DESILO

SQL-Based Data Analysis Platform Using Homomorphic Encryption

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Shaping the future of data collaboration

Privacy-Preserving Applications

PET Full-Stack Optimization

Cryptography Libraries

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CAGR

23%

64.1 ZB generated in 2020. New data is being created and collected at an exponential rate

CAGR

30.4%

$ 31.7B data analytics market in 2021. The need for extracting insight from data is exploding

CAGR

4.5%

$ 257.2B data broker market in 2021. Not enough data is being circulated, shared, and consumed

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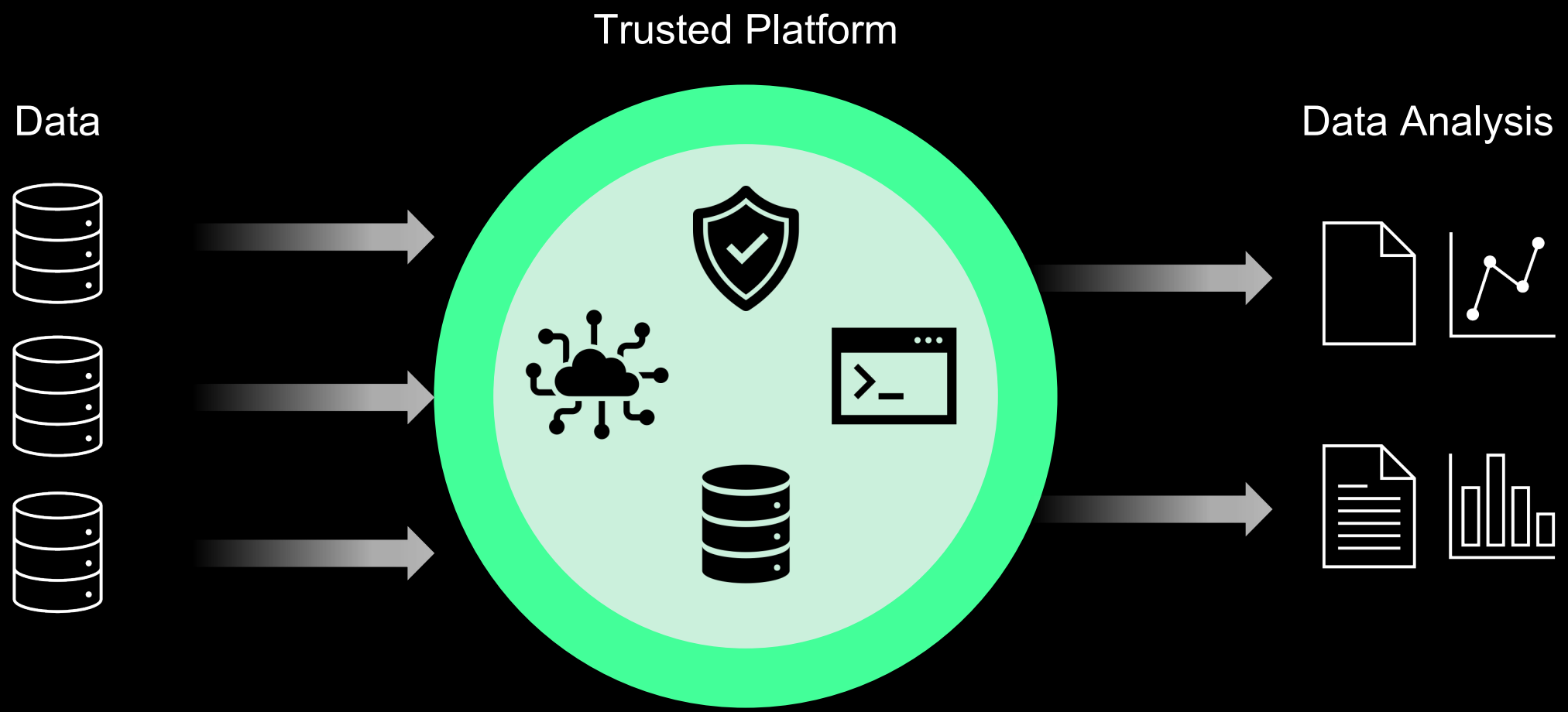
Clinical Data

