



Deliverable D5.1

Web platform as an interface with the umbrella 5G-PPP platform

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Executive summary

The overriding objective of 5G-ENSURE is to become the reference project for everything that concerns Security in 5G while contributing to 5G resilience. As such, this project will be focusing on 5G Security Architecture able to generate the necessary trust and confidence for 5G to be widely adopted and deliver its promises through applications enabled.

This deliverable, the 5G-ENSURE website, presents the public web platform (<http://www.5gensure.eu/>). It is a versatile platform aimed at animating 5G-ENSURE community of users. The website will be dynamic and will change during the project lifetime as new updates come out. It will be the channel to showcase concrete results and success stories in which 5G-ENSURE will play a role within the 5G-PPP initiative. The platform will help to drive awareness on 5G-ENSURE research advances and developments.

The purpose of D5.1 is to document the development and launch of the 5G-ENSURE web platform and its future evolution. In WP5 (Dissemination, standardisation and exploitation), the web platform falls under task 5.2 – Marketing and Communications, in which the web platform represents the single entry point for 5G-PPP in particular and 5G constituencies with regard to the project's activities, outputs and services.

Foreword

The purpose of D5.1 is to document the development and launch of the 5G-ENSURE web platform and its future evolution. In WP5 (Dissemination, standardisation and exploitation), the web platform falls under task 5.2 – Marketing and Communications, in which the web platform represents the single entry point for 5G-PPP in particular and 5G constituencies with regard to the project’s activities, outputs and services.

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1 Introduction

5G-ENSURE belongs to the first group of EU-funded projects through 5G-PPP Call 1, which collaboratively develop 5G under the umbrella of the 5G Infrastructure Public Private Partnership (5G-PPP) in the Horizon 2020 Programme. The overall goal of 5G-ENSURE is to deliver strategic impact across technology and business enablement, standardisation and vision for a secure, resilient and viable 5G network. The project covers research & innovation - from technical solutions (5G security architecture and testbed with 5G security enablers) to market validation and end-users and stakeholders engagement - spanning various application domains.

One of the objectives of 5G-ENSURE communication strategy is to team up with peers in the 5G-PPP to define the 5G-PPP graphic identity and branding (including these also for 5G-ENSURE) so that it reflects the overall programme identity. This is the basis for all communication tools: the web platform, social media, collaterals (e.g. banners, brochures, gadgets, and posters etc.), market insights (e.g. white papers), practical guides, policy briefs, PR outputs (press releases, press conference material), video, infographics, in-house newsletters, and success story templates. They make up the 5G-ENSURE Communications Toolbox supporting regular communication activities.

1.1 Purpose and scope

An effective communication campaign is fundamental to ensure 5G-ENSURE technical solutions and the impact of the use cases are grasped by users on both a research and a social perspective. The scope of this deliverable is to report the properties, functionalities and value-add of the web platform built during the first phase of the 5G-ENSURE project. This document is basically a short description of the real deliverable, which is the website.

2 5G-ENSURE objectives and value proposition

2.1 Objectives and Outputs

The overriding objective of 5G-ENSURE is to become the reference project for everything that concerns Security in 5G while contributing to 5G resilience. As such, this project will be focusing on 5G Security Architecture able to generate the necessary trust and confidence for 5G to be widely adopted and deliver its promises through applications enabled.

To achieve this objective, 5G-ENSURE will:

- Collect, analyse and prioritise 5G security requirements.
- Define a security architecture for 5G.
- Specify, develop and test an initial set of security enablers for 5G.
- Demonstrate the potential of 5G Security enablers developed in the context of 5G representative showcases.
- Advertise and exploit the Project's results and offering to the 5G PPP community and beyond.
- Foster 5G (PPP) Security Vision by delivering a 5G Security Roadmap.
- Act as pre-standardisation consensus builder.

The overriding objective of WP5, especially T5.2 and T5.3, is to widely communicate and disseminate the outputs of 5G-ENSURE. These outputs cover different dimensions of technology research and innovation, spanning technical solutions, e.g. 5G security architecture, test bed and trust model with 5G security enablers with a focus on resilience, as well as market validation and end-users and stakeholder engagement, spanning various application domains. The 5G-ENSURE outputs are illustrated in the figure below.

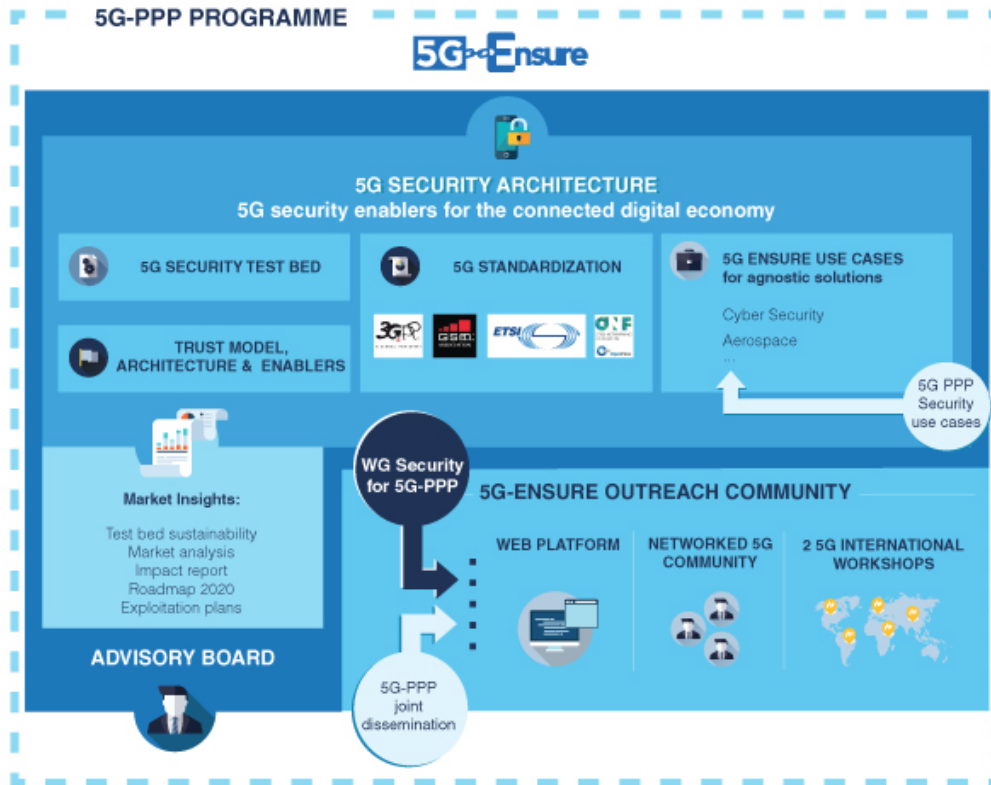


Figure 1 - 5G-ENSURE Outputs

2.2 5G-ENSURE in the context of 5G-PPP

The 5G-Infrastructure-PPP is a 1.4 Billion Euro joint initiative between the European ICT industry and the European Commission to create the next-generation of communication networks and services that will provide ubiquitous super-fast connectivity and seamless service delivery in all circumstances¹. The vision is that by 2020 telecom and IT will be integrated towards a common very high capacity ubiquitous infrastructure, with converging capabilities for both fixed and mobile access. The vision will be achieved by focusing on addressing key technology challenges with the expected operational level impact defined as a set of key performance indicators for the timeframe 2015-2020.

