PROTOTYPE: DIGITAL DATA MARKETPLACE

Enabling Data Sharing for AI Development

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More details: www.delaat.net/dl4ld
CHALLENGE: SHARING DATA FOR AI DEVELOPMENT

SOLUTION: DIGITAL DATA MARKETPLACE GOVERNED BY A MEMBERSHIP CONSORTIUM

- Data supplied by other organizations
- Own Organization Data
- Historic (Big) Data
- Periodic storage: raw or with enhanced quality

Digital Data Marketplace

Algorithm Developers

Decision Support Systems

Competitive
Domain knowledge

Math and statistics

Computer science

Data science

enabling access and use

Maintenance Organization

Planning, Prediction, Prevention, Effectiveness, Efficiency, etc.

(Near) Real Time Operational Data

Algorithm Choice
DIGITAL DATA MARKETPLACE GOVERNANCE
A FOUR STEP APPROACH:

- **COMMON BENEFIT**
  Define and agree common benefit no single organization can achieve on its own.

- **GROUP RULES**
  Define consortium rules considering data use, access and benefit sharing.

- **ORGANIZE TRUST**
  Organize power and trust as a means to reduce risk for participating members.

- **IMPLEMENT INFRASTRUCTURE**
  Research operationalization of Digital Data Marketplace concepts.

Testbed Equinix/Dell/Nokia/Ciena
MARKETPLACE JOURNEY
IMPLEMENTED IN PROTOTYPE

- Setup
- Member Admission
- Asset Registration
- Trade Agreements
- Governance
- Transactions
- Clearing & Settlement
- Auditing & Security
MEMBERS ALLOW EACH OTHER VISIBILITY

**AI flow Data/Algorithm**

![Image of AI data/algorithm flow](image)

- **Choose Algorithm**
- **Choose DataSet**
- **Execute Training, Model creation, Prediction**
- **Log tracking, execution tracking**

Dec 2018    Mar 2019   Mar 2020
ESSENTIAL INFRASTRUCTURE ARCHETYPES
MANY VARIANTS: FOCUS ON CONSORTIUM DRIVEN APPROACH TO ORGANIZE TRUST

Centralized
Bring data to the algorithm

Distributed
Bring algorithm to the data

Federated
Using trusted infrastructure

Developer
Consortium
Data owners
ESSENTIAL INFRASTRUCTURE ARCHETYPES
PROTOTYPE: CONSORTIUM DRIVING SECURITY & INFRASTRUCTURE ARCHITECTURE

Centralized
Bring data to the algorithm

Distributed
Bring algorithm to the data

Federated
Using trusted infrastructure

Data owners

Developer

Data owners

Developer

Data owners

Developer
DIGITAL DATA MARKETPLACE ARCHITECTURE

RESEARCHING IMPLEMENTATION OF ESSENTIAL ELEMENTS

National Law & Regulations
Market rules
Member admission

Digital Data Marketplace Membership Organization

Agreement
Registry

Data Exchange Infrastructure

Infrastructure Archetype
Centralized Distributed Federated

Data Science Transaction

Global Digital Data Market Infrastructure

Research Testbed

Algorithm Developer

Accounting & Auditing

Data supplier(s)

EQX UvA KLM

SV

ESnet SURF