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| ITU logo | INTERNATIONAL TELECOMMUNICATION UNION  **TELECOMMUNICATION STANDARDIZATION SECTOR**  STUDY PERIOD 2017-2020 | | | FG-DPM-O-186-R1 | |
| **Focus Group on Data Processing and Management to support IoT and Smart Cities & Communities** | |
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| **Title:** | | | FG-DPM Chairman’s Progress Report (July 2019) | | |
| **Purpose:** | | | Information | | |
| **Contact:** | | | Gyu Myoung Lee  Chairman, FG-DPM | | Email: [gmlee@kaist.ac.kr](mailto:gmlee@kaist.ac.kr) |

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| **Keywords:** | Data Processing and Management; DPM; Progress report |
| **Abstract:** | This document contains the progress report of the FG-DPM as of July 2019. |

# Summary

The Focus Group on Data Processing and Management to support IoT and Smart Cities & Communities (FG-DPM) was established by ITU-T Study Group 20 at its meeting in Dubai, 13-23 March 2017.

FG-DPM established five working groups which cover all aspects related to data processing and management of IoT and one ad-hoc team group “Global picture of DPM capabilities” which aim is to develop comprehensive picture of the main common DPM capabilities.

Since March 2017, the Focus Group has held eight physical meetings (July 2017, October 2017, February 2018, May 2018, September 2018, January 2019, April 2019 and July 2019) and organized several interim e-meetings of FG’s WGs.

This report highlights the achievements of the Focus Group for the consideration of SG20.

# Terms of reference

The terms of reference of the Focus Group, as adopted by SG20, are available on the Focus Group website ([www.itu.int/go/tfgdpm](http://www.itu.int/go/tfgdpm)). According to the ToR, there are following objectives of the FG-DPM:

* + - To study, review and survey existing technologies, platforms, guidelines and standards for data processing and management including data format in support of the mandate of SG20;
    - To recognize and highlight the various perspectives for the future of data driven eco-environments;
    - To promote security and trust within data management frameworks;
    - To identify and study data protection techniques;
    - To facilitate cross-cutting data interoperability issues and point the way to the development of efficient and scalable approaches to managing systems data;
    - To study meta-data;
    - To study trust in data management frameworks including digital identification and certification;
    - To investigate the role of emerging technologies to support data management and emerging trends including blockchain;
    - To identify challenges in the standardization activities for data processing and management.
    - To establish liaisons and relationships with other organizations which could contribute to the standardization activities for data processing and management.

# Management team

The management team was appointed as follows:

**Chairman:** Mr Gyu Myoung Lee (KAIST)

**Vice-Chairman:** Mr Raphael Rollier (Swisscom)

**Vice-Chairman:** Ms Jiayu Bi (China Telecom)

**Vice-Chairman:** Mr Bilel Chabou (Tunisia)

**Vice-Chairman:** Mr Antonio Harris (CABASE, Argentina)

**Vice-Chairman:** Mr Robert Lewis-Lettington (UN-HABITAT)

**Vice-Chairman:** Mr Abdulhadi AbouAlmal (Etisalat)

**Vice-Chairman:** Mr Dave Faulkner (Climate Associates)

**Vice-Chairman:** Mr Martin Brynskov (Chair of Open and Agile Smart Cities Initiative)

**Vice-Chairman:** Mr Ramy Ahmed Fathy (NTRA, Egypt)

# Structure

In order to efficiently progress and work in parallel, the Focus Group established five working groups, as follows:

**WG1 — Use Cases, Requirements and Applications/Services**

Chairman WG1: Mr Martin Brynskov

mailing list: [fgdpmwg1@lists.itu.int](mailto:fgdpmwg1@lists.itu.int)

**WG2 — DPM Framework, Architectures and Core Components**

Chairman WG2: Mr Steve Liang; Mrs Hakima Chaouchi

mailing list: [fgdpmwg2@lists.itu.int](mailto:fgdpmwg2@lists.itu.int)

**WG3 — Data sharing, Interoperability and Blockchain**

Chairman WG3: Mrs Liangliang Zhang

mailing list: [fgdpmwg3@lists.itu.int](mailto:fgdpmwg3@lists.itu.int)

