



# Key values for SA1

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# Introduction



- Intention with this presentation is to support the proposal to study how to use **Key Value** (KV) and **Key Value Indicator** (KVI) that was first introduced in S1-233584.
- It also suggests how SA1 can/should make use of key values when doing studies for 6G.

## Content:

- Why should SA1 work with key values?
- Some reiteration of the different key values
- Proposal on how we could study the usage of key values

\* key value, KV and KVI are used as in this presentation, other words that can be used are Goals or Targets...



# Importance of working with key values

- Communication technology is getting increasingly important. Not only for the consumers but also for vital infrastructure and society.
- The whole society is more and more dependent on a communication system. With this, other requirements than KPI's needs to be treated with equally importance.
- Communication technology needs to take global challenges into account.
- When 3GPP technology usage is increasing, it is important to fulfill additional values for government etc. This is already done to a large extent but could be formalized more.
- ITU-R, NGMN, Hexa X II and Next G Alliance have started to use KV as a way to describe other values than KPI's

# If we had worked with key values in "Sensing" Rel 19...



## 6 Considerations

### 6.1 Considerations on confidentiality, integrity and privacy

#### 6.1.1 General

When introducing sensing technology, new aspects on confidentiality, integrity, and privacy need to be considered, to ensure that these aspects are considered already when proposing service requirements.

~~For instance, with sensing technology by-standers can be affected in a completely new way, previously only UEs have been able to be tracked but now sensing capabilities may enable tracing and potentially identification of anything in the environment, including humans that do not carry a UE, or any objects. This has implications for privacy. Obviously humans should have a right to privacy.~~

For privately owned areas, respective permission is required for sensing operation from such as the homeowner for in-home sensing or the building management for the in-building sensing.

For public areas, such as a public road, park and airport, it is required to obtain the permission of the respective public area management.

It is important to have the user consent before the network uses UEs in providing sensing service. If the sensing results and user ID are brought together for further processing, user consent is also needed.

Of course, factors such as resolution, updating frequency, and type of application influence the security implications.

Requirements to minimize the risk of unwanted usage and awareness of the usage needs to be considered in stage 1. These are captured in the next chapter.

#### 6.1.2 Potential New Requirements

A set of general new requirements can be identified:

[PR 6.1.2-1] The 5G system shall limit sending the sensing results only to third party authorized to receive that sensing results.

[PR 6.1.2-2] The 5G system shall support encryption and integrity protection of the sensing result, to protect the data inside the 5G system and when used.

~~[PR 6.1.2-3] The 5G system shall support appropriate level of sensing for both situations where consent can be obtained from the sensing targets, and where it cannot.~~

[PR 6.1.2-4] Subject to regulation, the 5G system shall obtain user consent when sensing results and user identification are brought together for further processing.

### 6.2 Considerations on Regulatory, Mission Critical and other priority services

#### 6.2.1 General

The sensing operation in Operator's network can support commercial services (e.g. use case described in section 5.8 on sensing assisted automotive manoeuvring and navigation). There could be areas where the network resources are limited and prioritization (according to operator's decision) would be needed among the resources used for sensing service and resources used for other services (e.g. communication service).

## 5.14. Use case on sensing for tourist spot traffic management

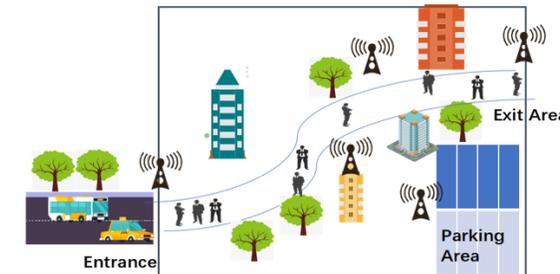


Figure 5.14.3-1: Sensing for tourist spot traffic management

1. When the scenic area begins to open, Jim will operate the scenic area traffic monitoring system to start real-time traffic control.
2. The traffic management system of the scenic spot will send a service request to the operator network to start sensing the people and vehicles in the scenic spot.
3. The base stations at the entrance and exit of the scenic spot can sense the people and vehicles that enter or leave the place, and the base stations in the scenic spot can sense the people and vehicles for certain area (e.g. walkway, parking area).
4. Operator A reports the traffic sensing information from the base stations in the scenic spot to the traffic monitoring system. Based on the sensing information, the traffic management system could analyse the traffic status and decide whether the traffic in the area is congested.
5. If the congestion exceeds the threshold, the management system would notice Jim about the detail, and Jim would trigger to limit traffic to avoid traffic overload in the scenic spot.