A key contribution of 5G-ENSURE is to identify and deliver the required security metrics for 5G in order to deliver new and innovative services addressing 5G security concerns, such as AAA, privacy, trust, security, monitoring, network management and virtualisation isolation.

¹ <https://5g-ppp.eu/about-us/>.

5G-ENSURE is closely linked to the overall 5G PPP programme through active participation in common activities and forums. Thus, the project engages in regular interactions on the 5G-PPP steering & technical activities, and the communication activities, including the planning and execution of activities. Specifically, 5G-ENSURE aims to be the project that coordinates and animates the various security-related activities.

2.3 5G-ENSURE Target Audiences

5G-ENSURE targets the following constituencies through its communication and marketing activities:

- The 5G Public Private Partnership (5G-PPP) and the 18 Phase 1 Projects within it:
 - CSA: Euro5G².
 - R&I: Flex5GWare³, 5GNorma⁴, Metis II⁵, 5G-Xhaul⁶, Charisma⁷, Sesame⁸, Selfnet⁹, Cognet¹⁰, Fantastic5G¹¹, Coherent¹², Superfluidity¹³, 5GXCrosshaul¹⁴, mmMAGIC¹⁵, Speed5G¹⁶.
 - I: Virtuwind¹⁷, 5GExchange¹⁸, Sonata¹⁹.

This groups covers stakeholders spanning policy makers, infrastructure vendors, telecom operators, measurement equipment vendors, IT providers, and telecommunication and cyber security researchers.

- Relevant standardisation bodies and initiatives:
 - 3GPP – 3rd Generation Partnership Project as the main organisation for creating standards (7 telecommunications standard development organisations: ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC)²⁰.
 - ETSI – European Telecommunications Standards Institute²¹: globally applicable standards for ICT.
 - ONF - Open Networking Foundation: issues related to software defined networking²².

² <https://5g-ppp.eu/euro-5g/>

³ <http://www.flex5gware.eu/>

⁴ <https://5gnorma.5g-ppp.eu/>

⁵ <https://metis-ii.5g-ppp.eu/>

⁶ <http://www.5g-xhaul-project.eu/>

⁷ <http://www.charisma5g.eu/>

⁸ <http://www.sesame-h2020-5g-ppp.eu/>

⁹ <https://selfnet-5g.eu/>

¹⁰ <https://5g-ppp.eu/cognet/>

¹¹ <http://fantastic5g.eu/>

¹² <https://5g-ppp.eu/coherent/>

¹³ <http://superfluidity.eu/>

¹⁴ <http://5g-crosshaul.eu/>

¹⁵ <https://5g-mmmagic.eu/>

¹⁶ <https://speed-5g.eu/>

¹⁷ <http://www.virtuwind.eu/>

¹⁸ <http://www.5gex.eu/>

¹⁹ <http://www.sonata-nfv.eu/>

²⁰ <http://www.3gpp.org/>

²¹ <http://www.etsi.org/>

²² <https://www.opennetworking.org/about/onf-overview>.

- IETF - The Internet Engineering Task Force: open standards organisation on standard internet operating protocols²³.
- GSMA: The *Groupe Speciale Mobile Association* of mobile operators supporting the standardising, deployment and promotion of GSM mobile telephone system²⁴.
- Policy makers, legal and regulatory authorities and policy makers, e.g. Net Technologies, ENISA (European Agency for Network and Information Security), OFCOM.
- The European business community, including industry leaders within the 5G-PPP, IT corporations and small businesses and research community, building on the partner networks under T5.3 - Stakeholder Involvement & 5G Security Community Development.
- Telecommunications and general press and media outlets to promote 5G-ENSURE as a security reference point for 5G and its outputs.

3 5G-ENSURE website overview

The 5G-ENSURE web platform is online at the address <http://www.5gensure.eu/>

The homepage is the one presented in Figure 2.

²³ <https://www.ietf.org/>

²⁴ <http://www.gsma.com/>

5G-ENSURE

5G ENABLERS FOR NETWORK AND SYSTEM SECURITY AND RESILIENCE

Ericsson Mobility Report - 2015

Spotlight

5G-ENSURE Pillars

5G-ENSURE will define and deliver a 5G Security Architecture, shared and agreed with various 5G stakeholders. Identity management and privacy- preserving mechanisms are treated as key enablers and anchored against a common security architecture to increase assurance and confidence in 5G networks. Trust therefore will influence development, adoption and business potential. The outcome is a trustworthy 5G system offering reliable security services to customers with a "zero perceived" downtime for service provision.

POLICY PULSE

5G-Ensure launches to make 5G networks and systems secure and trustworthy. 5G-ENSURE launches to specify, develop and release an initial set of useful and usable security enablers for 5G through the European 5G-PPP.

TECH INSIGHTS

VTT creates ideal temperature for office spaces with the Internet of Things. VTT Technical Research Centre delivers new IoT solution for ideal office temperatures adjusted to the needs of the individuals working there.

STANDARDS

3GPP Prepares the way for 5G. 3GPP video on release 13 discusses progress made and looks forward to the next two releases that form an important contribution towards 5G.

MARKET INSIGHTS

Ericsson Mobility Report - 2015. Ericsson Mobility Report 2015 with articles on ICT and the low carbon economy, decoupling energy from traffic growth and 5G beyond mobile broadband.

EVENTS

EuCNC2016, 27-30 June, Athens. EuCNC2016 takes place 27-30 June in Athens with a strong focus on 5G technologies, bringing the latest insights and showcasing results in the communications and networks.

Net Futures 2016, 20-21 April, Brussels. Net Futures 2016 - Driving Growth in the #DigitalSingleMarket takes place on 20-21 April in Brussels, gathering over 1600 participants to innovate in the European marketplace.

5G: From Myth to Reality. 5G: From Myth to Reality takes place on 21 April in Sophia Antipolis. The event is free to attend but places are limited.

Testimonials

"5G-ENSURE will define and deliver a 5G Security Architecture, shared and agreed across the various 5G stakeholders. It will specify, develop and release an initial set of useful and usable security enablers for 5G"

Petteri Mannersalo / 5G-ENSURE coordinator / VTT, Finland

Stay tuned

Tweets

5GEnsure @5GEnsure
Via @TelecomTV: @ndkianetworks shows LTE-Advanced Pro with 3D Beamforming to triple site capacity #MWC16: [ow.ly/0XN4K5](#) 1h

5GEnsure @5GEnsure
IoT Unique Opportunity for Developing World highlighted in Cisco report: [ow.ly/0XMFwd](#) Expand 4h

5GEnsure @5GEnsure
Telecom Finance and Investment is out: [ow.ly/0XGdU3l](#) Show Summary 29-Jan

5GEnsure @5GEnsure
MT: why is the #IoT more than just technology? The role of the 29-Jan

Tweet to @5GEnsure

Our Partners

THALES NOKIA bcom ERICSSON IT NEC

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Figure 2 - 5G-ENSURE homepage

The 5G-ENSURE web platform is a versatile semantic based knowledge management platform aimed at animating the community of users by responding to their specific interests. The flexibility of its architecture allows the integration of different tools, gives the possibility to easily upload multimedia content, and to customize the proposed content according to the characteristics and navigation history of its users.