Medical History

National Health Stats

Cancer Research

Health Policy



Relies on credibility of platform

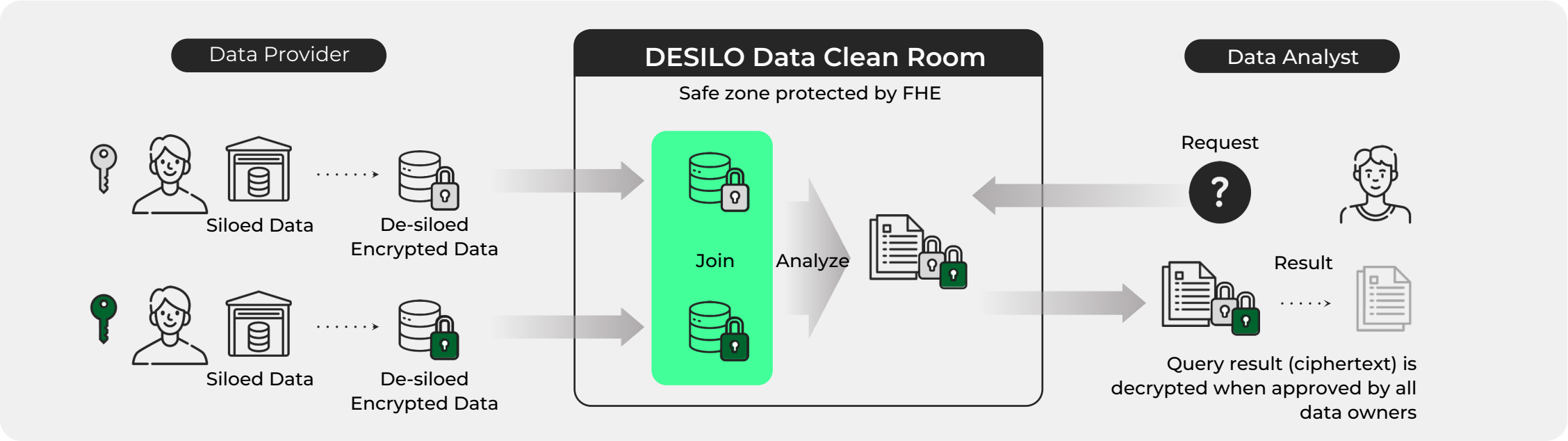
Not scalable for true DaaS or as data exchange

OUR SOLUTION

DESILO

DESILO Data Clean Room

- Built-in protection against data leakages & breaches
- Redefines DaaS, enabling a path towards a secure and open data ecosystem



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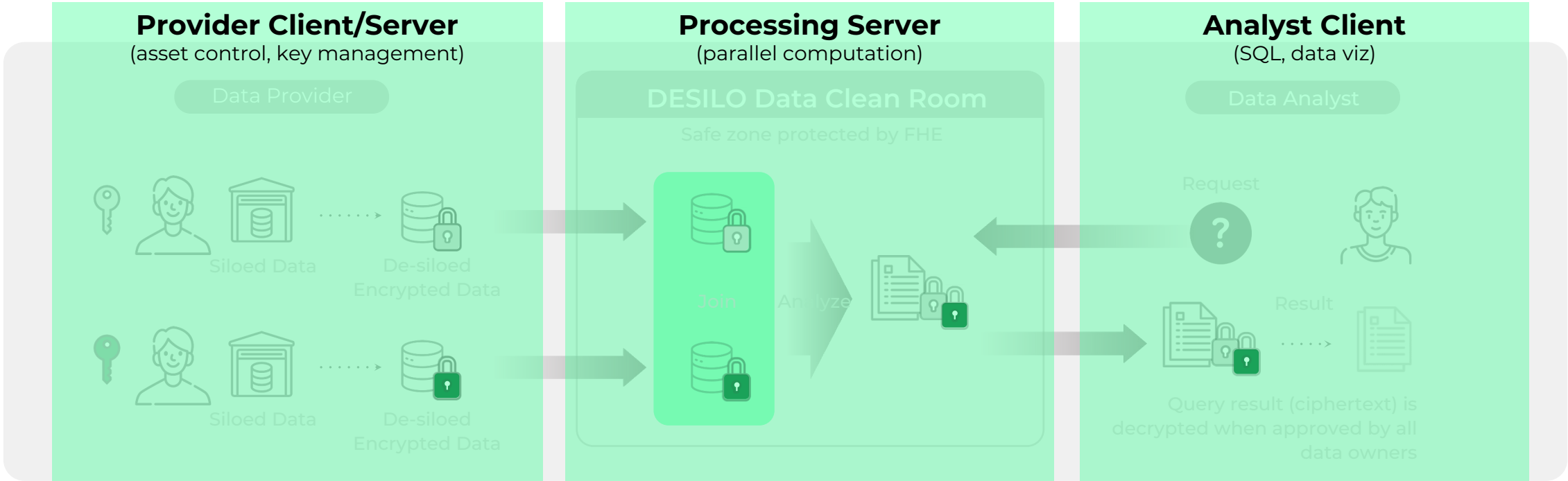