**WG4 — Security, Privacy and Trust including Governance**

Chairman WG4: Mr Robert Lewis-Lettington

mailing list: [fgdpmwg4@lists.itu.int](mailto:fgdpmwg4@lists.itu.int)

**WG5 — Data Economy, commercialization, and monetization**

Chairman WG5: Mr Okan Geray, Mr Abdulhadi AbouAlmal

mailing list: [fgdpmwg5@lists.itu.int](mailto:fgdpmwg5@lists.itu.int)

**Ad-hoc team “Global picture of DPM capabilities”**

Convener: Mr. Marco Carugi

Mailing list: [fgdpm@itu.int](mailto:fgdpm@itu.int)

# Document storage area and mailing lists

Initially, FG-DPM established FTP area as a main document storage area. However, following discussion in October 2017, FG-DPM migrated from FTP document storage area to the [FG-DPM SharePoint collaboration site](https://extranet.itu.int/sites/itu-t/focusgroups/dpm). It was noted that the informal FTP area will no longer be used.

Also, in order to increase collaboration, TSB created FG-DPM mailing list [fgdpm@lists.itu.int](mailto:fgdpm@lists.itu.int) and WGs mailing lists as highlighted above.

# Meetings

# FG-DPM physical meetings

Table 1 provides an overview and statistics of the seven face-to-face meetings held since establishment of the Focus Group. Remote participation facilities were available for all face-to-face meetings.

Additional information, including the number of input contributions considered at the meetings and the list of participants of each meeting are highlighted in the Table 1. It also contains the hyperlinks to the meeting reports which summarize detail discussion results and decisions taken at the face-to-face meetings.

Table 1. Overview of FG-DPM meetings

|  |  |  |  |
| --- | --- | --- | --- |
| **Meeting** | **Geneva 17-19 July 2017** | **Geneva 20-25 October 2017** | **Brussels 20-23 February 2018** |
| **Input docs** | [60](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Input/Forms/170717.aspx) | [45](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Input/Forms/171025.aspx) | [39](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Input/Forms/180220.aspx) |
| **Output docs** | [13](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/Forms/1st%20Meeting.aspx) | [23](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/Forms/2nd%20Meeting.aspx#InplviewHash318cc4b4-6acb-424d-8a54-73e70bf9f69c=SortField%3DLinkFilenameNoMenu-SortDir%3DDesc) | [23](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/Forms/3rd%20Meeting.aspx#InplviewHashc7f01a44-948f-4b42-ab49-241926d21b97=SortField%3DLinkFilenameNoMenu-SortDir%3DDesc) |
| **Meeting report** | [FG-DPM-O-012](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/_layouts/15/WopiFrame.aspx?sourcedoc=/sites/itu-t/focusgroups/dpm/Output/DPM-O-012.docx&action=default) | [FG-DPM-O-034R1](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/_layouts/15/WopiFrame.aspx?sourcedoc=/sites/itu-t/focusgroups/dpm/Output/DPM-O-034R1.docx&action=default) | [FG-DPM-O-042](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-042.docx) |
| **Remote participants** | 31 | 11 | 13 |
| **Total participants** | [101](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-013.zip) | [40](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-036.zip) | [40](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-063.zip) |

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| --- | --- | --- | --- |
| **Meeting** | **Cairo 1-3 May 2018** | **Tunis 17-20 September 2018** | **Seoul 14-18 January 2019** |
| **Input docs** | [25](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Input/Forms/180501.aspx) | [37](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Input/Forms/180917.aspx) | [35](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Input/Forms/190114.aspx) |
| **Output docs** | [22](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/Forms/4th%20meeting.aspx) | [24](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/Forms/5th%20Meeting.aspx) | [26](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/Forms/190114.aspx?InitialTabId=Ribbon%2EDocument&VisibilityContext=WSSTabPersistence) |
| **Meeting report** | [FG-DPM-O-085](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-085.docx) | [FG-DPM-O-110R1](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-110R1.docx) | [FG-DPM-O-136](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-136.docx) |
| **Remote participants** | 20 | 10 | 11 |
| **Total participants** | [42](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-086.zip) | [38](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-112.zip) | [40](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-138.zip) |

