

Current status of cancer genomics

Basic research: systematic cancer genome analyses within research centres (e.g., ICGC, TCGA, others)

Clinics: patient genome sequencing in clinical context

Issues: various data repositories/formats, lack of harmonisation of data analysis, lack of computing resources within data repositories, different data security and privacy rules across countries

Ongoing developments

PCAWG Project (Pan-Cancer Analysis of Whole Genomes): >2,800 cancer patients / nearly 1PB / 700 scientist / harmonisation of worlds cancer genomics data via standardised (cloud-based) analysis workflows

Future of cancer genomics

PCAWG QPQ Project (*quid pro quo*): in our view a necessary follow-up of PCAWG to ensure sustainability and creation of a virtual marketplace for aggregation and analysis of cancer genomes

- Envisioned model: users can use benchmarked analysis workflows (SaaS) and run comparative analyses (DaaS) in exchange of depositing data on clouds (high quality data analysis as *virtual payment*) / software developers contribute packages and receive credit every time somebody runs their package
- Envisioned users: data scientists, software developers, and clinicians (with less expertise & resources)
- Envisioned scenario: sets of federated clouds in different countries or regions (e.g. in several EU countries) that host cancer genomes and associated information