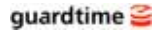


guardtime 

Blockchain
secured
Genome Data
Management
Platform

Dr. Daniel Burgwinkel





Introduction

The world's **largest blockchain technology company** (by revenue, headcount, customers)

Founded in 2007 in Tallinn, Estonia

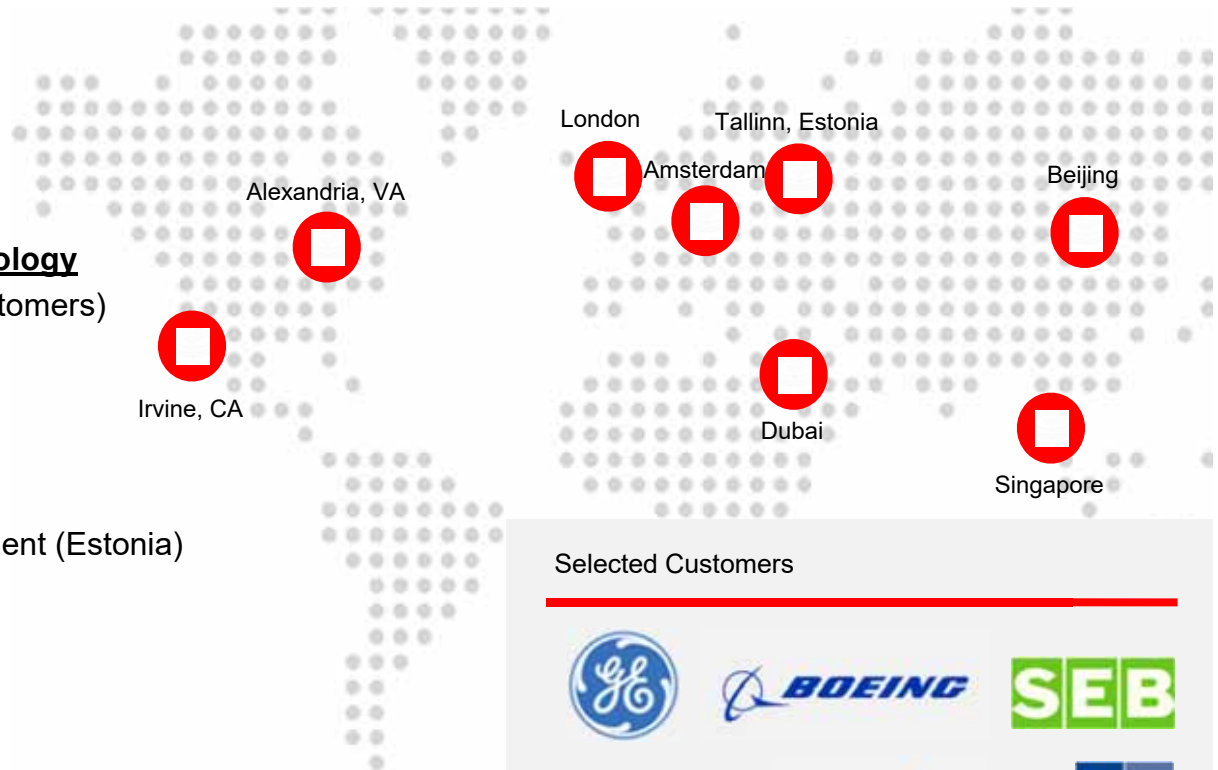
150 Full-time employees

Example Offerings:

- Blockchain for eHealth and eGovernment (Estonia)
- Supply Chain Track and Trace
- GDPR Compliance as a Service
- EHR Interoperability
- Software Lifecycle Management
- Additive Manufacturing

Competitive Advantage:

A battle-hardened blockchain stack, in production since 2008 with governments and enterprises relying on the platform **today**.

