance existing communication technologies relevant to **5G, Cloud Computing, Internet of Things, Cybersecurity**. Specializes **also** in modelling and analysis for businesses.



Has participated in more than 20 EU and national projects that have attracted more than €4 million.



Preparation, Execution, Management of R&D projects (mainly H2020), analysis, and quantification of results. Business and Technical Consulting.

# EIGHT BELLS at a glance 2/3



## Research Expertise & Consulting Services

Customizable solutions that enhance modern communications relevant to the area of 5G Mobile Technology

5G  
communications



Knowledge on Network Function Virtualization (NFV) and management solutions for Cloud infrastructures.

NFV  
Cloud service



Portfolio of cybersecurity solutions that can be used for risk assessment, cyber-hygiene, anomaly detection, and threat remediation.

Cybersecurity  
solutions



Delivers special advisory services in ICT that help clients understand the market dynamics and profit from the ever-changing landscape. Advise and support other companies and organizations in every step of the process.

Advisory  
services



Business consulting includes also innovation management, technology transfer and exploitation (including market analysis, patenting, licensing, etc.).

Consulting





# EIGHT BELLS at a glance 3/3



## Technical Capabilities



# Our Projects

## RUNNING



## FINISHED



# Project Information



- **SPIDER:** a cyberSecurity Platform for vIrtualiseD 5G cybEr Range services
- **Grant Agreement ID:** 833685
- **Topic:** SU-DS01-2018 Cybersecurity preparedness - cyber range, simulation and economics
- **Call:** H2020-SU-DS-2018
- **Funding Scheme:** IA - Innovation action
- **Funded under:** H2020-EU.3.7.4.
- **Overall Budget:** € 7 476 908.75
- **EU contribution:** € 5 746 595
- **Start Date:** 1 July 2019
- **End Date:** 30 June 2022

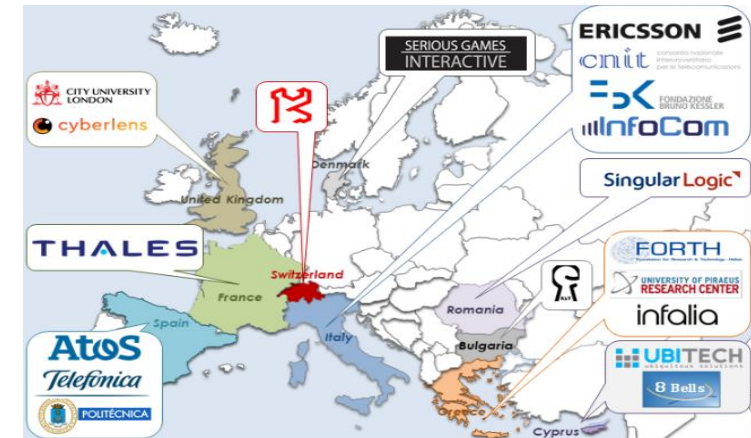
# The Consortium



19 partners from 9 European countries (high diversity)

