



THE ROLE OF  
STANDARDS IN **5G**

With the advent of 5G, infrastructure networks play a strategic role in providing the support of the new concepts and capabilities that enable new business models. In order to ensure that 5G fulfils its promise, all security matters accompanying the 5G architecture need to be addressed in a standardisation way.



## The key role of Security Standardisation

In the domain of Information and Communication Technologies (ICT), standards are particularly important because they focus on **interconnection** and **interoperability**. Standards allow the existence of open markets for customers and consumers, who want to use multiple services from different providers, and for the providers, who want to integrate products from different suppliers to reduce costs and reduce time to market.

Privacy aspects need special attention, as highlighted by EU Privacy Mandates (e.g. M/530) and the General Data Protection Regulation (GDPR), which will entry into force in May 2018.



## Better equipped to face the risks

Lack of timely technical solutions may endanger the growth of 5G-enabled products and services and may put **privacy and liberty of citizens** at risk. Network and systems security are fundamental elements of economic growth that 5G will bring through improved services, higher data rates, new interfaces, and new business models.

In order to minimise exposure to risks, standardisation has to **drive the specification of new networks** in such a way that security is built in from the design phases rather than as an afterthought.

## Standardisation as vehicle for “Secure by Design” approach

Relevant standards bodies need a set of clear security and privacy requirements, derived from the threat analysis of 5G use cases, in order to build the **new 5G security architecture**. Taking into account a set of security, privacy, and liability issues and addressing them directly in the **standardisation and regulation processes** will ensure a 5G network which is “Secure by Design”.

## 5G impacting on a vast number of new technologies.

Many standards bodies will be involved in standardisation efforts.

The most relevant standards bodies are:

### 3GPP- 3RD GENERATION PARTNERSHIP

**PROJECT** is the main organisation for creating standards in mobile communications. Its current 5G standardisation time plan currently spans 2016-2019 and is aimed at gradually realising the full 5G capabilities in three consecutive releases. 3GPP has been one of the first to start 5G standardisation.

### ETSI – EUROPEAN TELECOMMUNICATIONS STANDARDS INSTITUTE

produces globally applicable standards for Information & Communications Technologies. The ETSI Industry Specification Group for Network Functions Virtualization (ETSI ISG NFV) will play the main role in standardising the infrastructure aspects of 5G networks, as they become increasingly virtualised and softwarised. ETSI TC CYBER, the Technical Committee dedicated to the cybersecurity, will coordinate all the security aspects carried out within each TC operating under the ETSI umbrella.

### ITU - International Telecommunication Union

The International Telecommunication Union (ITU) is coordinating the international standardisation of 5G systems. In 2012, ITU established a programme on “International Mobile Telecommunications for 2020 and beyond (IMT-2020)”, providing the framework for 5G research and development worldwide. ITU members have defined the framework and overall objectives of the IMT-2020 standardisation process, as well as the roadmap to guide this process to its conclusion by 2020.

The ITU-T Focus Group on network aspects of IMT-2020 has studied innovations such as network softwarisation, information-centric networking, and slicing for fronthaul/backhaul. The group's findings will feed into ITU's standardisation expert groups in early 2017.

**Pre-standardisation groups can actually influence the specification of 5G security and help to coordinate efforts carried out in parallel within different groups.**

**GSMA** represents the interests of mobile operators worldwide, uniting nearly 800 operators with almost 300 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors.

### Next Generation Mobile Networks (NGMN) Alliance

has a mission to expand the communications experience by providing a truly integrated and cohesively managed delivery platform that brings affordable mobile broadband services to the end user with a particular focus on 5G.

NGMN aims to protect operator needs during 5G specifications, ensuring that standards and patents are compliant with the needs of all stakeholders

# Standardisation is crucial for a common agreement on the most important technical and service requirements.

## View on Standardisation within 5G-ENSURE



### Hugo Tullberg

We're very fortunate in the 5G PPP to have the 5G-ENSURE project working on 5G use cases. They're an active contributor to the Pre-standardisation Work Group and we expect to see a lot of good technical outcomes in 5G security domain coming out of this project.

Hugo Tullberg / / Ericsson, former chair of the 5G PPP Work Group Pre-standardisation



### Pavlos Fournogerakis

5G-ENSURE is the first 5G PPP project that deals with the horizontal area of security. In that respect, 5G-ENSURE will provide inputs to other 5G projects in defining the 5G security architecture, contributing significantly to the standardisation process in this area through participation in the most relevant standardisation bodies.

Pavlos Fournogerakis / Programme Officer at DG CONNECT Network Technologies Unit / European Commission



### Luciana Costa

Standardisation is crucial because it means we have common agreement on the most important technical and service requirements. Having security standards will ensure compliance to a common security baseline at network, service and product level. This guarantees global interoperability of 5G networks.

Luciana Costa / security consultant at the Security Lab Department / Telecom Italia Information Technology

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