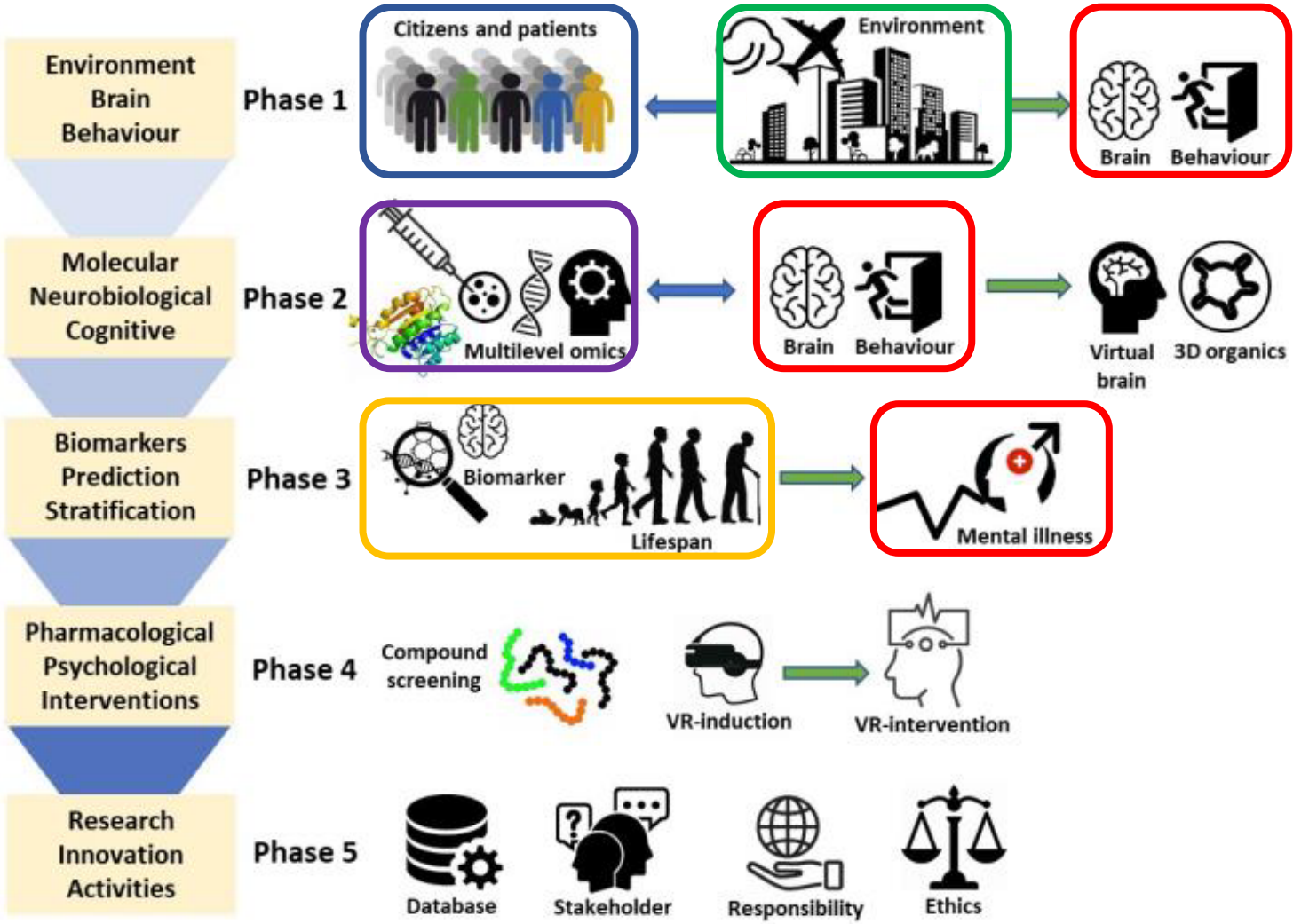
environMENTAL

Data availability and analysis

Seminar 1 - 08/04/22

Dennis van der Meer, UiO

Objective 1 – Identification of adverse environmental signatures, their interaction with genetics and their relationship with brain and behaviour in citizens and patients