DESILO

Data Providers

- Effortless data asset management
- Rigorous data governance & security
- Data monetization with control

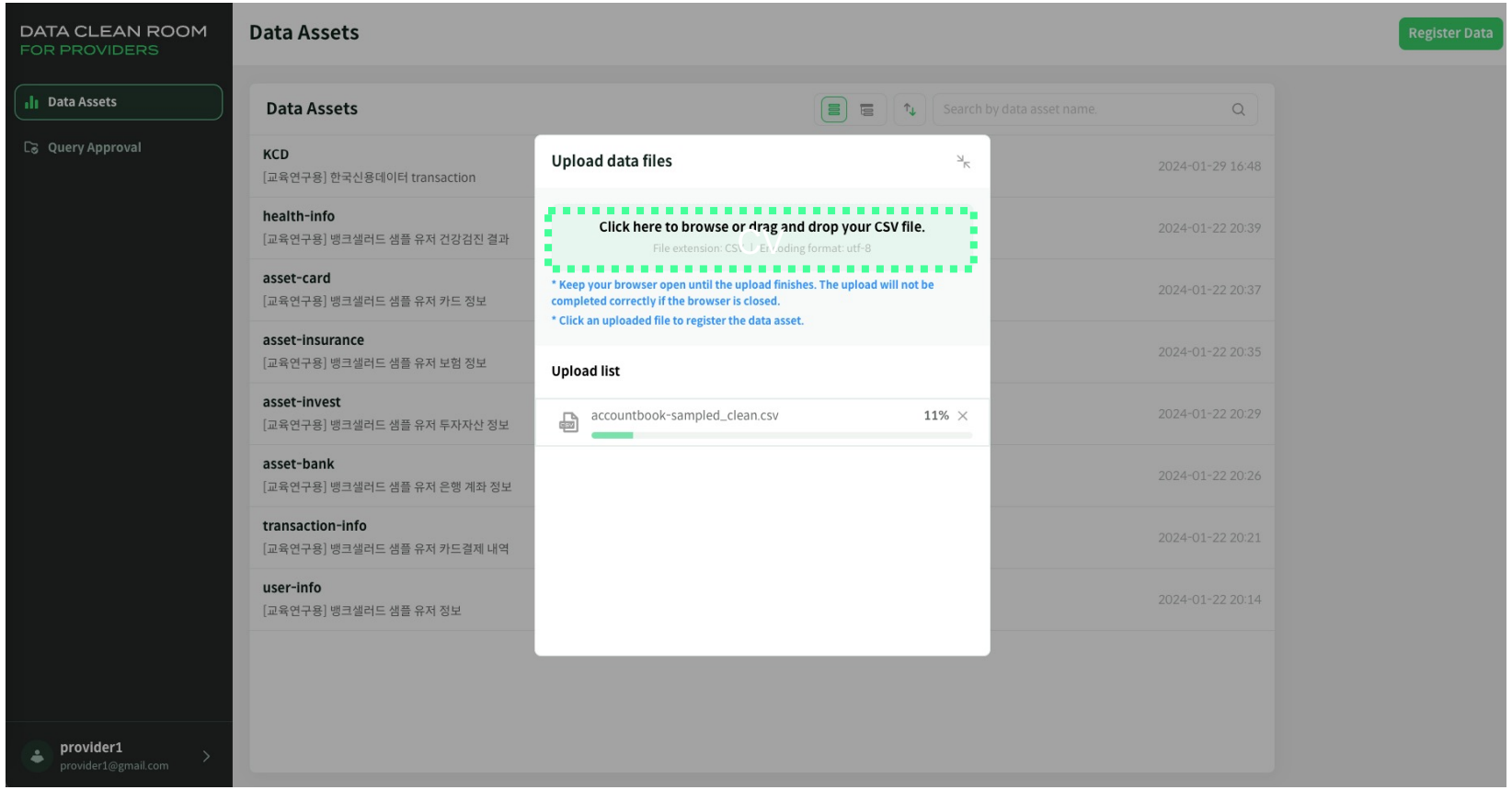
