**3GPP TSG-SA WG6 Meeting #68 S6-253382\_draft\_V2.5**

**Gothenburg, Sweden 25th – 29th August 2025 (revision of S6-253344)**

Source: SA6 Rel-20 6G SID Moderator

Title: Discussion on work areas of SA6 6G Application Enablement study

Agenda Item: 11.1

Contact: Basavaraj (Basu) Pattan, basavarajjp@samsung.com

*Abstract: Proposed work areas and work tasks of SA6 6G Application Enablement study*

# 1 Discussion

Several input papers were discussed during SA6 Rel-20 Workshop on 6G-study and the agenda is in the following link:

<https://www.3gpp.org/ftp/tsg_sa/WG6_MissionCritical/Informal_ConfCalls/2025/IWS_20250625and26_SA6_Rel-20_6G-study_planning/chairs_notes/inbox/SA6_6G-study_WS-Agenda_v4.docx>

Subsequently, it was decided that moderator shall provide a summary of potential Work Areas / Work Tasks for the 6G-study on application enablement including questions for potential Work Areas / Work Tasks to be used for moderated discussion. During SA6#68 it is proposed to discuss the initial set of Work Areas / Work Tasks listed in this paper and figure out the contentious aspects that need further moderated discussion, and identify any missing aspects.

Moderated discussion on the 6G SID is expected after SA6#68 meeting. Based on the moderated discussion the moderator will provide a summary and a revised proposal of 6G SID for SA6#69 meeting.

The following are moderator proposals on the work areas, moderated discussion questions and work plan.

**Change history:**

Draft\_V1

1. Collated work tasks from multiple company proposals to SA6#68 (S6-253107, S6-253112, S6-253202,

S6-253215, S6-253285, S6-253351, S6-253372, S6-253373, S6-253374)

2. Minor clarifications to Work Plan

Draft\_V2

1. Revised Work Areas titles and description.

2. Moved Work Task proposals to relevant Work Areas

3. Removed duplicate Work Tasks

Draft\_V2.5

1. Updates from online drafting session on Aug 27 Wed Q0.

# 2. Work Area Descriptions

It is proposed to endorse the following work area for moderated discussion.

**NOTE**: the work area description within each work area is just for companies to provide moderated input on. Whether each area needs to be studied or not will be determined based on the moderated discussion and the final scope of study.

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

## 1.1 Exposure Framework Aspects

**Moderator proposal:**

|  |  |
| --- | --- |
| Work Area Description | Exposure Framework Aspects facilitates overall consumption of services, covering aspects that apply across use cases and services e.g. support of capability exposure. |
| Work Tasks | 1. Secure, Privacy and Regulatory compliant management and exposure
2. Local exposure​​, ​​user-plane exposure​​, ​​modular or nested exposure​​, and ​​multi-party collaborative exposure
3. 3GPP wide API framework including usage by CN, OAM and RAN groups
4. Study functional grouping of the CAPIF features
5. Study to enable support for different exposure mechanisms (or different protocols)
6. Study possible enhanced version control – to support multiple active version on same interface
7. Study enhanced granular access control (considering scope/purpose)
8. To consider potential requirements (e.g. impacts due to AI) from other working groups (e.g. SA2, SA3, SA4, SA5) on the common exposure framework
9. Study what to expose as APIs to consumers.
10. Study how to expose APIs for better consumer adoption e.g. intent driven APIs.
11. Study expansion of ecosystem for catering exposure requirements (e.g. Aggregators, IT players, edge/cloud providers, verticals).
12. Study latest API paradigms (AI-powered, Streaming services, Realtimeness, Handling large data etc) and essential consistency guidelines.
13. Study the potential new capability abstraction and interaction models in 6G era (e.g. Investigate potential extensions to the capability invocation model in CAPIF, Scenario-driven capability exposure)
14. Harmonized 3GPP wide User Consent Framework
 |

## 1.2 Application Enabler Service Aspects

**Moderator proposal:**

|  |  |
| --- | --- |
| Work Area Description | Service Aspects are system features that enable Service operation, covering aspects that apply across use cases and services, and those that relate to application enablement e.g. 6G enhancements of legacy SEAL services and new capabilities. |
| Work Tasks | 1. 6G Enabler integrated within 3GPP System for better positioning in 6G Landscape
2. Holistic 6G Enabler that is simple to use by Verticals
3. Data, Location, Sensing, AI as new capabilities for exposure.
4. Investigating application layer communication technologies including protocols, information used for traffic control, performance requirements, content delivery services (e.g.) analyzing exposure requirements on 3GPP system.
5. Investigating application layer mechanism for different 6G target applications, analyzing the data/information exposure requirements on 3GPP system.
6. How to support location services in 6G.
7. Architecture and functionalities to support application enablement layered data (e.g. AI data, sensing data) service, including handle of application enablement layered data from different application enablers (e.g. application data collection, process, storage, distribution, and exposure, etc.).
8. New compute plane tailored to ASP/vertical use cases, while considering the network situation
9. Compute handling on UE and offloading outside UE
10. Quantifying compute requirements and discovering nodes for handling
11. Compute co-ordination with CN
12. Network resources vs compute resources at edge/cloud
13. Investigating the mechanisms about existing and future application server deployment mechanism ,analyzing the exposure requirements on computing resource offered by 3GPP system for the deployment application server.
14. Study enabling compute requirements of 6G use cases
15. Study efficient usage of available resources for application enablement
16. Study enabling new business case by providing compute as a service to applications and service providers
 |