- 5 x Large Industries
- 6 x Research Institutes and Universities
- 8 x SMEs

**EIGHT BELLS ACTS AS THE DISSEMINATION LEADER**





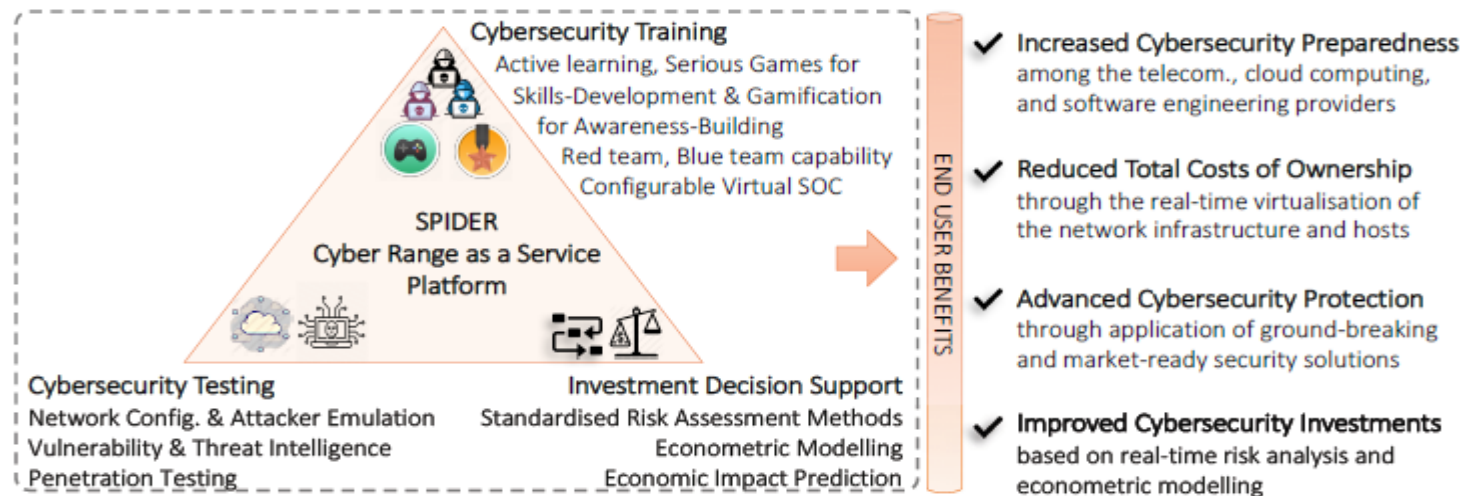
# Objectives



*SPIDER's basic objective is not only to train professionals in 5G security but also to provide tools able to improve the user capability of predicting the evolution of cyber-threats and to analyze the associated economic impact and cost that is brought with the attack.*

SPIDER's concept can be summed up on the following objectives:

- Deliver a next-generation, extensive, and replicable Cyber Range as a Service (CRaaS) platform for the telecommunications domain and its fifth-generation (5G).
- To offer a synthetic and sophisticated war-gaming environment taking into account all relevant advancements and latest trends and capitalize on the current state of the art
- To offer integrated tools for cyber testing including advanced emulation tools, novel training methods towards active learning as well as econometric models based on real-time emulation of modern cyber-attacks.