3.1 5G-ENSURE website evolution

The 5G-ENSURE website will be delivered in different phases:

Phase 1 – M1 – M3 - Delivery of website version 0.1: Mock-up and discussion of website first version (M1). First static online page with description of the 5G-ENSURE objectives is shown in Figure 3 and was made available in October 2015 to ensure visibility of the project already during the event ICT 2015.

Phase 2 – M3 – Delivery of website version 1: Browsable version with complete set of menus and navigation tree. Content production and publication, delivery of website online version (M3). This is the current version shown in Figure 2.

Phase 3 – M3 – M24 - Website maintenance and further population of website and investigation of opportunities for the website future sustainability. The sustainability of the website will be investigated in Task 5.2.



Figure 3 - Early static version of the website

3.2 Website landing page: details

The 5G-ENSURE website is an integrated and versatile platform aimed at animating the community of users and disseminating the achieved scientific results. The website will be dynamic and will change during the project lifetime as new updates come out. It will be the channel to showcase concrete results and success stories in which 5G-ENSURE will play a role. The portal will help to drive awareness on 5G-ENSURE achievements in terms of definition of the 5G security architecture, security enablers specifications and contribution to standards.

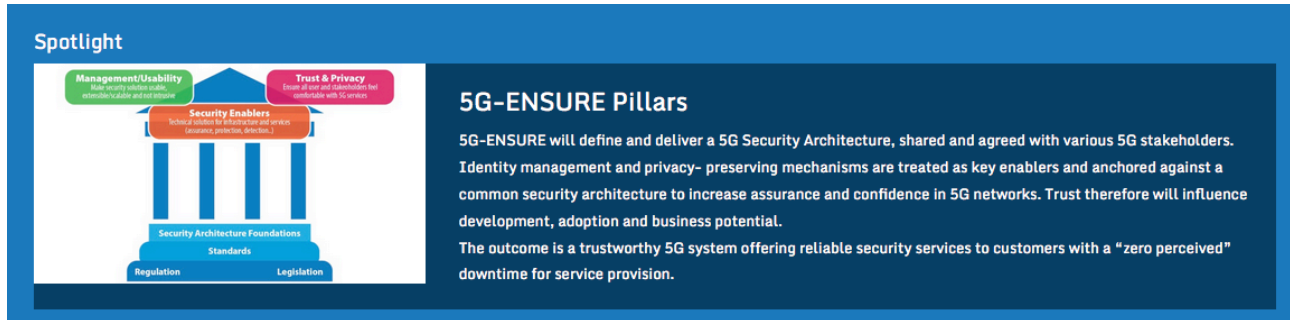


Figure 4 - Spotlight story

A central section of the homepage is dedicated to the spotlight story (shown in Figure 4), which at the moment includes the image of the 5G-ENSURE pillars describing the overall framework. This section will also serve to announce latest results of the project and the presence or organisation of major events where 5G-ENSURE will be contributing to.

 <p>POLICY PULSE</p> <p>5G-Ensure launches to make 5G networks and systems secure and trustworthy</p> <p>5G-ENSURE launches to specify, develop and release an initial set of useful and usable security enablers for 5G through the European 5G-PPP.</p>	 <p>STANDARDS</p> <p>3GPP Prepares the way for 5G</p> <p>3GPP video on release 13 discusses progress made and looks forward to the next two releases that form an important contribution towards 5G.</p>	<p>EVENTS</p> <p>EuCNC EuCNC2016, 27-30 June, Athens</p> <p>EuCNC2016 takes place 27-30 June in Athens with a strong focus on 5G technologies, bringing the latest insights and showcasing results in the communications and networks.</p> <p>Net Futures 2016 Net Futures 2016, 20-21 April, Brussels</p> <p>Net Futures 2016 - Driving Growth in the #DigitalSingleMarket takes place on 20-21 April in Brussels, gathering over 1000 participants to innovate in the European marketplace.</p> <p>ETSI 5G: From Myth to Reality</p> <p>5G: From Myth to Reality takes place on 21 April in Sophia Antipolis. The event is free to attend but places are limited.</p>
 <p>TECH INSIGHTS</p> <p>VTT creates ideal temperature for office spaces with the Internet of Things</p> <p>VTT Technical Research Centre delivers new IoT solution for ideal office temperatures adjusted to the needs of the individuals working there.</p>	 <p>MARKET INSIGHTS</p> <p>Ericsson Mobility Report - 2015</p> <p>Ericsson Mobility Report 2015 with articles on ICT and the low carbon economy, decoupling energy from traffic growth and 5G beyond mobile broadband.</p>	

Figure 5 - News and events

The homepage also features a section dedicated to the latest news and events, shown in Figure 5. This section will be automatically updated to follow the newest events and news as well as publications of the 5G-ENSURE consortium. The news has been organised into 4 categories: **Policy pulse; Standards; Tech Insights; Market Insights.**



Figure 6 - News center

A *news center* has been placed on the slider to highlight the news and provide an easy access, as shown in Figure 6.

At the bottom of the 5G-ENSURE landing page there is a section dedicated to testimonials and the twitter feed with the latest social media information, as shown in Figure 7.