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| **Meeting** | **Geneva 3-7 April 2019** | **Geneva, 15-19 July 2019** |
| **Input docs** | [34](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Input/Forms/AllItems.aspx?View=%7b69E6603D-6026-42EC-8087-16A36DCEFF68%7d&FilterField1=Meeting&FilterValue1=Geneva%2C%203-7%20April%202019) | [28](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Input/Forms/AllItems.aspx?View=%7b69E6603D-6026-42EC-8087-16A36DCEFF68%7d&FilterField1=Meeting&FilterValue1=Geneva%2C%2015%2D19%20July%202019) |
| **Output docs** | [29](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/Forms/AllItems.aspx?View=%7b6A028BFC-030B-4AE9-92EE-417A79FF1A1B%7d&InitialTabId=Ribbon%2ERead&VisibilityContext=WSSTabPersistence&FilterField1=Meeting&FilterValue1=Geneva%2C%203-7%20April%202019)  Note: 4 deliverables agreed and forwarded to ITU-T SG20 | [23](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/Forms/AllItems.aspx?View=%7b6A028BFC-030B-4AE9-92EE-417A79FF1A1B%7d&FilterField1=Meeting&FilterValue1=Geneva%2C%2015%2D19%20July%202019), including 11 agreed deliverables and forwarded to ITU-T SG20 |
| **Meeting report** | [FG-DPM-O-165](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-165.docx) | [FG-DPM-O-187-R1](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-187R1.docx) |
| **Remote participants** | 13 | 7 |
| **Total participants** | [31](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-166.zip) | [34](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-190.zip) |

The Focus Group expresses its gratitude to the hosts of the meetings for their hospitality and generous support.

# Interim e-meetings of Working Groups

73 electronic WGs meetings were held allowing the working groups to progress the deliverables in-between the face-to-face meetings.

All details of the interim e-meetings of WGs discussion are highlighted in the SharePoint at: <https://extranet.itu.int/sites/itu-t/focusgroups/dpm/wg/SitePages/Home.aspx>.

# Workshops

FG-DPM organizedfirst [ITU Workshop](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180219/Pages/default.aspx) on Data Processing and Management for IoT and Smart Cities & Communities which was kindly co-hosted by the European Commission (Brussels, Belgium) and Open & Agile Smart Cities (OASC). It took place at the European Commission (Avenue de Beaulieu 25, 1160 Auderghem, Brussels, Belgium) on 19 February 2018. The goal of the event was to provide an overview of the state-of-the-art as well as convergence within data processing and management to support IoT and Smart Cities & Communities, bringing global contributors together. The outcomes of the event are available in [FG-DPM-I-143](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Input/DPM-I-143.zip).

FG-DPM organizedsecond [ITU Workshop](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180917/Pages/default.aspx) on Data Processing and Management for IoT and Smart Cities & Communities which was kindly hosted by the Ministry of Communication Technologies and Digital Economy of Tunisia. It took place at the Ramada Plaza Gammarth (Tunis, Tunisia) on 17 September 2018. The objectives of the workshop were to highlight the latest deliverables of the FG-DPM and provide an overview of activities of other stakeholders including SMEs on data processing and management to support IoT and Smart Cities & Communities. The workshop included a Roundtable aiming to discuss the engagement of different stakeholders in the activities of the FG-DPM. The outcomes of the event are available in [FG-DPM-I-205](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Input/DPM-I-205.zip).

FG-DPM organizedthird [ITU Workshop](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180917/Pages/default.aspx) on Data Processing and Management for IoT and Smart Cities & Communities which was kindly hosted by the he National Radio Research Agency of Korea (RRA). It took place at the TTA Grand Conference Room (9th floor) in Bundang, Seoul, Korea (Rep. of) on 14 January 2019. The objectives of the workshop were to highlight the latest deliverables of the FG-DPM and provide an overview of activities of other stakeholders including SMEs on data processing and management to support IoT and Smart Cities & Communities.

FG-DPM organizedfourth [ITU Workshop](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20190719/Pages/default.aspx) on Data Processing and Management for IoT and Smart Cities & Communities which took place back-to-back with the FG-DPM meeting (19 July 2019). The key findings and high-level overview of the achieved deliverables were highlighted at the Workshop.