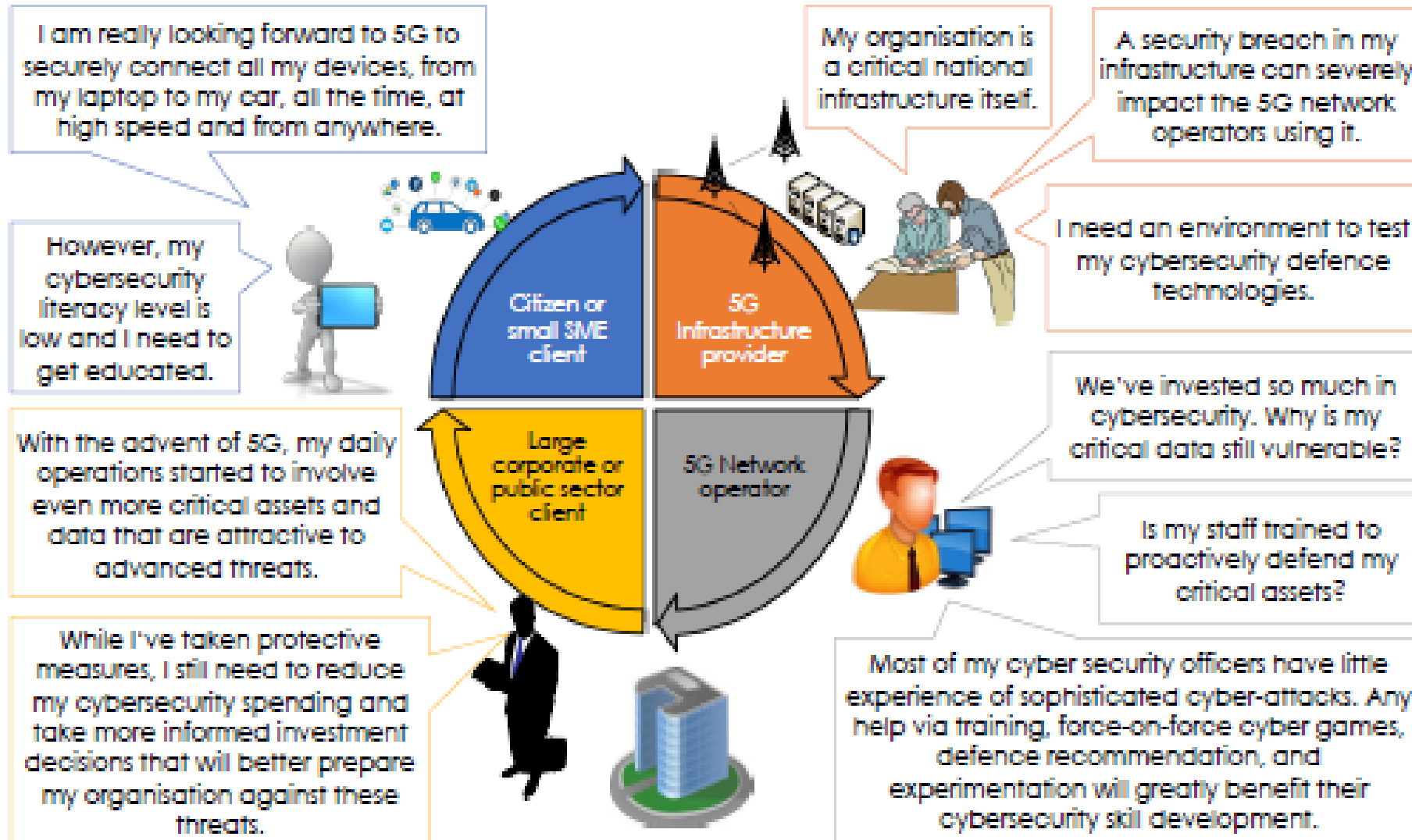


# Current Project Results



- Studies towards the analysis, collection, and extraction of SPIDER user requirements that the architecture development must address
- Definition of the 5G cybersecurity threat landscape, and the related SPIDER actors, to outline the possible attack scenarios which the SPIDER's training platform should address.
- Extraction of functional requirements and grouped by the identified SPIDER actors, assigned a priority..Functional requirements were mapped to non-functional requirements.
- In addition, and due to the lack of real data containing attacks for training purposes, SPIDER has investigated the application of Generative Adversarial Networks to the generation of synthetic network attacks.
- The use case analysis led to the definition of three pilot use case scenarios
- Initial architecture definition