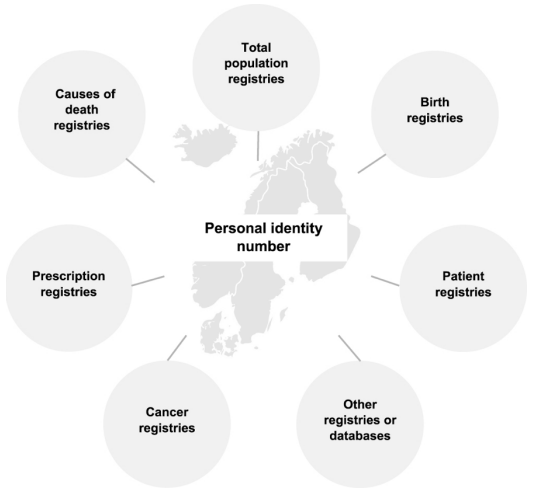
imagen

EU-AIMS
Autism Research in Europe

NeuroIMAGE

biobank uk

NAKO
GESUNDHEITS-
STUDIE



COVIDMENT
Mental morbidity trajectories in COVID-19 across risk populations of five nations

ENIGMA

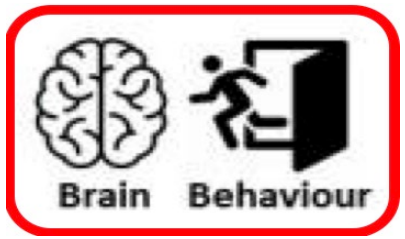
Organisations

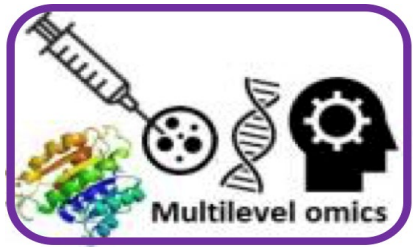
- Charite; FUB; CIMH; UKSH; UP; UBO; LB; FR
- UiO; OUS
- KCL; DMU
- RUMC
- ISTA
- UB; VB
- KL; AMU

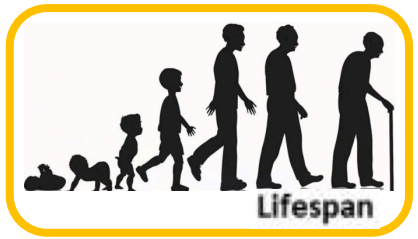
TReNDS
Translational Research in Neuroimaging & Data Science