# Subject Matter Expert Interviews

WG5 Chairman of the FG DPM has conducted subject matter expert interviews with individuals who are specialized in their respective fields and their views and opinions provide expert inputs to the pertinent Working Groups. All interviews are available on the SharePoint.

# Documentation

## SharePoint

The SharePoint collaboration site at <https://extranet.itu.int/sites/itu-t/focusgroups/dpm/SitePages/Home.aspx> is used as document repository and for organizational purposes (calendar, meeting information, etc.). The site is open to ITU TIES and Guest users.

The site has an area for ‘official’ meeting documents (input and output documents of the face-to-face meetings) administered by the TSB, and a participant-administered workspace containing the documentation of the electronic meetings of WGs.

## Mailing list

The Focus Group makes extensive use of its open mailing lists (messages are archived at <https://www.itu.int/ml/lists/arc/fgdpm>). About 991 emails were sent between 19 July 2017 and 15 July 2019, reaching 732 subscribers.

## Deliverables

The Focus Group developed Working groups structure and updated list of deliverables. It is updated at every particular physical meeting of the Focus Group. The final list of deliverables agreed by FG-DPM is available in [FG-DPM-O-188](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-188.docx).

# Relationships

The Focus Group worked in close cooperation with related standards developing organizations, industry forums and consortia, research and development communities. The List of focal points of external entities for FG-DPM liaison statements is available in [FG-DPM-O-107](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-107.docx?d=w6a55221a3e88495bb3cfabe5d6838833).

# Conclusions

The FG-DPM completed all ongoing work items and finally agreed all of them at the final closing plenary (19 July 2019).

The FG-DPM concluded on 19 July 2019 at 13:30 Geneva time. The FG-DPM web page as well as all information will stay available.

All interested parties are invited to utilize the outcomes of the FG-DPM in their related activities. Finally, it was highlighted that all further requests on the FG-DPM deliverables, if any, need to be forwarded to the parent ITU-T SG20.

**Final list of FG-DPM deliverables, July 2019 (**[**FG-DPM-O-188-R1**](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-188R1.docx)**)**