Data Analysts

- Secure by design
- User-friendly SQL queries
- Seamless access to data

DESILO

Data Providers

- Effortless data asset management

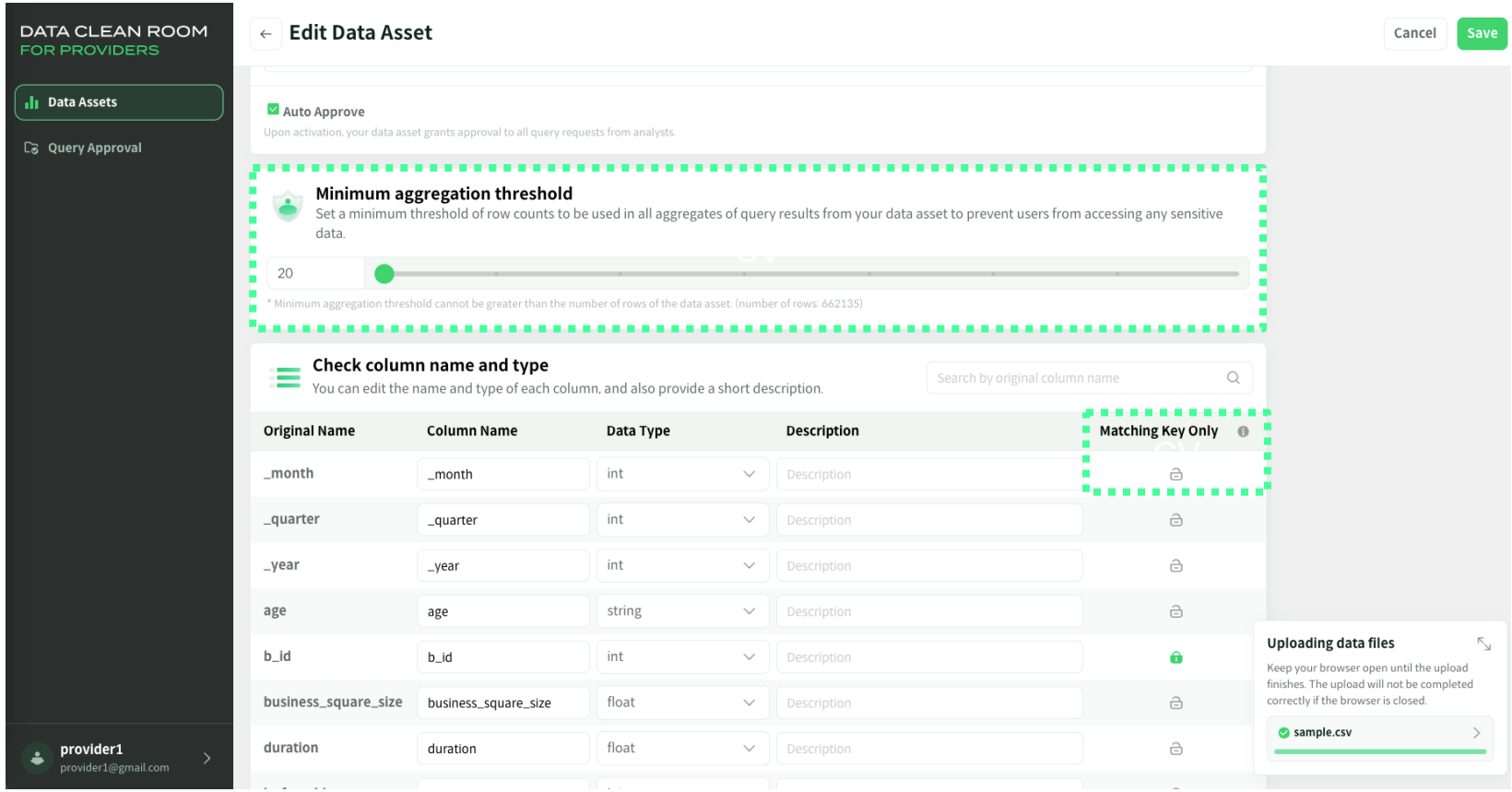