# SPIDER potential benefits to actors

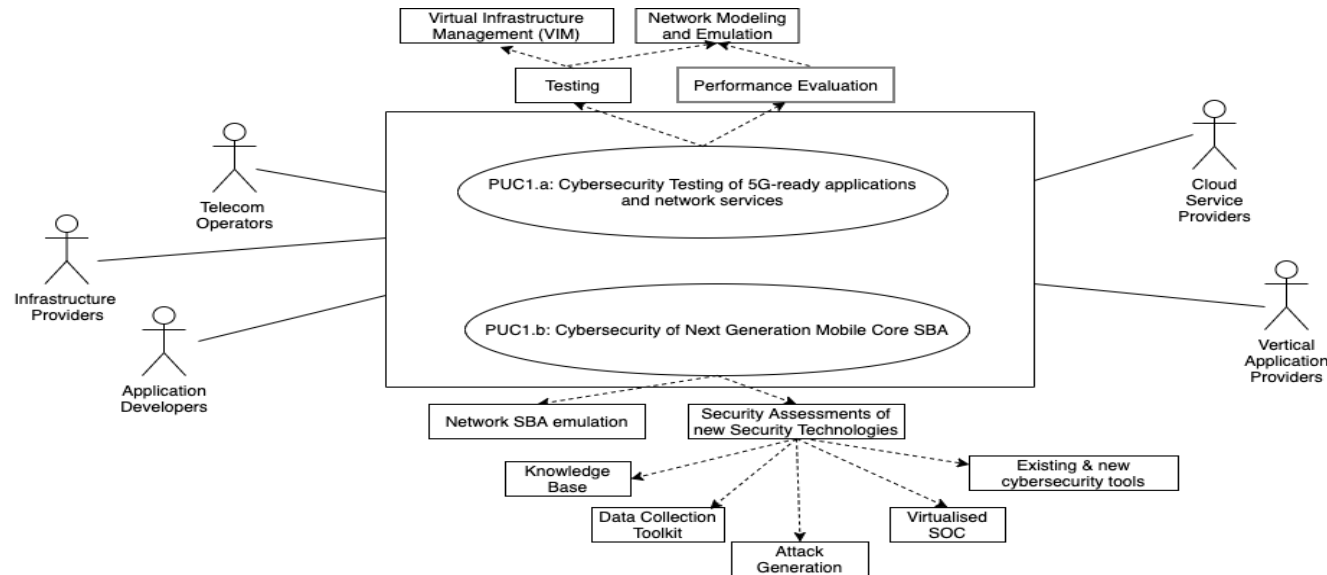


# SPIDER Use Cases



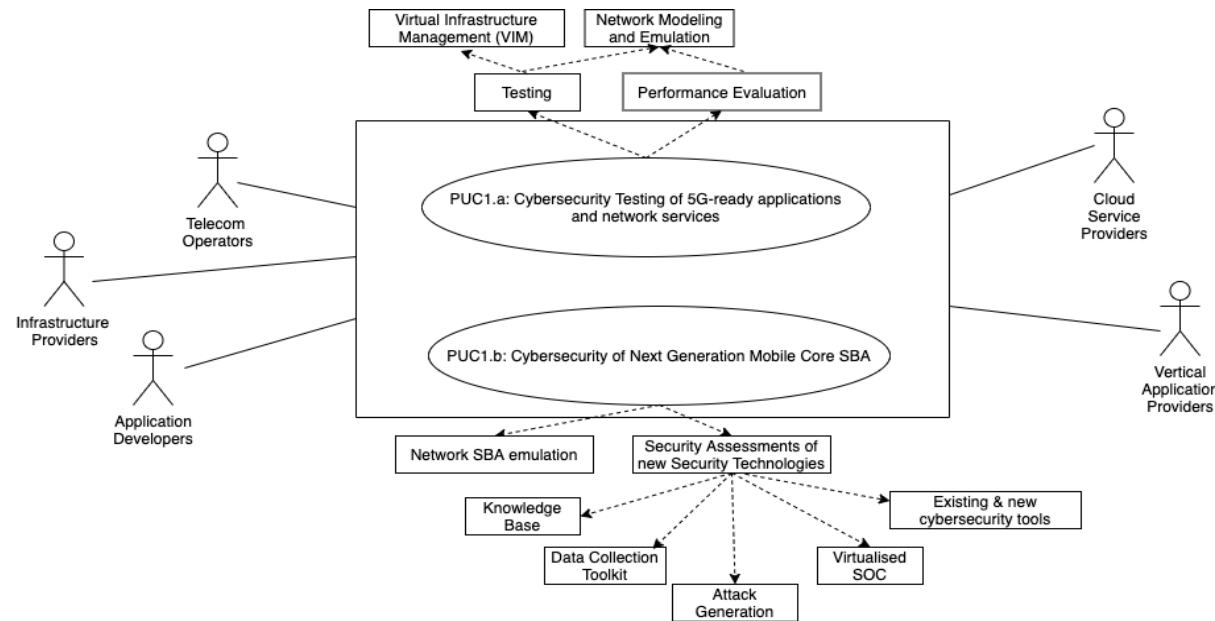
# Cybersecurity Testing of 5G-ready applications and network services

- The first use case focuses on representing the end-to-end network services through their entire lifecycle, and on the orchestration of 5G ready applications and network services.
- The goal is to validate SPIDER in terms of its ability to support testing, performance evaluation and security assessments of new security technologies.



# Cybersecurity of Next Generation Mobile Core SBA

- In this use case scenario the objective is to develop and testing the use of new cybersecurity tools based on machine learning which simulate adversarial techniques and tactics.
- The main aim is to address the new risks produced by the pervasive encryption in the 5G networks Control Plane (SBA).