| **WG** | **Deliverables** | **Champion** | **Editors** | **Title of output document** | **Output Document** |
| --- | --- | --- | --- | --- | --- |
| **1** | **D0.1**  **Vocabulary** | * **Xiaomi An** (RUC, [anxiaomi@ruc.edu.cn](mailto:anxiaomi@ruc.edu.cn)) | * Xiaomi An (RUC, [anxiaomi@ruc.edu.cn](mailto:anxiaomi@ruc.edu.cn)) * Wei Wei (RUC, [w37952385@vip.qq.com](mailto:w37952385@vip.qq.com)) * Marco Carugi (Huawei, [marco.carugi@gmail.com](mailto:marco.carugi@gmail.com)) * Martin Brynskov (OASC, [martin.brynskov@oascities.org](mailto:martin.brynskov@oascities.org)) * Hakima Chaouchi (Telecom SudParis, [hakima.chaouchii@gmail.com](mailto:hakima.chaouchii@gmail.com)) * Okan Geray(Smart Dubai, [Okan.Geray@smartdubai.ae](mailto:Okan.Geray@smartdubai.ae)) * Liangliang Zhang (Huawei, [liangliang.zhang@hisilicon.com](mailto:liangliang.zhang@hisilicon.com)) * Robert Lewis-Lettington (UN-HABITAT, [Robert.Lewis-Lettington@unhabitat.org](mailto:Robert.Lewis-Lettington@unhabitat.org)) * Nathalie Feingold (NPBA, [nathalie.feingold@npba.ch](mailto:nathalie.feingold@npba.ch)) * Tetsuya Yokotani (KIT, [yokotani@neptune.kanazawa-it.ac.jp](mailto:yokotani@neptune.kanazawa-it.ac.jp)) * Xiaoshuang Jia (RUC, [jiaxs1219@sina.com](mailto:jiaxs1219@sina.com)) | Technical Specification “Data Processing and Management for IoT and Smart Cities and Communities: Vocabulary” | [FG-DPM-O-172](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-172R2.zip)-R2 |
| **D0.2**  **Methodology for building DPM concept systems and the taxonomy** | * **Xiaomi An** (RUC, [anxiaomi@ruc.edu.cn](mailto:anxiaomi@ruc.edu.cn)) | * Xiaomi An (RUC, [anxiaomi@ruc.edu.cn](mailto:anxiaomi@ruc.edu.cn)) * Wei Wei (RUC, [w37952385@vip.qq.com](mailto:w37952385@vip.qq.com)) * Martin Brynskov (OASC, [martin.brynskov@oascities.org](mailto:martin.brynskov@oascities.org)) * Marco Carugi (Huawei, [marco.carugi@gmail.com](mailto:marco.carugi@gmail.com)) * Xiaoshuang Jia (RUC, [jiaxs1219@sina.com](mailto:jiaxs1219@sina.com)) | Technical Report “Data Processing and management for IoT and smart cities and communities: methodology for data processing and management concept building” | [FG-DPM-O-173](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-173R1.zip)-R1 |
| **D1.1**  **General Requirements for DPM and Use Cases** | * **Marco Carugi** (Huawei, [marco.carugi@gmail.com](mailto:marco.carugi@gmail.com)) | * Xiaomi An (RUC, [anxiaomi@ruc.edu.cn](mailto:anxiaomi@ruc.edu.cn)) * Marco Carugi (Huawei, [marco.carugi@gmail.com](mailto:marco.carugi@gmail.com)) * Wei Wei (RUC, [w37952385@vip.qq.com](mailto:w37952385@vip.qq.com) * Tetsuya Yokotani (KIT, [yokotani@neptune.kanazawa-it.ac.jp](mailto:yokotani@neptune.kanazawa-it.ac.jp) * Martin Brynskov (OASC, [martin.brynskov@oascities.org](mailto:martin.brynskov@oascities.org)) | Technical Specification “Use case analysis and requirements for data processing and management to support IoT and smart cities and communities” | [FG-DPM-O-174-R1](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-174R1.zip) |
| 2 | **D2.1**  **DPM Framework for Data-driven IoT and SC&C** | * **Hakima Chaouchi** (Telecom SudParis, [hakima.chaouchii@gmail.com](mailto:hakima.chaouchii@gmail.com)) | * Hakima Chaouchi(Telecom SudParis, [hakima.chaouchii@gmail.com](mailto:hakima.chaouchii@gmail.com)) * Okan Geray (Smart Dubai, [okan.geray@smartdubai.ae](mailto:okan.geray@smartdubai.ae)) * Xiaomi An (RUC, [anxiaomi@ruc.edu.cn](mailto:anxiaomi@ruc.edu.cn)) * Nathalie Feingold (NPBA, [nathalie.feingold@npba.ch](mailto:nathalie.feingold@npba.ch)) * Wei Wei (RUC, [w37952385@vip.qq.com](mailto:w37952385@vip.qq.com)) | Technical Specification “Data processing and management framework for IoT and smart Cities and communities" | [FG-DPM-O-175](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-175R3.zip)-R3 |