USC University of Southern California

FUDAN UNIVERSITY 1905

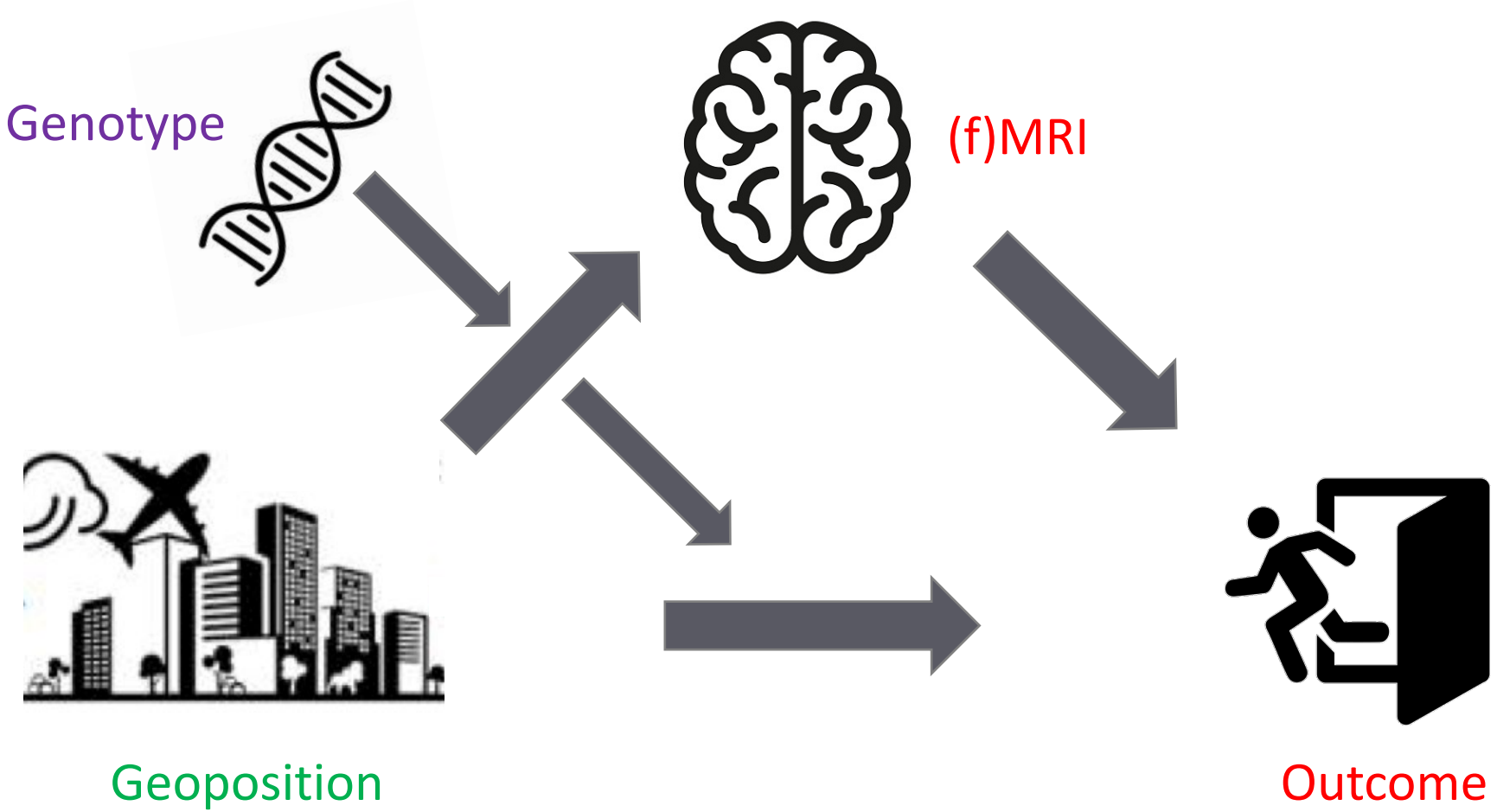






SampleName	Diagnosis	Size (approx)	Geospatial	f(MRI)	Genotypes	Age (years)
Population samples, registries						
Norwegian Biobanks		400.000	+	N=500	+	18-70
COVIDMENT		450.000	+	-	+	18-70
National cohorts						
UK Biobank	SCZ, MDD, bipolar	500.000	+	N=42.000	+	38-73
NAKO		200.000	+	N=30.000	+	20-69
Deep phenotyped population samples						
IMAGEN		2.000	+	N=2.000	+	14-23
MARS		384	+	N=172	+	3mo.-34
PEZ		700	+	N=500	+	18-31
Fudan HC		5.000	+	N=3.000	+	18-20
Deep phenotyped clinical samples						
Stratify/ESTRA	Alcohol, MDD, anxiety	800	+	N=800	+	19-25
AUD cohort	Alcohol	401	+	N=348	+	20-67
NIMH CAT-D	MDD	284	+	N=200	-	18-40
Fudan depression	First-episode depression	1.000	+	N=900	+	18-65
SUPER	MDD	80	+	N=75	+	>18
MooDS/Integrament	MDD, bipolar, SCZ	400	+	N=300	+	20-50
INDICATE	MDD, SCZ	100	+	N=80	+	20-50
Fudan SCZ	SCZ	2.000	+	N=1.800	+	16-40
ESPRIT	SCZ	200	+	N=150	+	20-50
NeuroIMAGE	ADHD	600	+	N=591	+	5-30
EU AIMS	ASD	737	+	N=639	+	6-30
Fudan ASD	ASD/high ASD risk	1.500	+	N=1.300	+	3-18
International consortia						
ENIGMA		50.000	-	N=50.000	+	

Objective 1 – Identification of adverse environmental signatures, their interaction with genetics and their relationship with brain and behaviour in citizens and patients