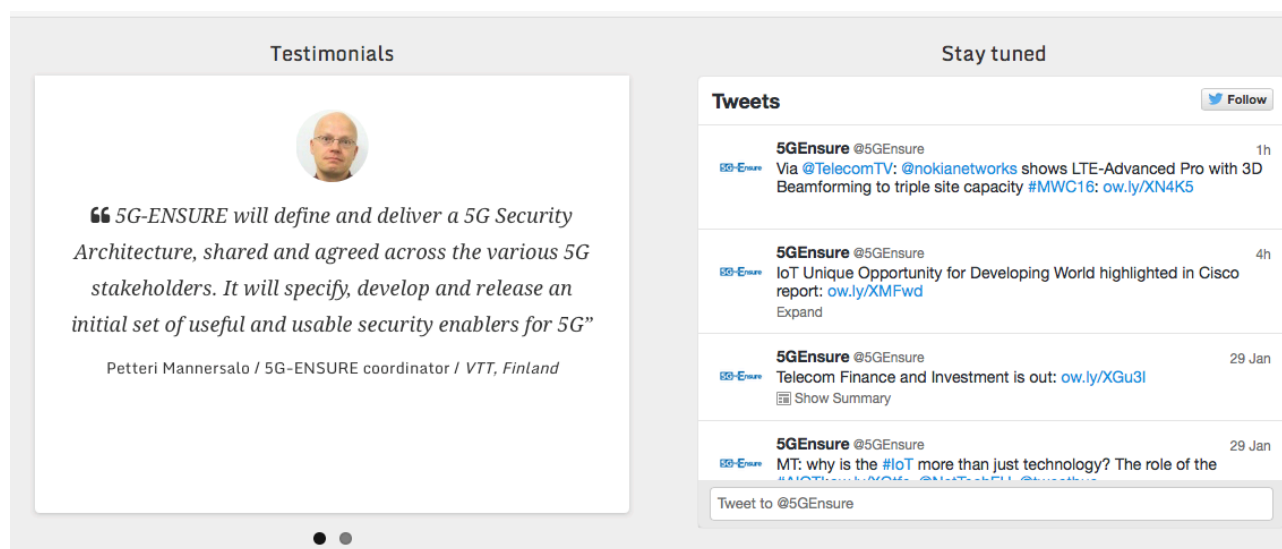


Figure 7 - Testimonials and social media feeds

3.3 Website sections

During this first phase of the project, the web platform sections have been populated with project related information, regarding the project vision, relevant standards, scientific domains addressed (security enablers and architecture pillars), and a short description of the use cases, together with relevant content organized according to format and topic: news items and events.

Specifically, the following menus are active:

- About providing general information on the project and in particular:
 - Project Vision and the objectives of the project (Figure 8).

- Advisory Board Members
- Consortium and the role of the partners (Figure 9).
- News Center listing the news and the project related events where 5G-ENSURE partners are involved (Figure 10).
- Standards describing the project approach towards SDOs and the listing the major SDOs relevant for the project (Figure 11).
- Security enablers (Figure 12) linking to each research area for the enablers: AAA, Privacy, Trust, Security Monitoring, Network Management & Virtualisation Isolation. Figure 13 shows the current version of one of the security enablers area (Privacy) and Figure 14 shows the evolution when the (open) specifications will be available.
- Architecture explaining the building blocks towards the design of the security architecture (Figure 15)
- Service suite, which will provide easy access to the outcome of the project. Currently, this page links directly to the Use Case definition, detailed on a dedicated page (Figure 16). Under this menu item is available the purpose of the 5G security testbed through which security enablers developed are planned to assessed/evaluated with respect to use case scenario that apply (Figure 17).