| **D2.3**  **Data Modeling and Formats Specification for DPM** | * **Nakyoung Kim** (KAIST, [nkim71@kaist.ac.kr](mailto:nkim71@kaist.ac.kr)) | * Nakyoung Kim (KAIST, [nkim71@kaist.ac.kr](mailto:nkim71@kaist.ac.kr)) * Hyeontaek Oh (KAIST, [hyeontaek@kaist.ac.kr](mailto:hyeontaek@kaist.ac.kr)) * Jun Kyun Choi (KAIST, [jkchoi59@kaist.edu](mailto:jkchoi59@kaist.edu)) | Technical Report on “Web based data model for IoT and smart city” | [FG-DPM-O-176](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-176.docx) |
| **3** | **D3.2**  **Techincal Enablers for Open Data Platform** | * **Steve Liang** (OGC, [liangs@ucalgary.ca](mailto:liangs@ucalgary.ca)) | * Steve Liang (OGC, [liangs@ucalgary.ca](mailto:liangs@ucalgary.ca)) * Tania Khalafbeigi0 [tania.khalafbeigi@sensorup.com](mailto:tania.khalafbeigi@sensorup.com) | Technical Specification D3.2: SensorThings API – Sensing | [FG-DPM-O-156](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-156.zip) |
| **D3.3**  **Technical Report on Data Interoperability** | * **Sajjad Ali** (Hankuk University of Foreign Studies, Korea,[saabro@gmail.com](https://imailcn.huawei.com/owa/redir.aspx?C=jmwooxW-HNbKKQ1YI609o3bULZ8nOxgNos241L4Y1MEEI0ecOrDVCA..&URL=mailto%3asaabro%40gmail.com)**)** | * Sajjad Ali (Hankuk University of Foreign Studies, Korea,[saabro@gmail.com](https://imailcn.huawei.com/owa/redir.aspx?C=jmwooxW-HNbKKQ1YI609o3bULZ8nOxgNos241L4Y1MEEI0ecOrDVCA..&URL=mailto%3asaabro%40gmail.com)**)** * Ilyoung Chong (Hankuk Univeristy of Foreign Studies, Korea, [iychong@hufs.ac.kr](mailto:iychong@hufs.ac.kr)) * Muhammad Golam Kibiria (Hankuk Univeristy of Foreign Studies, Korea, [kibria@hufs.ac.kr](mailto:kibria@hufs.ac.kr)) | Technical Specification D3.3: Framework to support data interoperability in IoT environments | [FG-DPM-O-157](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-157.zip) |
| **D3.5**  **Overview of IoT and Blockchain** | * **Xiongwei Jia** (China Unicom, [jiaxw9@chinaunicom.cn](mailto:jiaxw9@chinaunicom.cn)) | * Xiongwei Jia (China Unicom, [jiaxw9@chinaunicom.cn](mailto:jiaxw9@chinaunicom.cn)) * Zheng Huang (ZTE, [huang.zheng2@zte.com.cn](mailto:huang.zheng2@zte.com.cn)) | Technical Report D3.5: Overview of blockchain for supporting IoT and SC&C in DPM aspects | [FG-DPM-O-151](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-151.zip) |
| **D3.6**  **Bockchain-based Data Exchange and Sharing Technology** | * **Liangliang Zhang** (Huawei, [liangliang.zhang@hisilicon.com](mailto:liangliang.zhang@hisilicon.com)) | * Liangliang Zhang (Huawei, [liangliang.zhang@huawei.com](mailto:liangliang.zhang@huawei.com)) * Xiongwei Jia (Chinaunicom, * [jiaxw9@chinaunicom.cn](mailto:jiaxw9@chinaunicom.cn) ) * Hui Ding (Chaincomp [hui.ding@chaincomp.net](mailto:hui.ding@chaincomp.net)) * Yuan Tao (Computer Network Information Center, Chinese Academy of Sciences, [taoyuan@cnicg.cn](mailto:taoyuan@cnicg.cn)) | Technical Specification “Blockchain-based data exchange and sharing for supporting IoT and SC&C” | [FG-DPM-O-177](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-177.zip) |
| **D3.7**  **Using blockchain to improve data management** | * **Zheng Huang** (ZTE, [huang.zheng2@zte.com.cn](mailto:huang.zheng2@zte.com.cn)) | * Zheng Huang (ZTE, [huang.zheng2@zte.com.cn](mailto:huang.zheng2@zte.com.cn)) * Xiongwei Jia (China Unicom, [jiaxw9@chinaunicom.cn](mailto:jiaxw9@chinaunicom.cn)) * Subin Shen China (NUPT, [sbshen@njupt.edu.cn](mailto:sbshen@njupt.edu.cn)) * Xiaochun Yi (Ziggurat, [yixiaochun@zhigui.com](mailto:yixiaochun@zhigui.com)) | Technical Specification D3.7: Blockchain-based data management for supporting IoT and SC&C | [FG-DPM-O-15](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-152.zip)2 |