nature neuroscience

BRIEF COMMUNICATION

https://doi.org/10.1038/s41593-019-0471-7

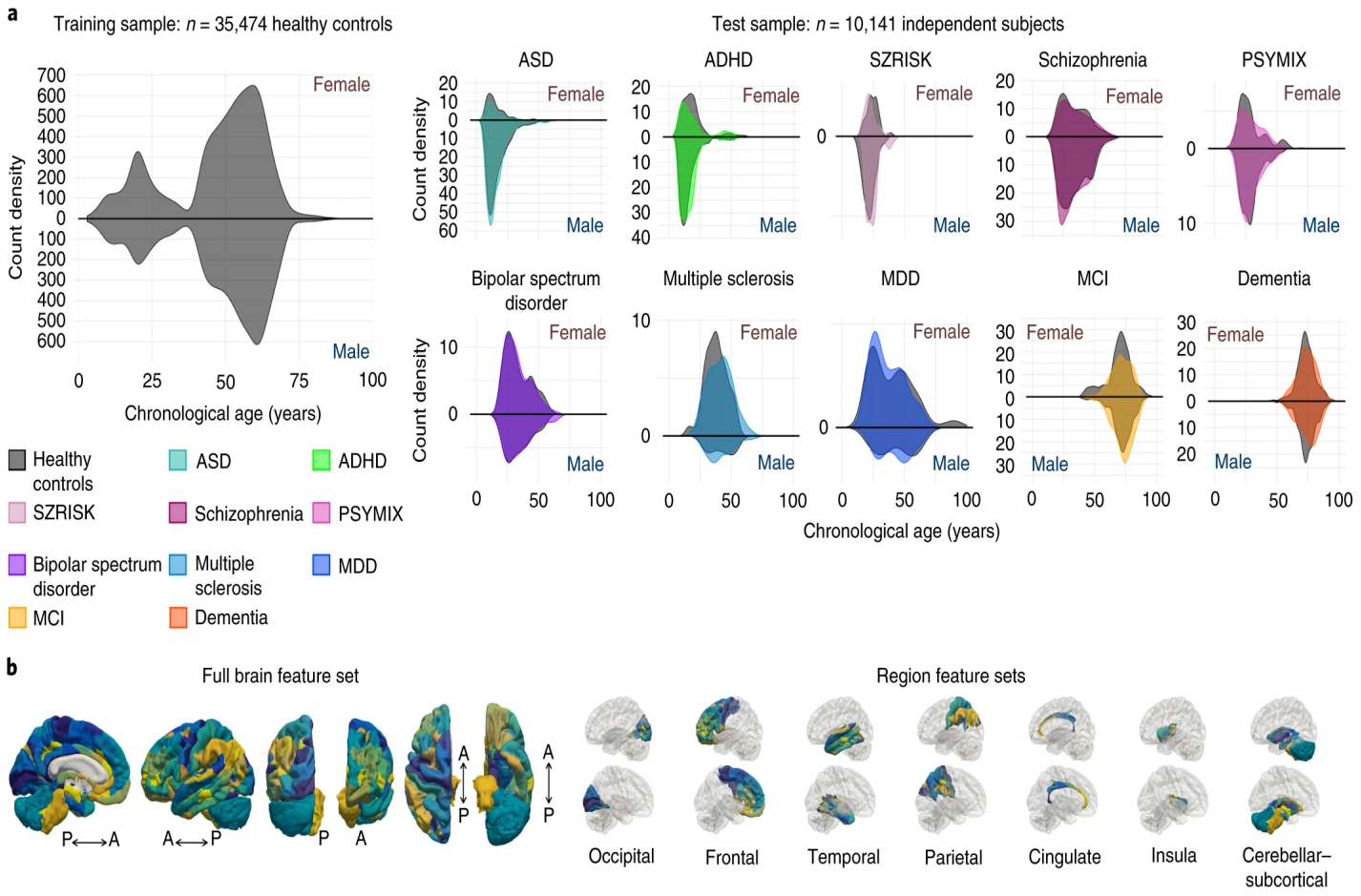
Common brain disorders are associated with heritable patterns of apparent aging of the brain

Tobias Kaufmann, Dennis van der Meer, ... Lars T. Westlye + Show authors

Nature Neuroscience **22**, 1617–1623 (2019) | Cite this article

14k Accesses | **121** Citations | **306** Altmetric | Metrics

Common risk factors for psychiatric and other brain disorders are likely to converge on biological pathways influencing the development and maintenance of brain structure and function across life. Using structural MRI data from 45,615 individuals aged 3–96 years, we demonstrate distinct patterns of apparent brain aging in several brain disorders and reveal genetic pleiotropy between apparent brain aging in healthy individuals and common brain disorders.