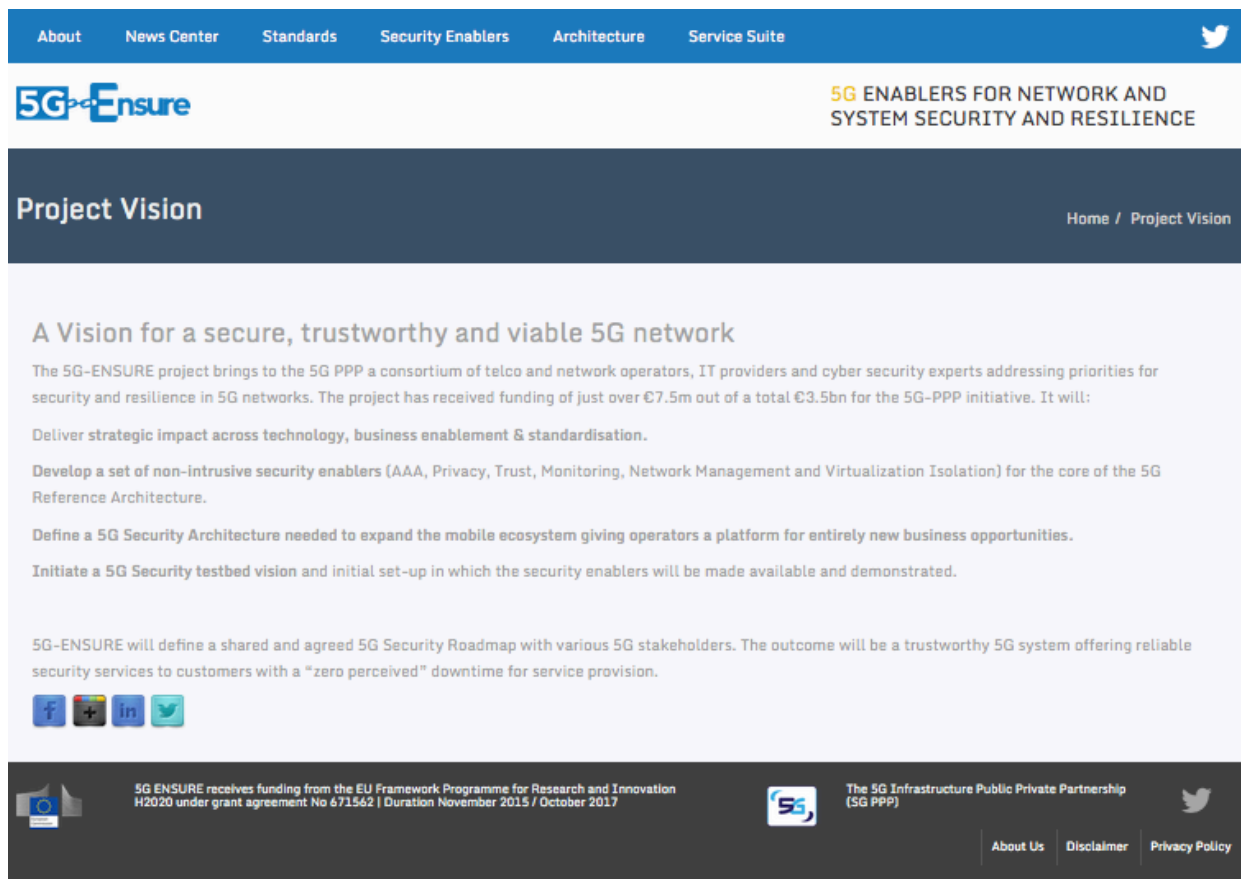


Figure 8 - Project Vision

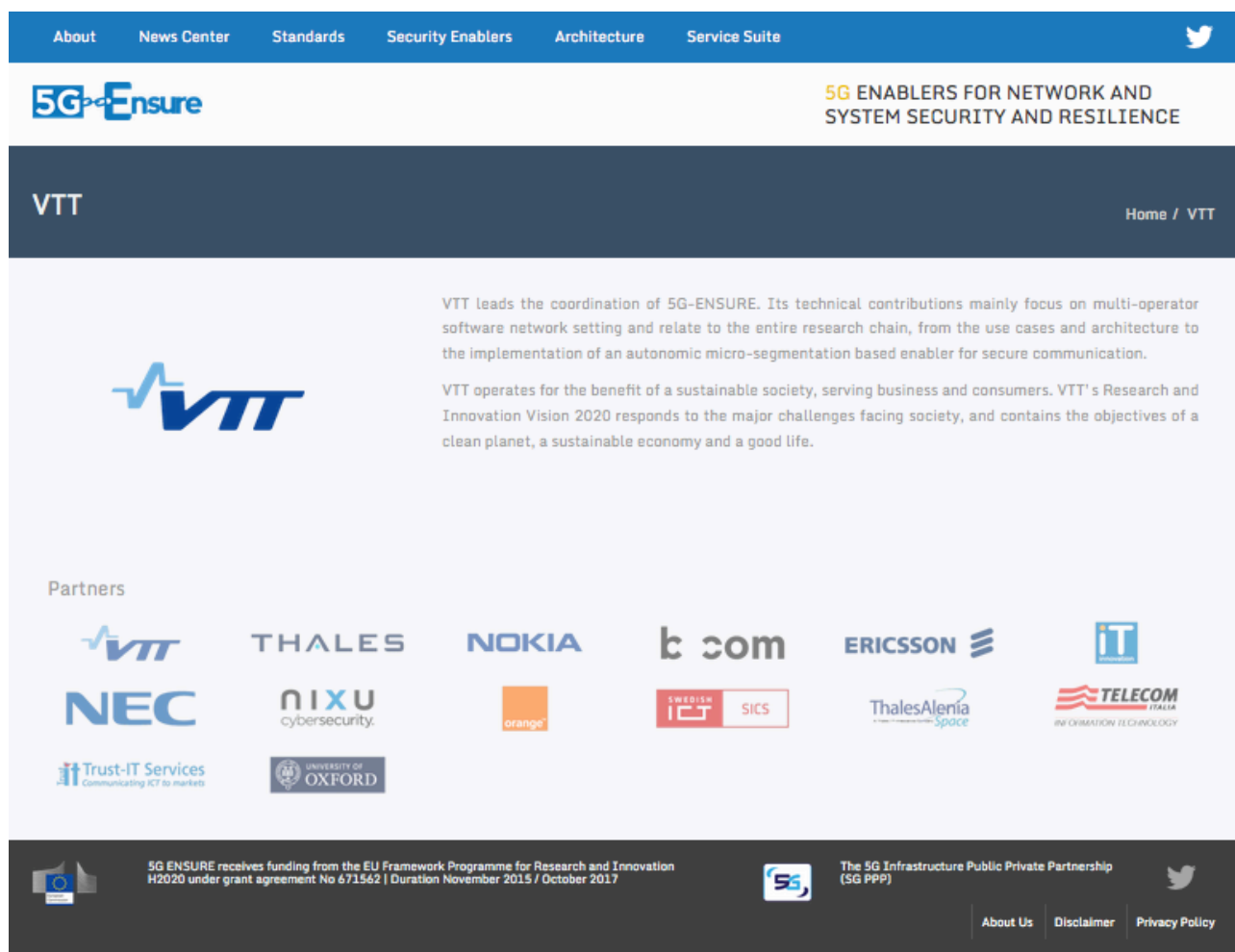


Figure 9 - Project consortium layout - VTT partner

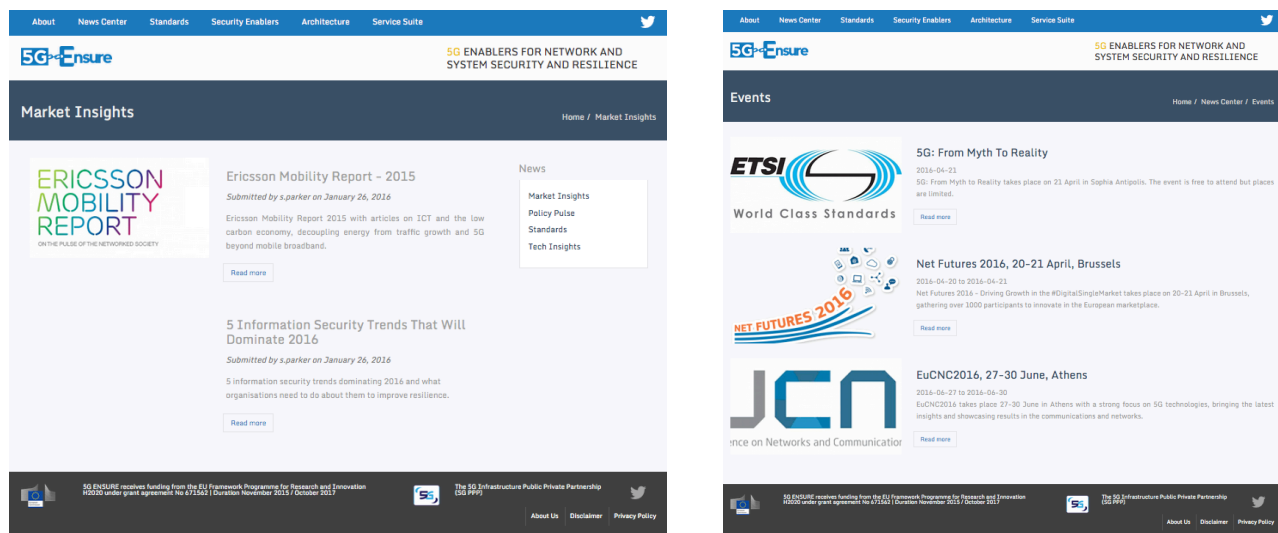


Figure 10 - News (Market Insight) & Events layout

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[Security Enablers](#)
[Architecture](#)
[Service Suite](#)

5G ENABLERS FOR NETWORK AND SYSTEM SECURITY AND RESILIENCE

Standardisation in 5G
Home / Standardisation in 5G

A "Security by Design" approach calls for a set of security, privacy and liability issues as part of the standardisation and regulation processes. To achieve this, 5G-ENSURE will try to contribute to 5G standardisation work from a security perspective. ITU, ETSI and 3GPP will play a significant role for 5G, and are clearly the starting point for our work.

5G-ENSURE Research Topics	Targeted Standards Groups
5G Security specific use cases 5G Trust Model 5G Security requirements 5G Security architecture AAA GE & Privacy GE	TSG Service and System Aspects (TSG-SA) group SA WG2 Architecture SA WG3 - Security
Network Management & Virtualisation Isolation GE Security Monitoring GE AAA GE	Network Functions Virtualisation (NFV ISG) Technical Committee (TC) Cyber Security (CYBER) Technical Committee Smart Card Platform (TC SCP)
Network Management & Virtualisation Isolation GE	OpenFlow™ and SDN
AAA GE Network Management & Virtualisation Isolation GE	Authentication and Authorization for Constrained Environments (ACE) Network Function Virtualization Research Group (NFVRG)
5G trust model 5G Security requirements	Security & Fraud Risk Assessment (SFRA)

Open Consultation Services & WG Security

CONSENSUS BUILDING

The ITU's IMT-2020 is widely considered the definitive timeline of 5G development, with key discussion points on technical performance requirements and evaluation criteria kicking off in early 2016. According to the group's plan, proposals for standards will begin in late 2017 through to mid-2019, with consensus building beginning in 2018 and continuing into 2020. The group expects outcomes and definitive 5G standards to be in early stages by mid-2019.

3GPP is working towards full 5G capabilities in three consecutive releases in the 2016-2019 time frame. A study item on the new 5G architecture began in December 2015 together with other studies aimed at consolidating a core set of use case requirements and desired system requirements and capabilities to enable 3GPP network operators to support the needs of new scenarios and related markets.