KEY BENEFITS

DESILO

Data Providers

- Rigorous data governance & security



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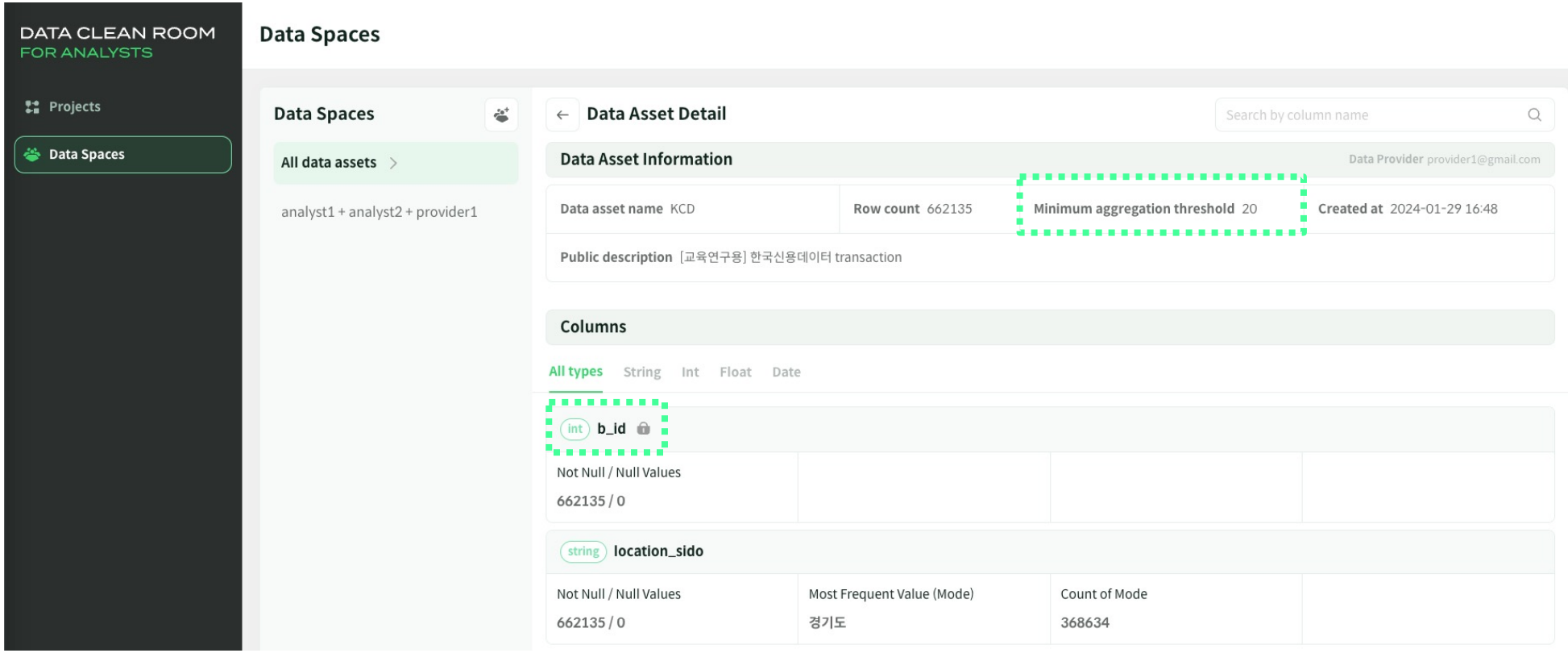

