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PDL for Federated Data Management

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# Foreword

This Group Report (GR) has been produced by ETSI Industry Specification Group Permissioned Distributed Ledger (PDL).

# Modal verbs terminology

In the present document "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

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# Executive summary

One paragraph each on:

* General definition of federated data management.
* Why PDL technology is needed to supporting federated data management.
* Major scope and technical contents in this spec (e.g. key issues and corresponding proposed solutions)
* Summary on high level findings and recommendation

# Introduction

Several paragraphs each on:

* Brief intro of federated data management.
* General role/importance of ledgers / PDL for federated data management.
* What are the key issues to be addressed
* The organization and the structure of this document

# Scope

This document will describe use case scenarios, functional architecture, key functional components mechanisms of leveraging PDL for federated data management (e.g., PDL for federated learning, the integration of PDL and the whole data pipeline).

#  References

## 2.1 Normative references

Normative references are not applicable in the present document.

## 2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non‑specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ETSI GR PDL001 V1.1.1/(2020-03): "Permissioned Distributed Ledger (PDL); Landscape of Standards and Technologies".

[i.2] European Commission CORDIS: "CORDIS: Projects and Results".

NOTE 1: Available at https://cordis.europa.eu/projects/en

[i.3] ETSI Research and Standards Website /(2020-06-15): "Research and Standards".

NOTE 1: Available at https://www.etsi.org/research

[i.4]

#  Definition of terms, symbols and abbreviations

## 3.1 Terms

For the purposes of the present document, the [following] terms [given in ... and the following] apply:

**Federated Data Management**

**Federated Data Sharing**

**Federated Learning**

**Multi-Party Computation**

## 3.2 Symbols

For the purposes of the present document, the [following] symbols [given in ... and the following] apply:

## 3.3 Abbreviations

For the purposes of the present document, the [following] abbreviations [given in ... and the following] apply:

AI Artificial Intelligence

DLT Distributed Ledger Technology

ETSI European Telecommunications Standards Institute

EU European Union

FDM Federated Data Management

FL Federated Learning

H2020 Horizon 2020

ICT Information and Communication Technology

IoT Internet of Things

IP Intellectual Property

MPC Multi-Party Computation

PDL Permissioned Distributed Ledger

# Use Cases

Note: To describe federated data management use cases, which can be benefited from PDL

## 4.1 Federated Data Sharing

## 4.2 Federated Learning

## 4.3 Multi-Party Computation

## 4.4 ……

# Key Issues

Note: To describe key issues of using PDL for federated data management as demonstrated by the use cases described in clause 4.

## 5.1 Key Issue #1: XXXX

## 5.2 Key Issue #2: XXXX

## 5.3 ……

# Architecture for PDL-based Federated Data Management

Note: To describe architecture and functional element for PDL-based federated data management.

## 6.1 General

## 6.2 Architecture

## 6.3 Functional Elements

# Key Solutions

Note: To describe solutions, corresponding to the key issues of using PDL for federated data management as described in clause 4.

## 7.1 Key Solution #1: XXXX

## 7.2 Key Solution #2: XXXX

## 7.3 …

# Conclusions

# Annex A: Title of annex

# Annex B: Title of annex

## B.1 First clause of the annex

### B.1.1 First subdivided clause of the annex

Annex:
Bibliography

Annex :
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