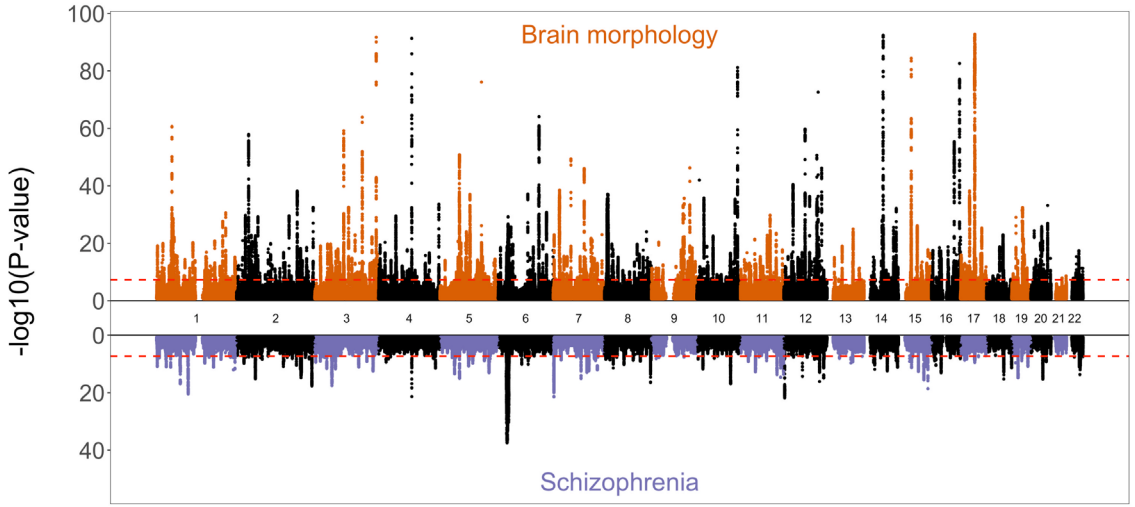
Biological Psychiatry
A Journal of Psychiatric Neuroscience and Therapeutics
ARCHIVAL REPORT | ARTICLES IN PRESS

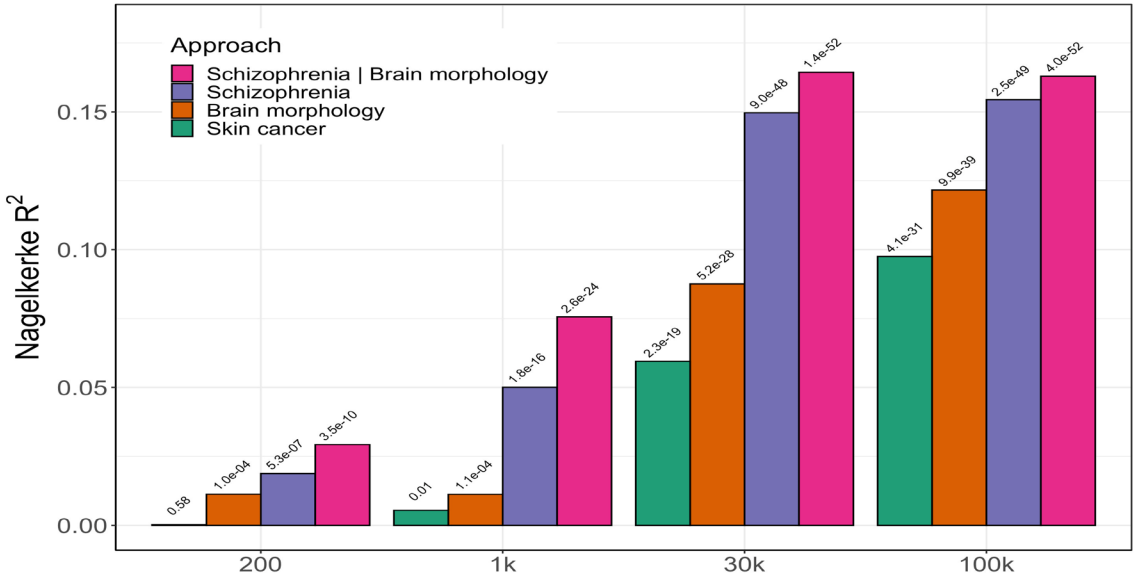
Boosting Schizophrenia Genetics by Utilizing Genetic Overlap With Brain Morphology

Dennis van der Meer • Alexey A. Shadrin • Kevin O'Connell • ... Ole A. Andreassen • Oleksandr Frei • Tobias Kaufmann • Show all authors

Open Access • Published: February 11, 2022 • DOI: https://doi.org/10.1016/j.biopsych.2021.12.007

Methods We ran a multivariate genome-wide analysis of 175 brain morphology measures using data from 33,735 participants of the UK Biobank and analyzed the results in a conditional false discovery rate together with schizophrenia genome-wide association study summary statistics of the Psychiatric Genomics Consortium (PGC). We subsequently created a pleiotropy-enriched polygenic score based on the loci identified through the conditional false discovery rate approach and used this to predict schizophrenia in a Norwegian clinical cohort of 743 individuals with schizophrenia and 1074 healthy controls.