KEY BENEFITS

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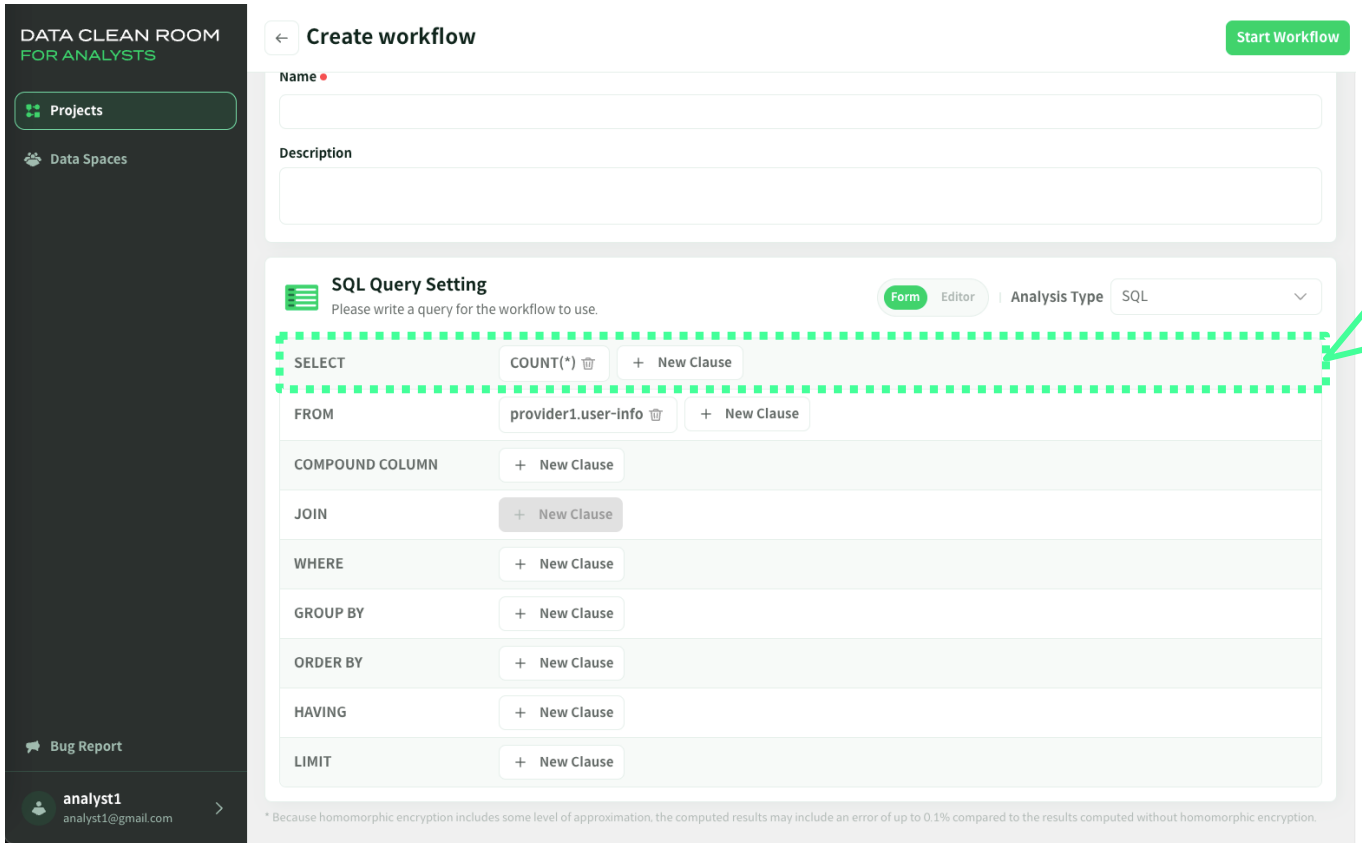

