**3GPP TSG-SA5 Meeting #141-e *S5-221360rev2***

e-meeting, 17 -26 January 2022 (revision of xx-yyxxxx)

Source: China Unicom

Title: New SID on Knowledge Management Service

Document for: Approval

Agenda Item: 6.2

# 3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>   
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

# Title: Study on Knowledge Management Service

Acronym: FS\_KMS

Unique identifier:

Potential target Release: *Rel-18*

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  |  | X |  |  |
| No | X | X |  | X |  |
| Don't know |  |  |  |  |  |

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

### This work item is a …

|  |  |
| --- | --- |
|  | Feature |
|  | Building Block |
|  | Work Task |
| X | Study Item |

## 2.2 Parent Work Item

|  |  |  |  |
| --- | --- | --- | --- |
| Parent Work / Study Items | | | |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
|  |  |  |  |

### 2.3 Other related Work Items and dependencies

|  |  |  |
| --- | --- | --- |
| Other related Work /Study Items (if any) | | |
| Unique ID | Title | Nature of relationship |
| 910027 | Rel-17 Work Item on enhancements of Management Data Analytics Service | Knowledge from MDA |

Dependency on non-3GPP (draft) specification:

# 3 Justification

* The concept of knowledge is defined a fluid mix of framed experience, values, contextual information, expert insight, and grounded intuition that provides an environment and framework for evaluating and incorporating new experiences and information (Emil Hajric 2018). Compared with the concept of data, knowledge could be generally seen as the conclusions of data analytics. The data analytic process is to extract the core knowledge from massive object facts. E.g., values of performance indicators are types of data implying facts at the specified time, while what problem these values might lead to and what should be done to solve the problem would be categorized as knowledge. Data analytic function with AI/ML models have been studied and addressed for several fields, including management and orchestration (e.g., MDA) and 5GC (e.g., NWDAF) while producing reports and decisions which will become crucial knowledge in the network. Otherwise, knowledge could be obtained by human experts known as the expertise, such as the document of multiple types of reports.
* E.g., in the management loop of MDA, decision and execution are needed to make a complete loop. No matter for the closed loop or the open loop, knowledge like expertise or historical decisions are necessary to support making decisions by MDAS consumers or human experts. However, in different time and scenarios, for different service targets, totally different formations and types of knowledge and interfaces are needed. For this purpose, the knowledge management service is to ensure the right knowledge could be delivered to the right target at the right time in the right type through the right way.
* Consequently, we suggest a knowledge management service to integrate knowledge from expertise, data analytic results, report documents, etc. and deliver relevant, reliable and executable decision through interfaces to the right entities (e.g., MnS, human experts). The resulting knowledge management service should be able to assist with the assurance of QoS and resilience by providing a measurement-based framework that informs management decisions.
* Knowledge management aims to gather knowledge about the network and exploit that knowledge to manage the network. It is responsible for learning the behaviors of the network and, in some cases, automatically operate the network accordingly. Fundamentally, the knowledge management service collects the analytics by other management service, either pre-processed data or raw data, transforms them into the universal knowledge model , and provides the reasoning capability of knowledge to make decisions.
* The acquisition and use of knowledge in networks and networked systems has been hinted in ITU-T, TM Forum and ETSI; adopting and extending this idea should be investigated as an approach for building an automated knowledge extractor and self-adaptive knowledge provider. Therefore, to support/coordinate knowledge acquisition, organization and utilization, the knowledge management needs to be studied. Coordinating with ITU-T network 2030 and semantic knowledge model may be required.

# 4 Objective

To study the knowledge management service in management and orchestration, the objectives of this study item including

* investigating the potential consumers of the knowledge management service and their corresponding ways to utilize knowledge;
* investigating the potential sources to obtain knowledge;
* the possible knowledge models to represent the knowledge from different sources;
* investigating the possible mechanisms to customize knowledge for different targets;
* Interfaces for different consumers of the knowledge management service.

# 5 Expected Output and Time scale

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| New specifications {One line per specification. Create/delete lines as needed} | | | | | |
| Type | TS/TR number | Title | For info  at TSG# | For approval at TSG# | Rapporteur |
| Internal TR | 28.xyz | Study on Knowledge Management Service | SA#96 (June 2022) | SA#97 (Sep 2022) | Feibi Lyu, ChinaUnicom, lvfb@chinaunicom.cn |
|  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} | | | |
| TS/TR No. | Description of change | Target completion plenary# | Remarks |
| {e.g. "22.281"} | {Possible values:  - either free text (e.g. “CS aspects to be removed")  - or “Specification to be withdrawn”} | {e.g. "TSG#89"} | {Free text} |
|  |  |  |  |

# 6 Work item Rapporteur(s)

lvfb@chinaunicom.cn

# 7 Work item leadership

SA5

# 8 Aspects that involve other WGs

# 9 Supporting Individual Members

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| --- |
| Supporting IM name |
| China Unicom |
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