Inside ETSI, ISG NFV will play the main role in standardising the infrastructure aspects of 5G networks, which will become increasingly virtualised and softwareised.

Although not an official SDO, also GSMA and NGMN will play an important role for the security of 5G.

5G will impact a vast number of new technologies that will need standardisation with threats to communication technologies growing on a daily basis. There is increased interest in defending national and critical infrastructure through cyber security. To cope with the growing complexity of security and privacy aspects, ETSI has created a reference group to create security standards and coordinate security matters across its working areas.

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Figure 11 - Standardisation page

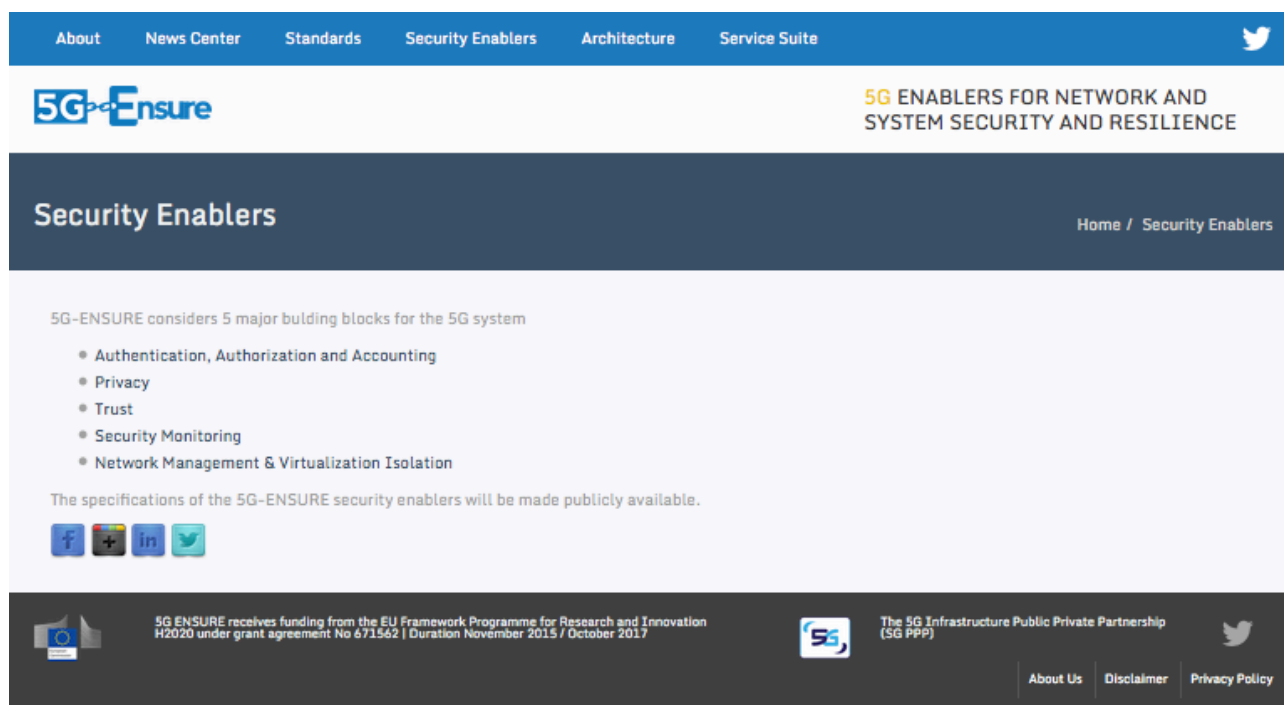


Figure 12 - Security Enablers linking page

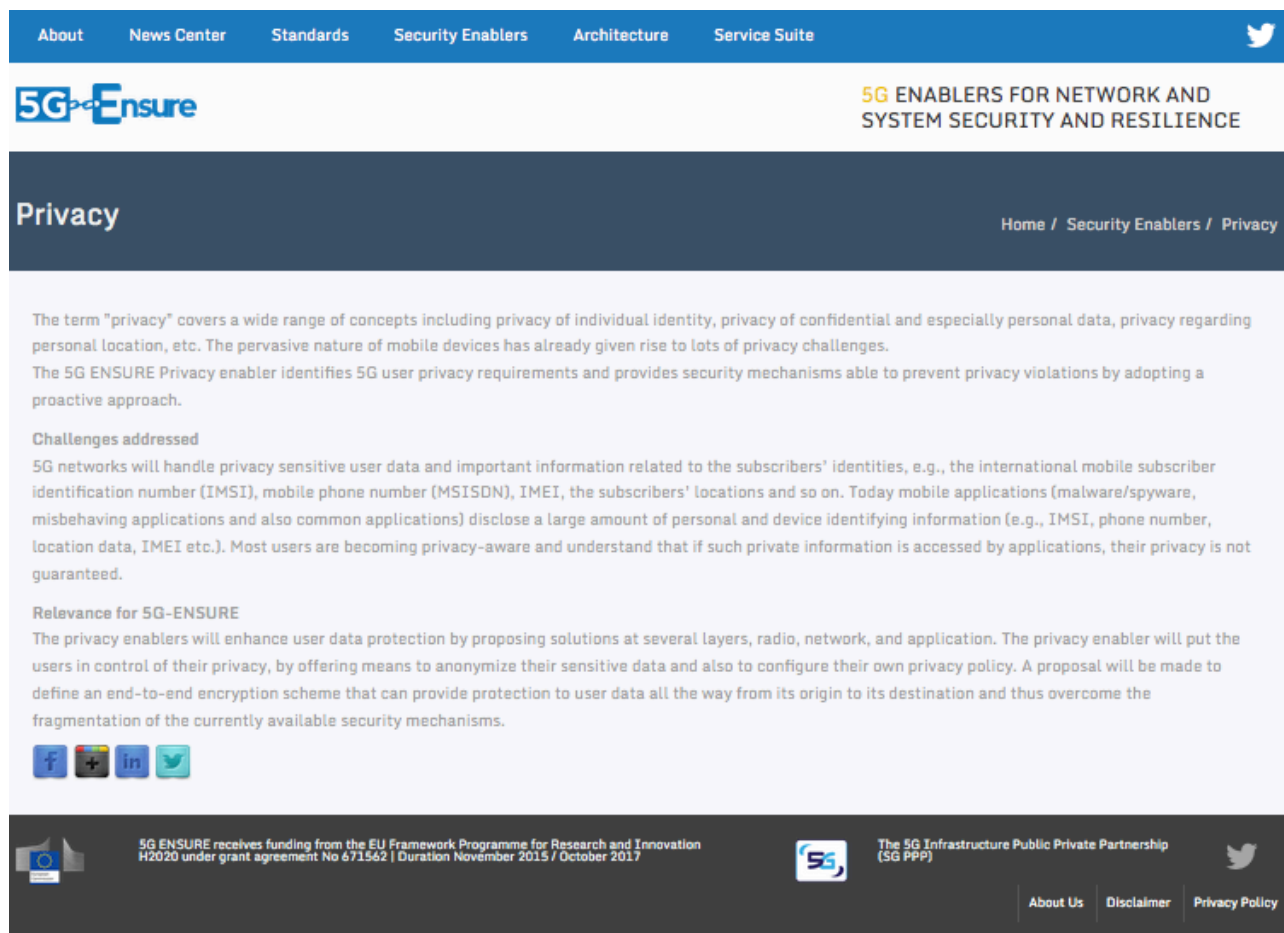


Figure 13 - Privacy Security Enablers

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5G ENABLERS FOR NETWORK AND
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Security enablers

Home / Security enablers

General description of the security enablers.