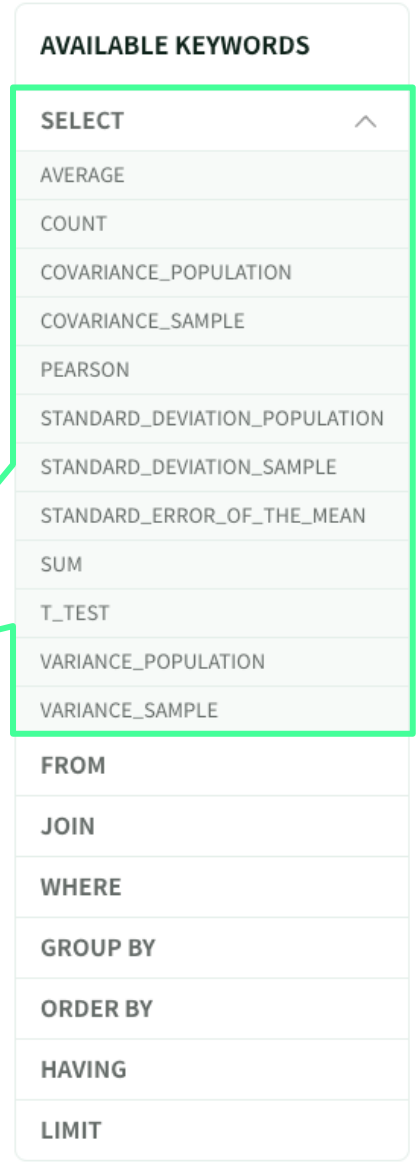

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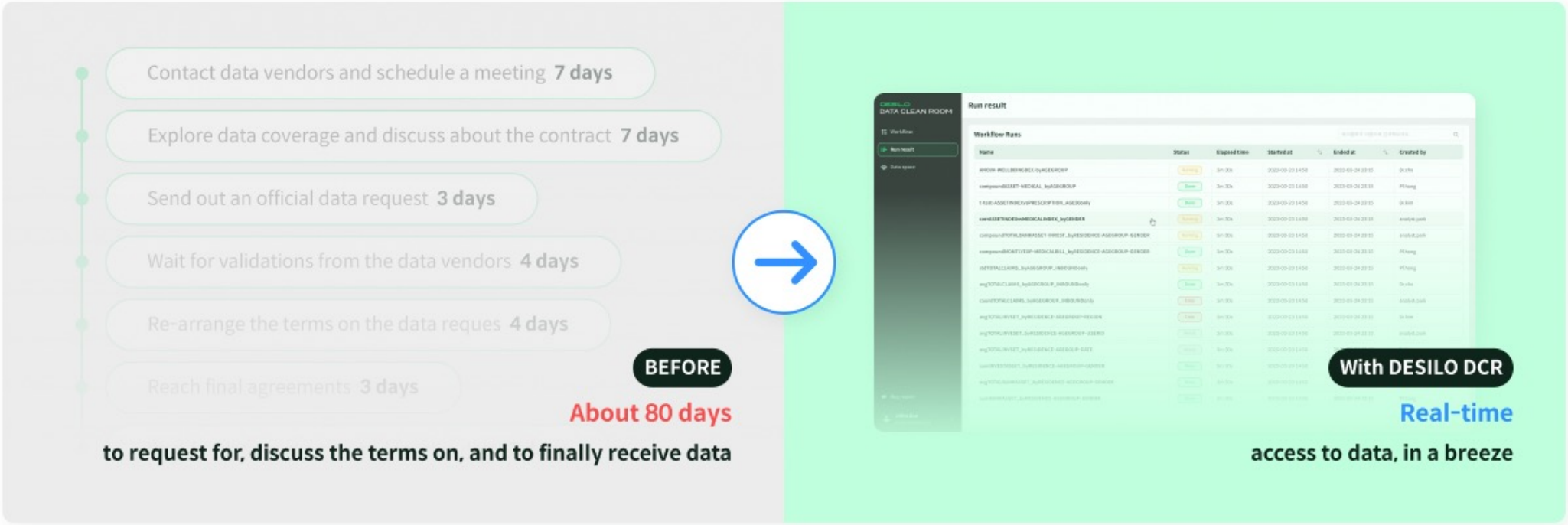

* Above illustrates an exemplary case based on data collaboration processes in general; the actual duration of each stage may vary by case.

Data Representation

- Limit input size
- Normalize data

Performance

- Parallelize computation
- Re-order and distribute operators

Data Governance

- Automate/adopt query alert & approval
- Enforce minimum aggregation threshold

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Liberate.FHE

- Up to 200+ times faster, 3+ times code productivity, near-perfect accuracy (e.g. vs. MS SEAL)
- Native CUDA support, multi-GPU scaling, optimized GPU partitioning, CPU interoperability

```
1 sk_cpu = engine.cpu(sk)
2 sk_cuda = engine.cuda(sk_cpu)
3
4 galk_cpu = engine.cpu(galk)
5 galk_cuda = engine.cuda(galk_cpu)
6
7 ct_cpu = engine.cpu(ct)
8 ct_cuda = engine.cuda(ct_cpu)
9
```

	SEAL				LFHE	
	mult	relin	rescale	total	total	speedup
Silver	11.6	186	28.9	226.5	7.74	29.26
Gold	48.7	1570	133	1751.7	17.7	98.97
Platinum	212	15400	587	16199	73.7	219.80

* **Silver:** logN=15, special primes=2, gpus=1
* **Gold:** logN=16, special primes=4, gpus=2
* **Platinum:** logN=17, special primes=6, gpus=2

