Comparison of Certified Secure Processing Environments (SPE) – Novel Platforms for Collection, Augmentation, Structuring, Transfer, Management, Analysis, Sharing, Reporting, and Storage of Sensitive Data?

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Objectives

National Supervisory Authority for Welfare and Health in Finland (Valvira) lists regulatorily compliant secure processing environments (SPE) to a public database (TOINI). Stakeholders use the database for many tasks, such as for secondary-use data permits, supervision, and SPE validity checks. Personal, social, and health care data can only be analysed in one of the listed SPE for the purposes specified in the Act on the Secondary Use of Health and Social Data: scientific research, the compilation of statistics, authority tasks of planning and investigation, and teaching material preparation. Here, we compare the listed SPEs.

Methods

Currently certified SPEs were identified from the TOINI-database. In addition, publicly available information in websites of SPEs at the end of June 2022 was used for the comparison. The comparison included:

- website availability
- permitted use
- technology

- data location
- ownership

- additional features on top of extract-transfer-load (ETL)
- analysis processes.

Results

The SPEs (in approval order) and their features are presented in the table below.

SPE	Specific website	Limited to secondary use only	Cloud technology	Private cloud in Finland	Data collection tool	Customisation	Privately owned
HUS Acamedic		X		X			
T3		X		X			
SPESIOR	X		X	X	X	X	X
FG Sandbox							
Kapseli	X	X					
Fiona	X	X					
SD Desktop	X		X	X			
SECDATA			X				

- HUS Acamedic by Helsinki University Hospital
- T3 by Istekki

- SPESIOR by ESIOR Oy
- FG Sandbox by FinnGen project
- Kapseli by Findata

- Fiona by Statistics Finland
- SD Desktop by CSC
- SECDATA by Aalto

Conclusions

SPEs have differences, encouraging novelty and they seem to be aimed for different purposes. The forthcoming European Health Data Space (EHDS) is expected to include a pathway for more efficient international use of SPEs.

Figure. Key features of SPESiOR

Valvira certified Integrated secure CRF-tool Information Security Management • Secure data collection, also commercially valid Data collection Cybersecurity system (ISMS based on ISO 27001) • Customisable, replicable inside • Private Cloud located in Finland • Chart reviews, surveys, pragmatic clinical trials • Service provider: ISO 27001, Katakri (PCTs)... Strong authentication used Multiple tools available Multi-Factor Authentication (MFA) • Images, interfaces Analysis & Trusted R&D environment Access Control • Customisable, replicable modelling platform ensuring safe and secure data • Potential to use commercial statical tools handling and analytics Package import possibility Independent, privately owned Safe and secure storage of data Development potential Options to meet requirements Transfer & Feasible for most stakeholders Independence • Interface for secure and reliable data transfers storage Health care provider involvement not • We are happy to solve challenges necessary Client requirements acknowledged Overcome challenges associated with many data Welcomes all clients and ecosystems collection and analysis methods Standardised Co-operation network Comparison structure & Engagement Co-creation possible Reuse quality • Developing and sustaining public trust Augmentation