5G-ENSURE will investigate security enablers in the following main areas.

Area 1

Area 2

Area 3

Area N

Description

Relevance for 5G-ENSURE

Challenges addressed

Download the specifications







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Figure 14 - Evolution of the security enabler page

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[Architecture](#)
[Service Suite](#)

5G ENABLERS FOR NETWORK AND SYSTEM SECURITY AND RESILIENCE

5G-ENSURE Architecture

Home / 5G-ENSURE Architecture

5G is a platform that goes beyond current IT approaches and which will be far more decoupled from specific hardware and physical control of the network. 5G is a key economic driver for EU especially when it comes to the new business it will enable. However, for this to happen it is necessary for the 5G architecture to be secured from start, and also for 5G secure systems to be enabled.

5G-ENSURE will define and deliver a 5G reference security architecture, shared and agreed with various 5G stakeholders, and will support its use by providing a useful and useable initial set of security enablers addressing core concerns.

The diagram illustrates the 5G-ENSURE Architecture, showing the interaction between the 5G Network, Security Services, and the Device. The 5G Network layer includes components like Compute, Network, Data, and Control. Security Services are divided into Data Sec, AuthN, AuthZ, Auth, and Privacy. The Device layer includes GW/Device and Device. Inter-provider interfaces are shown at the bottom. The diagram also highlights various security enablers such as Sec Mgmt, VSI, and R-p-T.

The current target format for the architecture uses the ITU-T X.805 architecture as a basis. The ITU-T X.805 architecture is mature and proven and it will be extended from the logical dimension to decouple the architecture from physical concepts such as "sites" and "nodes" (highly desired in virtualized settings) and from the functional dimension with a set of required security capabilities (the 5G-ENSURE security enablers). The needs of 5G are mainly characterised as related to manageability & usability and trust & privacy. Identity management and privacy-preserving mechanisms are treated as key enablers and anchored against a common security architecture to increase assurance and confidence in 5G networks. Trust therefore will influence development, adoption and business potential. The outcome is a trustworthy 5G system offering reliable security services to customers with a "zero perceived" downtime for service provision.

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Figure 15 - Architecture page

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5G-ENSURE 5G ENABLERS FOR NETWORK AND SYSTEM SECURITY AND RESILIENCE

Use Cases

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The use cases illustrate specific 5G related security challenges. Two kinds of use cases and associated challenges are considered in this context:

- For use cases illustrating security issues inherited from current generation networks, the challenge is to provide an improved level of security and privacy. *FOCUS on vulnerabilities and potential counter measures addressing the identified security issues.*
- For use cases illustrating new features introduced in 5G (e.g. support for critical MTC and SDN), the challenge is to provide an appropriate level of security and privacy, as well as potential new security functionalities. *FOCUS on the additional security functionality needed to support the new features.*

The use cases identified in 5G-ENSURE are organised as follows.

- The pre-conditions are listed, illustrating the setting before the actual use case takes place.
- The sequence steps illustrating the use case are described. The step-by-step description is intended to pave the road for the upcoming threat and risk analysis in the project.
- A short analysis of the use case is completed, followed by an outline of security properties of a solution.
- Each use case is classified in terms of relevant candidate security enablers in the project, and applicable next generation radio technology use cases: Enhanced Mobile Broadband (eMBB), Massive Machine-Type Communication (mMTC), and Ultra-reliable and low-latency Machine-Type Communication (uMTC). The classification is included to position the use case both within the 5G-ENSURE project and in the context of other 5G-PPP projects.

USE-CASE TAKE-AWAYS

- 5G encompasses a variety of radio access systems expanding the capabilities of mobile devices and networks.
- The increased emphasis of user privacy, including unlinkability between user information and device identifiers and untraceability of location, needs to be met by new protection schemes.
- 5G networks should provide various kinds of virtualized Core Network functions (slices) for different types of subscribers or corporations, which need totally different isolation properties.
- The increasing trend of connecting important functions in society and corporations through mobile network technology leads to an increased demand for robustness and reliability in overload and denial of service situations.

[Facebook](#) [YouTube](#) [LinkedIn](#) [Twitter](#)