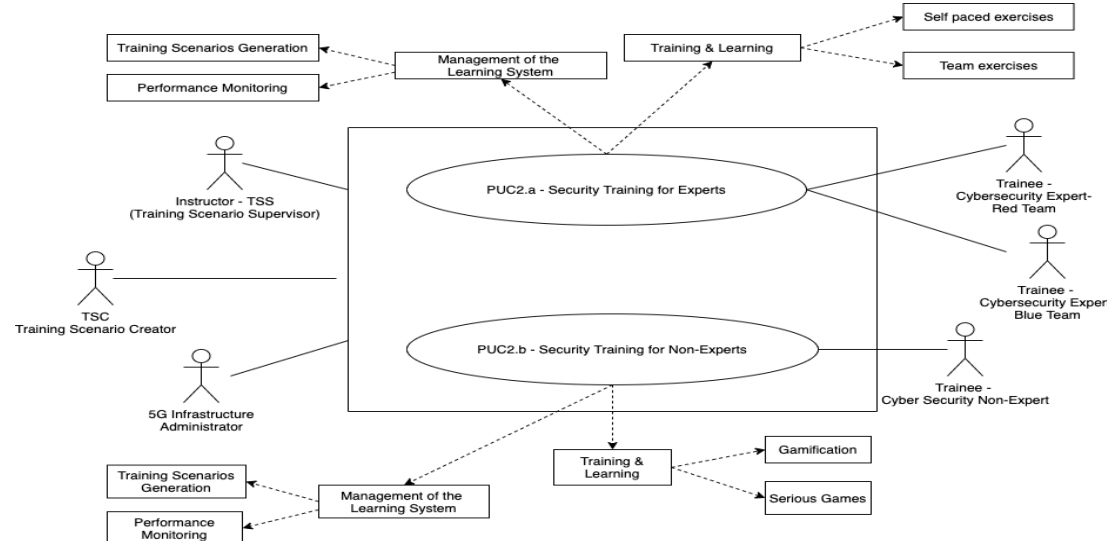
# 5G Security Training

## 5G Security Training for Experts

- Experts will be trained on defending to potential threats using the SPIDER platform both in team or self-paced scenarios. Also, blue and red team exercises will be implemented and tested as there is an educational gap in the already existing platforms.

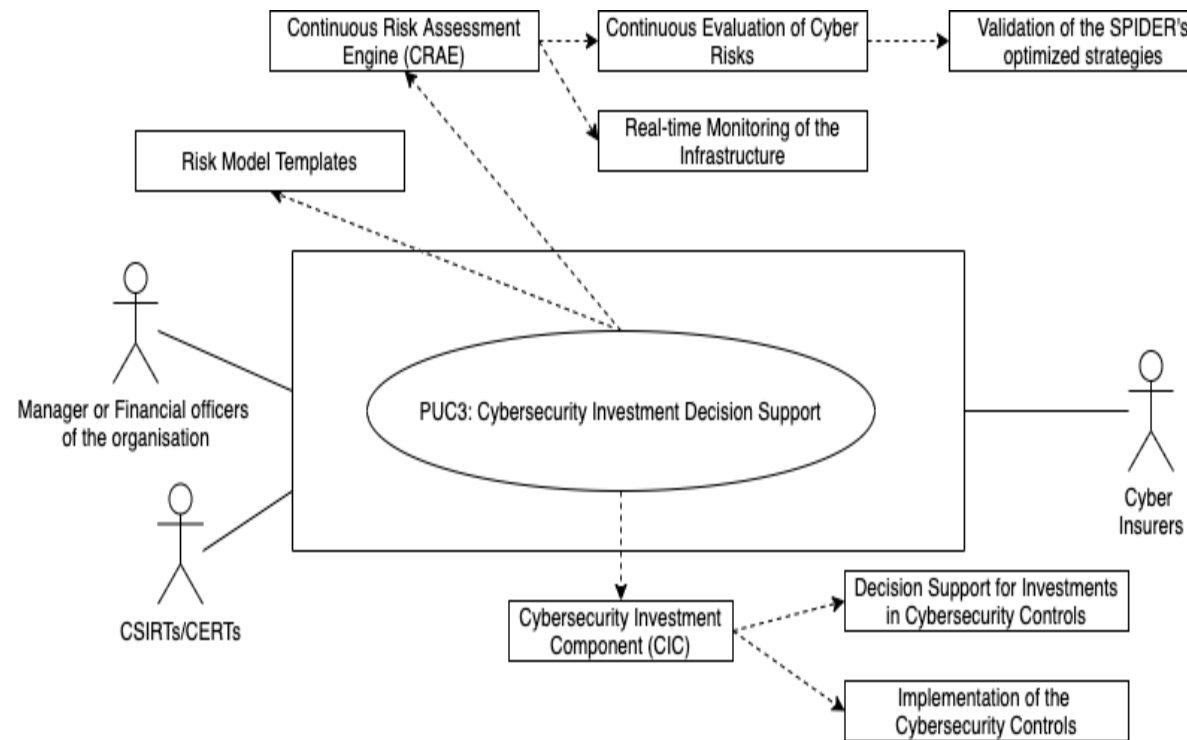
## 5G Security Training for Non-Experts

- In this scenario, non-experts in cybersecurity will be introduced to cutting edge 5G technologies and its evolving cybersecurity landscape. The goal of this use case is to validate the 5G security gamification solution in realistic scenarios and provide input to the exploitation of the solution after the end of the project



# Cyber investment decision support

The goal of this use case is to develop a decision support process integrated within the cyber range that can assist the relevant stakeholders to not only determining optimal investments to cybersecurity controls, but also in taking the necessary steps to implement them.







# SPIDER

## 5G CYBER RANGE

Thank you!

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