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How Research meets Standardization: the Asynchronous Contact Tracing ETSI Standard and the PANDESYS Research Activity

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THE ETSI MAG

JANUARY 2023

THE INTERVIEW

Mikko Uusitalo, Nokia Bell Labs. P.4/5

IN THE SPOTLIGHT

TeraHz: a candidate for 6G. P.13/16

ZOOM ON EUROPE

EC Code of Practice. P.22

FROM RESEARCH TO STANDARDS

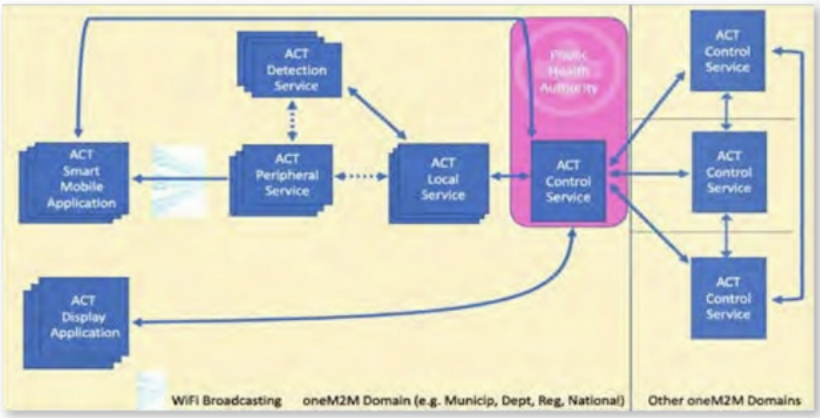
ETSI

How Research Meets Standardization: the ETSI *Asynchronous Contact Tracing* Standard and the PANDESYS Research Activity

The Covid-19 pandemic has shown how the mutation of a common virus can topple the world economy in a few weeks and how public policies must react quickly to limit and even avoid such a collapse. The existing 'In Vitro Diagnostic' (IVD) ICT technology has not always been reliable. Asynchronous Contact Tracing (ACT), standardized in ETSI SmartM2M Technical Committee, offers a reliable solution to detect pathogens.

State of the art

ICT technologies to detect potential exposure to the SARS-CoV-2 virus did not always have a *measurable reliability*. Indeed the 'Synchronous Contact Tracing' technology is based on getting a notification of a potential virus exposure when being close to an infected person 'at the same time and in the same space', without knowing the real level of mutual exposure and without addressing the strong potentiality of combining advanced IoT technologies with innovative 'In Vitro Diagnostic' virus detection technologies.



The technology breakthrough

PANDESYS (**PA**thoge**N** **DE**tection **SYS**tem) research activity on Advanced Surveillance, detecting pathogens on delimited areas on the territory (on surfaces, air-conditioning filters, waste water, etc.) and correlating this to the individual presence of humans in the same areas, is directly inspired by the ETSI ACT standard. Asynchronous means that time and space synchronicity of two individuals are not needed anymore. More matches can be made between one person and their proximity to a precise location, where the presence of pathogens has been formally established by a Detection Platform. PANDESYS focuses on Covid-19, but it can be extended to other pathogens such as viruses, bacteria, fungi, or even chemical contaminants. IoT, Wi-Fi™, 5G, and AI will be the tech PANDESYS ingredients; they will work with new pathogen detection technologies to provide a fast and automated diffusive test result, correlating it with the specific area of contamination and informing people in that area without tracing their movements. AI will support humans in data analysis by empowering a kind of pandemic forecast.

PANDESYS aims to build a diffusive deployment of Pathogen Platform(s), (nearly) automatic, each one associated with a small area (e.g., a supermarket, an underground/train station, a hospital), all covered by a beacon based on available Wi-Fi™ technology, so people in that zone, with the help of their smartphones, can collect the list of the areas they have visited with associated timestamps. The information from the Detection Services is collected on a cloud and integrated with the other pathogen diffusion information, made available to the Public Authorities, and to the general public via the Internet. The oneM2M Control Services, under the control of the Public Health Authorities, are all connected in a Pan-European system managed via *ETSI oneM2M* standard tools.

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