#### 5.14.4 Post-conditions

With 5GS support to the traffic management system, the vehicles and tourists are controlled within a reasonable range, and the spot can operate normally during business hours.

#### 5.14.4a Considerations KV

~~For instance, with sensing technology by-standers can be affected in a completely new way, previously only UEs have been able to be tracked but now sensing capabilities may enable tracing and potentially identification of anything in the environment, including humans that do not carry a UE, or any objects. This has implications for privacy. Obviously humans should have a right to privacy.~~

#### 5.14.5 Existing features partly or fully covering the use case functionality

None.

#### 5.14.6 Potential New Requirements needed to support the use case

[PR 5.14.6-1] The 5G system shall be able to provide means to use base station(s) to perform sensing in certain area.

[PR 5.14.6-2] Subject to regulatory requirements and operator policy, the 5G system shall be able to expose sensing results to a trusted third-party application.

[PR 5.14.6-3] Subject to regulatory requirements and operator policy, the 5G system shall be able to support the activation and deactivation of the sensing service based on location.

[PR 5.14.6-4] The 5G system shall be able to provide sensing service with KPIs given in Table 5.14.6-1.

~~[PR 5.14.6-5] The 5G system shall support appropriate level of sensing for both situations where consent can be obtained from the sensing targets, and where it cannot.~~



# Background – values and ICT

- Key values Based on UN Sustainable Development Goals (SDGs) – Environmental, Social, Economical aspects
  - Example Key Values: Resource efficiency, Privacy, Trust, Openness, etc.
- Scope:
  - Direct value outcomes (ICT sector) related to technology itself
  - Enabled/induced value outcomes (other sectors) related to use cases
- Ambitions:
  - **Sustainable 6G** (Direct) – minimize ICT footprint
  - **6G for sustainability** (induced/enabled) – maximize value benefits and minimize value detriments

# KVIs



- Value-driven development:
  - To steer technology towards wanted impact (KVI-oriented)
  - A parallel to performance-driven technology (KPI-oriented)
- KVIs for the different scopes:
  - “Technology KVIs” – metrics for direct footprints related to technology
  - “Use case KVIs” – metrics for induced/enabled benefits and detriments related to use case
- **Technology KVIs** should be considered when developing technology
  - To reduce negative impact of technology
- **Use case KVIs** should be considered when formulating use cases
  - To identify risks and enable benefits



# Proposed selection of key values to work with

SA1 should agree on a smaller set of key values, and Ericsson's initial proposal is to use the UN agenda 2030 as foundation, specifically

- Environmental Sustainability
- Privacy and confidentiality
- Trust
- Digital inclusion

# Proposal



We suggest to do an initial test in Rel-20, phase 2 which is evaluated in the end of the release, by:

1. Agree on a set of recommended KVs to use during SID discussion
2. Create a dedicated use case template for Rel-20, phase 2 with an additional subchapter **"Considerations KV"**.
3. This dedicated use case template is used for each use case during the study phase to capture KV(s).
4. Potential new requirement related to KV or KVI are captured in "Potential Service Requirement" for each use case ,
5. Potential consolidation can be captured in a separate subchapter **"Potential KVI metrics"** in the end of (each) TR (based on result).

In the end of Rel 20 SA1 will evaluate the usefulness of KV as concept and agree if and how to incorporate this work into future normative specification.

- Note, we do not recommend to engage with external stakeholders before discussion on the usefulness of KV as concept has concluded.