* 단위: ms

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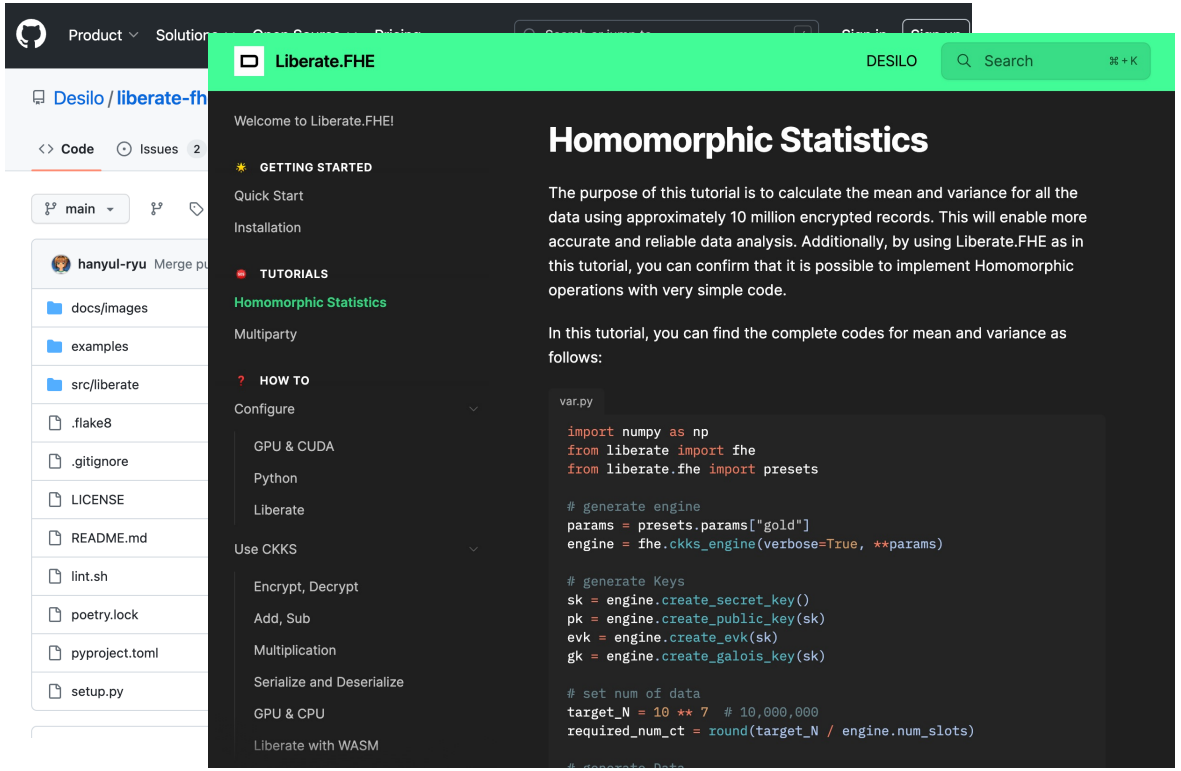
Liberate.FHE

https://github.com/Desilo/liberate-fhe
https://docs.desilo.ai/liberate-fhe



Poster

DESILO

PIPC approved Desilo Data Clean Room as providing adequate protection of personal data.

2024/01/25

개인정보보호위원회

Personal Information Protection Commission

DEMO

2023

Co-hosted data science contest

- Pilot launch with real data
- 144 participants/teams
- Demonstrated reliable service (maximum daily processing capacity exceeds 1000 queries)

과학기술정보통신부
Ministry of Science and ICT

NIA

KCD KOREA CREDIT DATA

2024

Healthcare

국립암센터
NATIONAL CANCER CENTER

개인정보보호위원회
Personal Information Protection Commission

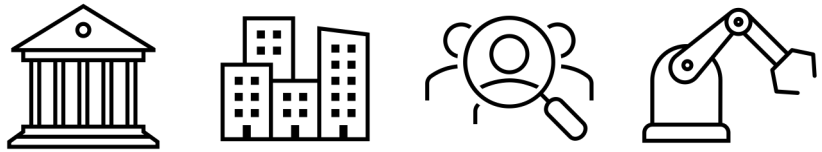
KISA
Korea Internet & Security Agency

Government

통계청
Statistics Korea

IITP
Institute of Information & Communications Technology Planning & Evaluation

Private (Fin/Ads/Mfg)



Closing Remarks

DESILO Data Clean Room is an FHE-based platform
that facilitates secure data flow & collaboration

Continued innovation in computation and data governance
is essential to reach full market potential

DESILO

THANK YOU

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