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Figure 16 - Use Cases page

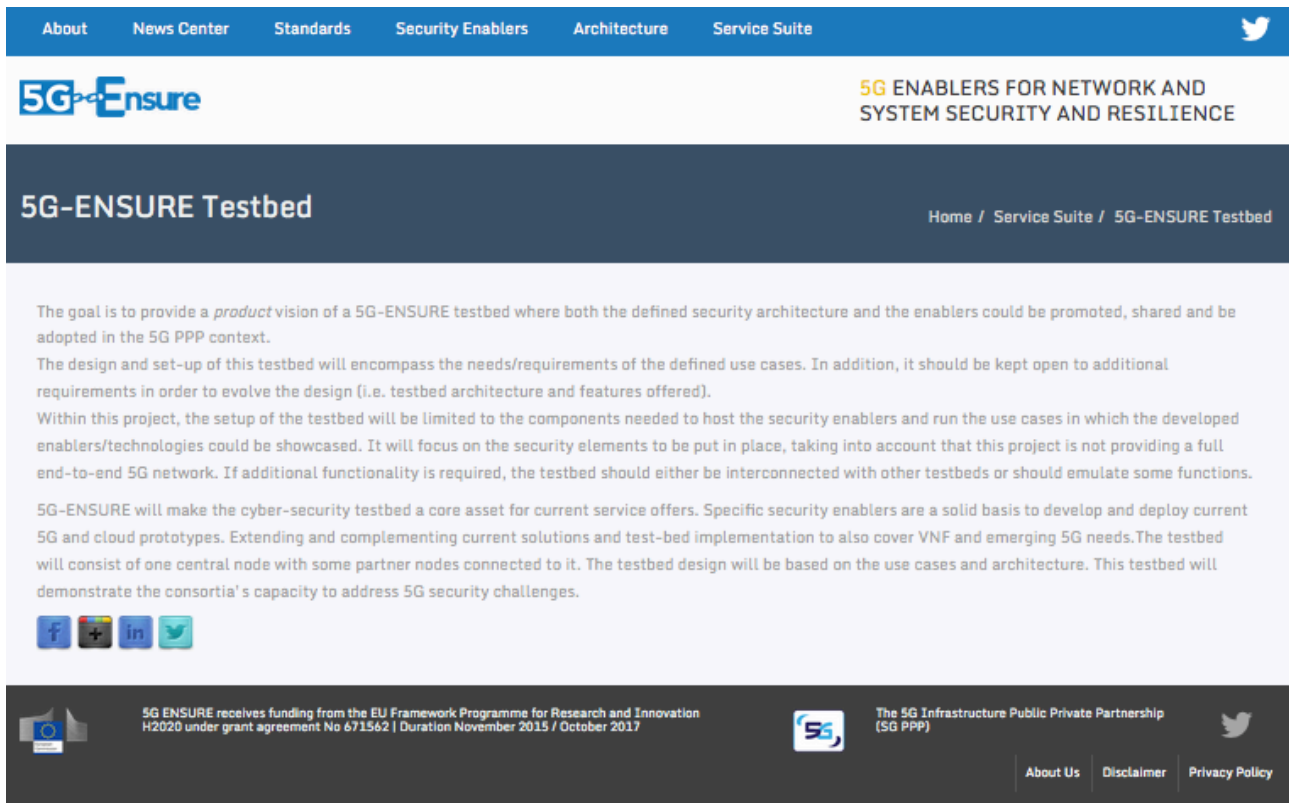


Figure 17 - Testbed page

4 5G-ENSURE website links with social media activities

The web platform plays an integral part of the communication strategy: the media centre is the hub where all relevant information about the 5G ecosystem and technical innovation will be discussed; the web pages will report results and achievements of the 5G-ENSURE project; the social media will help communicate and disseminate the information to the general public.

The web platform integrates the social media widget. Currently, Twitter is enabled, as shown in Figure 7. A LinkedIn account will be created to broaden outreach to the target audiences and enable the exchange of more detailed information on the development of 5G through this professional network.

5G-ENSURE will use these channels as links from the web platform, such as sharing technical updates, relevant 5G updates, events and news with the 5G-PPP and other target audiences, using appropriate references (twitter handles, and hashtags, etc.) based on the core messaging that will be defined in Deliverable D5.2 (April 2016 and subsequent iterations).

5 5G-ENSURE website future evolution

The website will be continuously maintained and updated during the course of the project. The driving factors will be the success stories based on achievements and project results, synergies established with relevant stakeholders, engagement of end user communities and telco operators, and contribution to standard organizations. In particular, these are some of the factors that will determine the success stories:

- 5G-ENSURE recent advances in designing, developing, and testing security enablers to fill the gap in 5G networks.

- Definition of the use cases illustrating specific 5G security challenges.
- Specification of a 5G security reference architecture.
- (Open) Specification of the 5G security enablers developed within the project.
- Promotion of the project results in target standardisation bodies with the aim to drive the definition of security enablers and 5G-ENSURE security architecture.
- Contribution to SDOs with use cases, 5G security architecture, and security enablers' specifications.
- Testbed design and demonstration of the potential of 5G security enablers developed in the context of 5G representatives' showcases – security-as-a-service testbed and ready-to-use service to other players.
- Identification of stakeholders and promotion material to sustain the exploitation plan: market the 5G-ENSURE offer, in particular show the future 5G business ecosystem.
- Publication of the 5G security roadmap to foster 5G (PPP) security vision, highlighting both business and technical aspects.

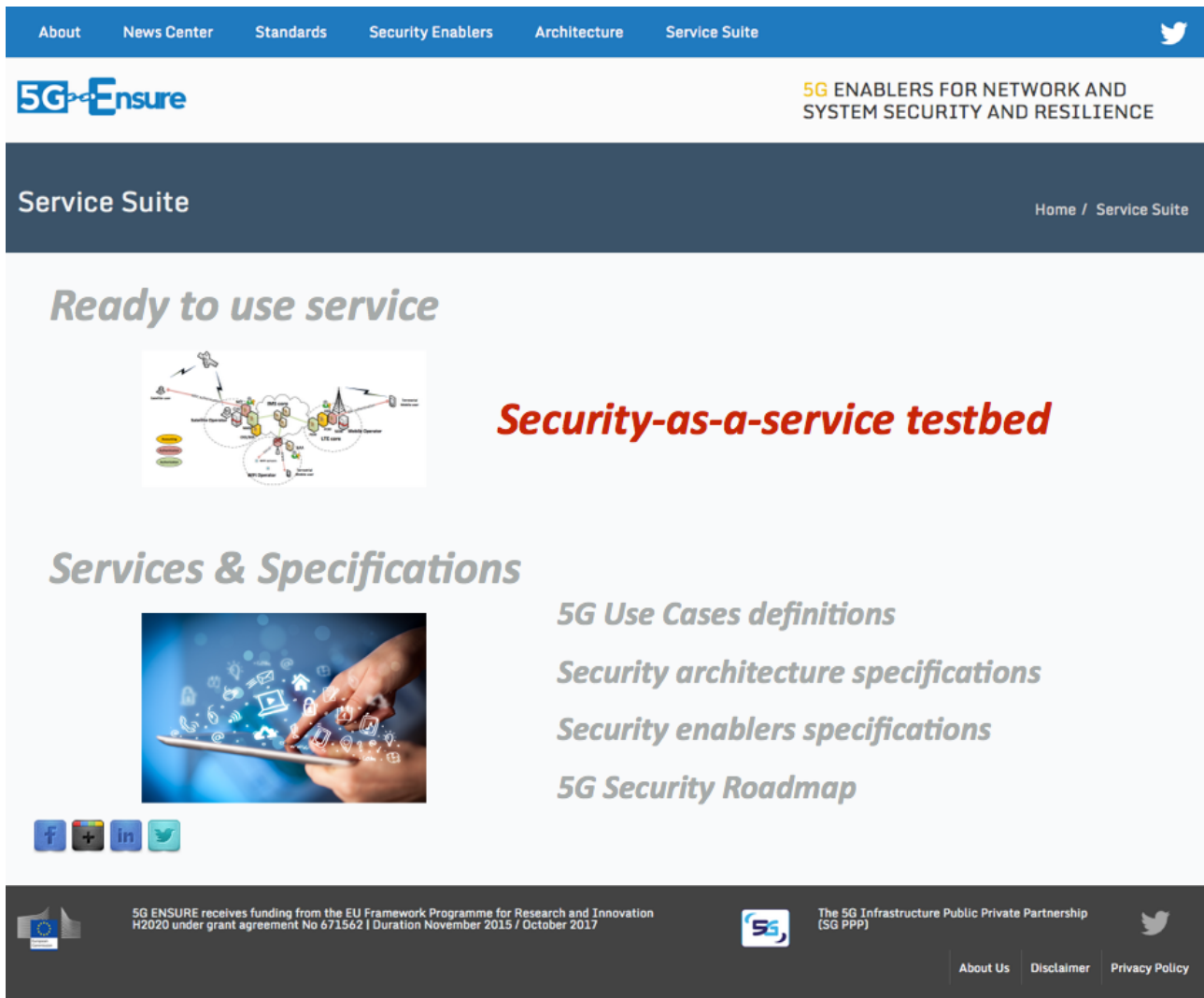


Figure 18 – Mockup of the service suite

As a next step the web site will be assessed against potential security vulnerabilities and the adoption of best practice criteria (e.g. https, digital certificate) will be verified.