| **D3.8**  **Identity framework in blockchain to support DPM for IoT and SC&C** | * **HU Ning (** Onchain [hehehu@gmail.com](mailto:hehehu@gmail.com)) | * HU Ning **(** Onchain [hehehu@gmail.com](mailto:hehehu@gmail.com)) | Technical Specification “Identity framework in blockchain to support DPM for IoT and SC&C” | [FG-DPM-O-178](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-178.zip) |
| **4** | **D4.1**  **Framework of Security and Privacy in DPM** | * **Robert Lewis-Lettington** (UN-HABITAT, [Robert.Lewis-Lettington@un.org](mailto:Robert.Lewis-Lettington@un.org)) | * Robert Lewis-Lettington (UN-HABITAT, [Robert.Lewis-Lettington@un.org](mailto:Robert.Lewis-Lettington@un.org)) * Pasquale Annicchino (Archimede Solutions, [pannicchino@mandint.org](mailto:pannicchino@mandint.org)) * Nathalie Feingold (NPBA, [nathalie.feingold@npba.ch](mailto:nathalie.feingold@npba.ch)) * Antonio Kung(TRIALOG SA [antonio.kung@trialog.com](mailto:antonio.kung@trialog.com)) * Xiaomi An (RUC, [anxiaomi@ruc.edu.cn](mailto:anxiaomi@ruc.edu.cn)) | Technical Report “Framework for security, privacy, risk and governance in data processing and management” | [FG-DPM-O-170-R1](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-170R1.zip) |
| **D4.3**  **Requirements and Concerns about Technical Enablers for Trusted Data** | * **Xiaomi An** (RUC, [anxiaomi@ruc.edu.cn](mailto:anxiaomi@ruc.edu.cn)) | * Xiaomi An(RUC, [anxiaomi@ruc.edu.cn](mailto:anxiaomi@ruc.edu.cn)) * Xiaoshuang Jia (RUC, [jiaxs1219@sina.com](mailto:jiaxs1219@sina.com)) * Ilyoung Chong   (Hankuk Univeristy of Foreign Studies, Korea, [iychong@hufs.ac.kr](mailto:iychong@hufs.ac.kr))   * Nathalie Feingold (NPBA, [nathalie.feingold@npba.ch](mailto:nathalie.feingold@npba.ch)) * Robert Lewis-Lettington (UN-HABITAT, [Robert.Lewis-Lettington@un.org](mailto:Robert.Lewis-Lettington@un.org)) * Wei Wei (RUC, [w37952385@vip.qq.com](mailto:w37952385@vip.qq.com)) | Technical Report “Overview of technical enablers for trusted data” | [FG-DPM-O-168](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-168R2.zip)-R2 |
| **D4.4**  **Data Quality Management for Trusted Data** | * **Ilyoung Chong** (Hankuk Univeristy of Foreign Studies, Korea, [iychong@hufs.ac.kr](mailto:iychong@hufs.ac.kr)) | * Ilyoung Chong(Hankuk Univeristy of Foreign Studies, Korea, [iychong@hufs.ac.kr](mailto:iychong@hufs.ac.kr)) * Muhammad Aslam Jarwar (Hankuk Univeristy of Foreign Studies, Korea, [aslam.jarwar@hufs.ac.kr](mailto:aslam.jarwar@hufs.ac.kr)) * Nathalie Feingold (NPBA, [nathalie.feingold@npba.ch](mailto:nathalie.feingold@npba.ch)) * Xiaomi An (RUC, [anxiaomi@ruc.edu.cn](mailto:anxiaomi@ruc.edu.cn)) | Technical Report “Framework to support data quality management in IoT” | [FG-DPM-O-171-R1](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-171R1.zip) |
| **5** | **D5.1**  **Modeling of Data Economy for value creation and Stakeholders identification** | * **Okan Geray** (Smart Dubai, [Okan.Geray@smartdubai.ae](mailto:Okan.Geray@smartdubai.ae)) | * Okan Geray(Smart Dubai, [Okan.Geray@smartdubai.ae](mailto:Okan.Geray@smartdubai.ae)) | Technical Specification “Data economy: commercialization, ecosystem and impact assessment” | [FG-DPM-O-169](https://extranet.itu.int/sites/itu-t/focusgroups/dpm/Output/DPM-O-169.docx) |
| **D5.2**  **Business models, commercialization and monetization to support data economy** |
| **D5.3**  **Data economy impact assessment, policy and sustainability implications** |
| **D5.4**  **Data economy regulatory framework** |

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