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FUDGE-5G: The new kid on the EU block

Mention 3GPP, ETSI, or ATIS, and most people in the industry know what they are. How about FUDGE-5G? And what does this new European Union (EU) project created to enable 5G ecosystems in Europe have to do with nationwide public warning?

one2many is known for its active contribution to the various industry standards bodies and the company has a history of being involved in other EU funded projects, such as 5G-Xcast and CHORIST.

So, it's probably not surprising to see one2many's Peter Sanders at the FUDGE-5G table. With his active, award-winning participation in 3GPP, ETSI, and ATIS, he is well-positioned to ensure cross-fertilization of concepts and requirements between all the bodies.

What is FUDGE-5G?

Google FUDGE-5G and on the first results page, along with fudge.5g.eu sites, there's also a site for a 'chocolate peanut butter protein wafer bar'! We'll let you in on a secret. The chocolate one is not the one you want. Although, to be fair, the project's full name is a bit of a mouthful. FUDGE-5G is an acronym for **FU**lly **D**isinte**G**rated Private N**E**tworks for **5G** verticals.

In all seriousness, FUDGE-5G is one of 11 new EU funded research projects focusing on how 5G can drive digital change in the new industry 4.0 landscape.

Who are the members?

FUDGE-5G currently has 12 members. They come from:

- Spain – Universitat Politecnica de Valencia, FIVECOMM
- Norway – Telenor
- Italy - Athonet
- Finland - Cumucore
- Germany – Huawei Technologies Duesseldorf GmbH, Fraunhofer FOKUS
- Greece - UBITECH
- Portugal - OneSource
- France - Thales
- UK – InterDigital Europe
- The Netherlands – one2many

The combined skill set includes mobile technology, connectivity, secure access, cybersecurity, data communication, wireless and video communication, 5G industrial technology, open communications, and one2many's nationwide public warning expertise.

There is also an Advisory Board made up of telecommunication technical experts and vertical industry representatives. Lastly, there are the stakeholders for each of the use cases that will be demonstrated at the end of the project. Quite a formidable consortium.

■ What are the project's objectives?

The project's main objective is to devise, assess, and demonstrate a service-based 5G architecture, solutions, and systems for private networks. They should be innovative, cloud-native, and secure.

Another aspect of this is that the outcome must allow for extreme interoperability and customization for the chosen industry verticals among wired and wireless access infrastructure, eSBA platform, mobile 5GC, service orchestration, and vertical applications. FUDGE-5G have identified the wired and wireless access infrastructure to include 'all-Ethernet,' 5GLAN with 5G-Multicast and 5G-TSN support.

In total, there are 7 separate objectives which are described in more detail on their [website](#).

But in essence, FUDGE-5G wants to create a new type of core network for 5G in Europe. The intention is that the core infrastructure offers dis-integrated networks (private networks) that support micro-service components applicable to different industry verticals. The users should be able to access those micro-services whenever and wherever - no matter if they're on-premise or in the cloud.

■ Will it be just a research project or applicable in the real world?

To ensure the project's outcome is relevant, the consortium has identified five vertical use cases. For each use case there is an identified stakeholder.

The identified use cases and associated stakeholders are:

- Media Showroom (NRK)
- Industry 4.0 (ABB)
- 5G Virtual Office (OsloMet University)
- 5G-EDUROAM (Oslo University)
- PPDR (Norwegian Defense Material Agency)

These use cases will validate the FUDGE-5G technology solutions by leveraging the 5G-VINNI testbed, operated by Telenor, as part of a demonstration.

The 5G-VINNI infrastructure is being developed under the guidance of 5G-PPP. That project is due to end mid-2021, and once completed, other 5G-PPP initiatives, such as FUDGE-5G, can use the infrastructure.

■ How does FUDGE-5G relate to public warning?

This is where the PPDR use case comes in. PPDR is an abbreviation for Public Protection and Disaster Relief.

This group focuses on Mission Critical services (MCx) to support public safety officers, agents, and first responders to use 5G broadband wireless networks for voice, video, and data. Such services could include broadcast and group calls, streaming high definition video, or sending data such as maps, locations, or messages. All of which are essential for situational awareness.

The FUDGE-5G project will also investigate how to use warning messages targeting devices in the vertical industries. Warning messages are an important part of emergency alerting as they target citizens that need to receive guidance to safety.

The ambition is to create a compact, all-in-one solution. There is a preference for using energy-saving hardware, which adds a challenge for the network and software modules.

As well as having the smallest footprint as possible, these modules also need the ability to ensure permission-based connections to public mobile networks, when available or pools of connected 5G systems on the fly.

Needless to say, different security levels for each application is a must.

What does one2many bring to the FUDGE-5G table?

Beyond the already mentioned participation in industry standards bodies, one2many has over 20 years of experience developing, delivering, and maintaining Mission Critical products

As the pioneer behind Cell Broadcast, one2many's nationwide public warning solutions are deployed globally. The solutions are used by Governments, Mobile Network Operators, and TV Broadcasters.

Given the company's history of innovation, one2many is proud to be part of the FUDGE-5G consortium.

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