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**Group Report**

Smart Contracts in Telco Permissioned Distributed Ledgers — System Architecture and Functional Specification

Reference

DGR/PDL-004

Keywords

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# Foreword

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# Modal verbs terminology

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# Executive summary

This present document specifies a high-level functional abstraction of PDL Smart Contract System Architecture. In particular, basic building blocks for designing, coding and testing Smart Contracts for the PDLs. This includes describing how different classes of systems interact with Smart Contracts. Processes, models, and detailed information are beyond the scope of the present document.

# Introduction

The present document defines a high-level functional abstraction of policies to design and code Smart Contract components. Smart Contracts are mere codes, and if not well planned, designed, coded and tested; can leave the system vulnerable to external attacks and internal errors.

# 1 Scope

**Scope of work to be undertaken:** The present document specifies the functional components of Smart Contracts, their planning, coding and testing. This includes:

a) reference architecture of the technology enabling Smart Contracts – the planning, designing and programming frameworks

b) specify how to engage using this architecture – the methods and frameworks the Smart Contracts building blocks possibly communicate

c) point out possible threats and limitations

# 2 References

## 2.1 Normative references

## 2.2 Informative references

# 3 Definition of terms, symbols and abbreviations

## 3.1 Terms

## 3.2 Symbols

## 3.3 Abbreviations

AML: Anti-Money Laundering

API: Application Program Interface

SC: Smart Contract

CEN-CENELEC: European Committee for Standardization and European Committee for Electrotechnical Standardization.

DLT. Distributed Ledger Technology

EBP: European Blockchain Partnership

EBSI: European Blockchain Service Infrastructure.

EC: European Commission

EFTA: European Free Trade Association

eIDAS: Electronic Identification, Authentication and Trust Services.

EIRA: European Interoperability Reference Architecture

ESSIF: European Self Sovereign Identity Framework

ETSI: European Telecommunication Standards Institute

EU. European Union

FIG: International Federation of Surveyors

GDPR: General Data Protection Regulation

ICO: Initial Coin Offering

ICT: Information and Communications Technology

ISO: International Standards Organization

ITU: International Telecommunication Unit

KYC: Know Your Customer

OECD: Organization for Economic Co-operation and Development

PDL: Permissioned Distributed Ledger.

SG: Study Group.

SLA: Service Level Agreement

SME: Small and Medium Enterprise.

STO: Security Token Offering.

TOOP: The Once-only Principle

TSAG: Telecommunication Standardization Advisory Group.

UN/CEFACT: United Nations Centre for Trade Facilitation and Electronic Business.

UNCITRAL: United Nations Commission on International Trade Law.

UNE: Spanish Association for Standardization.

# 4 Smart Contracts

## 4.1 Definition

## 4.2 Properties

## 4.3 Components

# 5 Smart Contracts – Planning, coding and Testing

## 5.1 Planning phase

## 5.2 Coding Phase

## 5.3 Testing Phase

# 6 Architectural requirements for Smart Contracts

## 6.1 Reference Architecture

## 6.2 Interaction between PDLs

# 7 Smart Contracts – Applications, solutions and Needs

## 7.1 Regulatory Aspects

# 8 Limitations of Smart Contracts

## 8.1 Inter and Intra system threats

## 8.2 Limitations

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WEAVER, William. "Command performances". December 1985, vol. 42, n° 12, p. 126-133). *(style Normal)*

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