General
Data
Protection
Regulation

NeuroImage 145 (2017) 389–408

Contents lists available at ScienceDirect

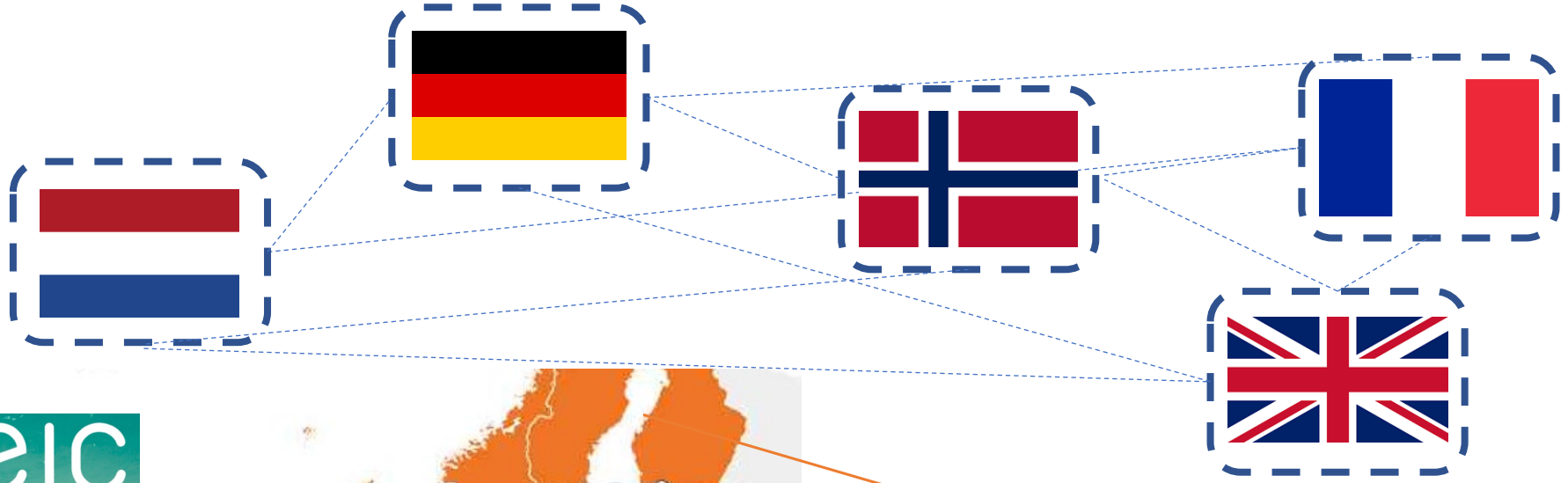
NeuroImage

journal homepage: www.elsevier.com/locate/ynimg

ENIGMA and the individual: Predicting factors that affect the brain in 35 countries worldwide☆,☆☆,★

Paul M. Thompson [a,s], Ole A. Andreassen [b,c], Alejandro Arias-Vasquez [d], Carrie E. Bearden [e,f,g],

Enhancing Neuro-Imaging Genetics through **Meta-Analysis**

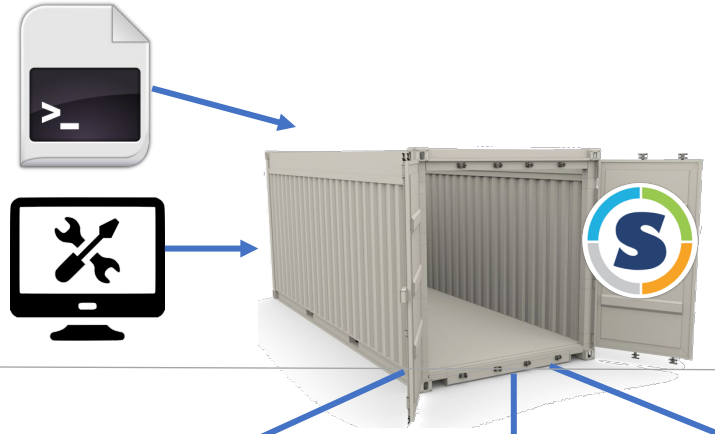


neic
NORDIC E-INFRASTRUCTURE COLLABORATION

elixir
CONVERGE

Tryggve

CoMorMent



- QC and harmonize input
- Create jobs with selected tools
- Format output

900 TB, 4M CPU hrs/yr

NORMENT
Norwegian Centre for
Mental Disorders Research

Thank you!
Questions?

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