## 1.3 AIML Aspects

**Moderator proposal:**

|  |  |
| --- | --- |
| Work Area Description | In the context of AI-driven 6G systems, two concepts will be important for shaping the future systems: AI for 6G System and 6G System for AI. |
| Work Tasks | 1. Handling of scarce training data for analytics services, using synthetic data
2. AI as a service in Agentic AI era
3. Investigating the mechanism and issues of AI based applications (current or in the future), analyzing the potential exposure requirement on 3GPP AI capabilities of 3GPP system
4. How to support more AI capabilities in application enabled layer.
5. How to expose AI services (e.g. AI/ML model inference) to the consumers (e.g. AF, UE).
6. How AI enabler can benefit for services over 6G satellite access.
7. Study the enablement of generative AI capabilities (e.g., AI model training data with generated data, Retrieval Augmented Generation, handling LLMs, large data) and its applications in 6G architecture.
8. Study to understand and the support required for the traffic patterns of Generative AI
 |

## 1.4 Integrated Sensing and Communication Aspects

**Moderator proposal:**

|  |  |
| --- | --- |
| Work Area Description | Integrated Sensing and Communication facilitates new applications and services that require sensing and data capabilities. |
| Work Tasks | 1. How to support collecting sensing data from UE considering UE privacy and user consent.
2. How to expose the converged sensing data to the consumers (e.g. AF, UE).
3. Whether and how to obtain the sensing data from non-3GPP entities (e.g. Radar, Camera).
 |

## 1.5 Ubiquitous Connectivity Aspects

**Moderator proposal:**

|  |  |
| --- | --- |
| Work Area Description | Ubiquitous Connectivity is intended to enhance connectivity to bridge the digital divide and enhance user experience, to address presently uncovered or scarcely covered areas. |
| Work Tasks | 1. How to enable services over satellite access in 6G.
 |

## 1.6 Immersive Communication Aspects

**Moderator proposal:**

|  |  |
| --- | --- |
| Work Area Description | Immersive Communication requires support for mixed traffic of video, audio, haptic and other environment data in a reliable and synchronous manner, combining low latency and high data rates. |
| Work Tasks | 1. Avatars in Real-Time Communication Services
2. Enhancements to Metaverse and MMTel
3. To identify what needs to be specified beyond the support enabled by SA2
 |

## 1.7 Massive Communication Aspects

**Moderator proposal:**

|  |  |
| --- | --- |
| Work Area Description | Massive Communication: involves connection of massive number of devices or sensors for a wide range of use cases and applications. |
| Work Tasks | 1. Study enabling light weight energy efficient UEs
2. How to support IoT services in 6G.
3. Energy driven enablement features
 |

## 1.8 Other Industry and Verticals Aspects

**Moderator proposal:**

|  |  |
| --- | --- |
| Work Area Description | Specific Industry and Verticals: various capabilities and use cases needed to support the specific needs of different vertical markets  |
| Work Tasks | 1. Digital twins for Factories, Network
2. Application Digital Twins different from Network Digital Twins
3. Enabler Layer supported Service Digital Twins to enable rapid service development, testing, optimization, and deployment of services
4. Investigating the application layer functions required by different vertical applications over 6G, identify the potential generic application layer services useful to vertical customers.
5. Application enablement layer and exposure Network Digital Twin services to the vertical / application specific layer
6. Implications on existing SA6 application enablers (e.g. AIML, ADAES, Sensing, EnergySys and other SEAL services) for supporting Network Digital Twin services
7. impacts of application layer support for Network Digital Twin services for different deployments and business models
8. Identify enabler layer impact for enabling Digital Twins applications
 |

## 1.9 Other Aspects

**Moderator proposal:**

|  |  |
| --- | --- |
| Work Area Description | Other aspects (e.g. inputs directly to stage-2, inputs based on industry initiatives) |
| Work Tasks | 1. Blockchain/DLT enablement to perform automated transactions in the future without much human intervention e.g. in self-driving cars
2. Distributed Network operates independently from the PLMN of the same network operator to provide local services
 |

# 3. Moderated discussion proposed questions

It is proposed to endorse the following questions for each work area and work tasks for moderated discussion.

**Q1:** Do you support this work area to be included for the study? Answer with good justification.

**Q2:** What dependency does this work area have? (with other work areas and/or with other WGs)

**Q3:** Which aspects of the work area do you support for the study? Answer with good justification.

**Q4**: Which of the proposed aspects do you not support for the study? Answer with good justification.

**Q5:** What objectives do you suggest for this work area? The answer is expected to be on a level which allows to formulate the objectives of the SID.

# 4. Work plan Proposal

It is proposed to endorse the following work plan:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **SA6#68** | **Moderated Discussion#1** | **SA6#69** | **Moderated Discussion#2** | **SA6#70** | **Post SA6#70 untill end of Study** |
| **Input** | 1. Company proposed work tasks and initial analysis SA1 TR 22.870.2. Discussion on Working methods (NWM, email, conf calls) for Moderated discussions.3. Discuss the questions for Moderated Discussions | Company proposed Work Tasks from SA6#68 | 1. Moderator collated Work Tasks2. Company proposed Work Tasks to SA6#69 | Company proposed Work Tasks from SA6#69 | 1. Moderator collates Work Tasks 2. Company proposed Work Tasks to SA6#70 | Company proposed key issues, solutions etc. to the agreed Work-Tasks  |
| **Output** | 1. Populate SID with agreed Work Tasks2. Finalize tool for Moderated Discussions.3. Agree to questions for Moderated Discussions | Moderator collates Work Tasks and prepares discussion summary | Intermediate update SID based on the agreed Work Tasks (Round 1) | Moderator collates Work Tasks and prepares discussion summary  | Finalize Work Tasks (Round 2).Finalize SID considering agreed Work Tasks and submit for SA plenary approval | Finalize TR with relevant Key Issues, Solutions and Conclusions for all Work Tasks by end of release.The conclusions of this study will form the basis for normative 6G application enablement work. |