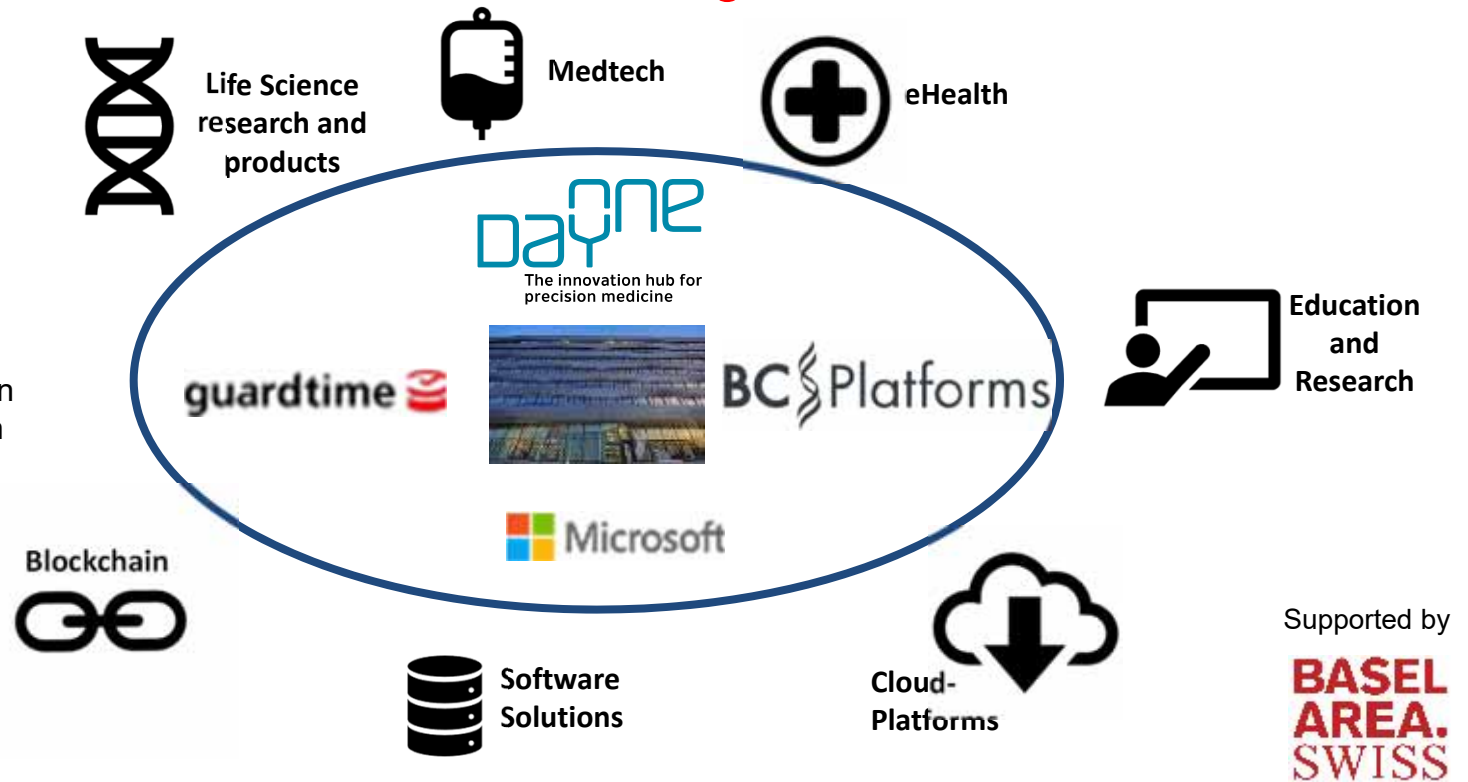


Selected Customers

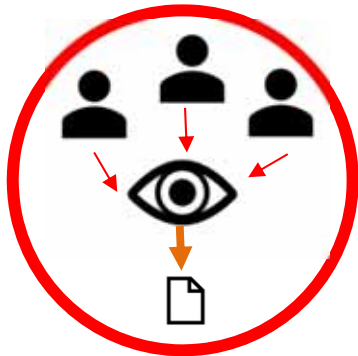


Guardtime partners with BCPlatforms and Microsoft to develop a Blockchain secured Genome Data Management Platform

The project is supported by the Basel based “DayOne – innovation initiative for precision Medicine”



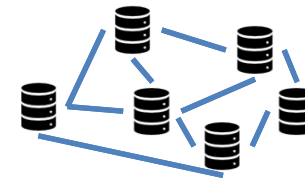
Life Science - Where do you need a shared view of the world and where is data integrity required?



Shared View of the world:
You and your business partners have to trust a data source



Distributed Ledger (DLT)
Every node has a copy of the data



Data Integrity:
How can you proof that data is not tampered?



Blockchain
Proof of data integrity, time, author

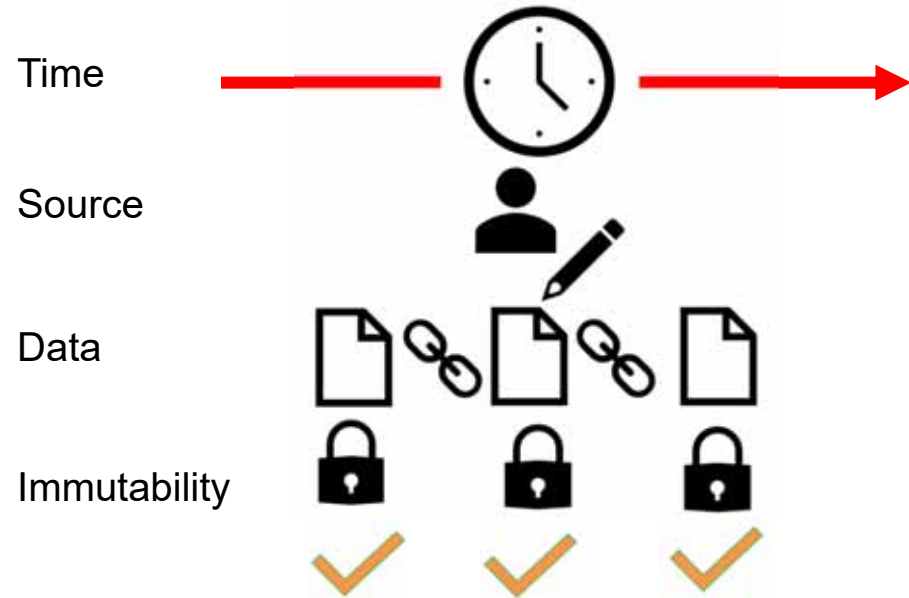
Data Integrity is a key requirement in all Life Science use cases



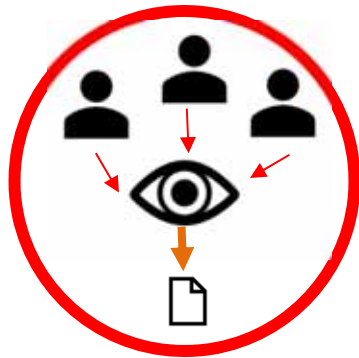
Data Integrity:
How can you proof
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Blockchain

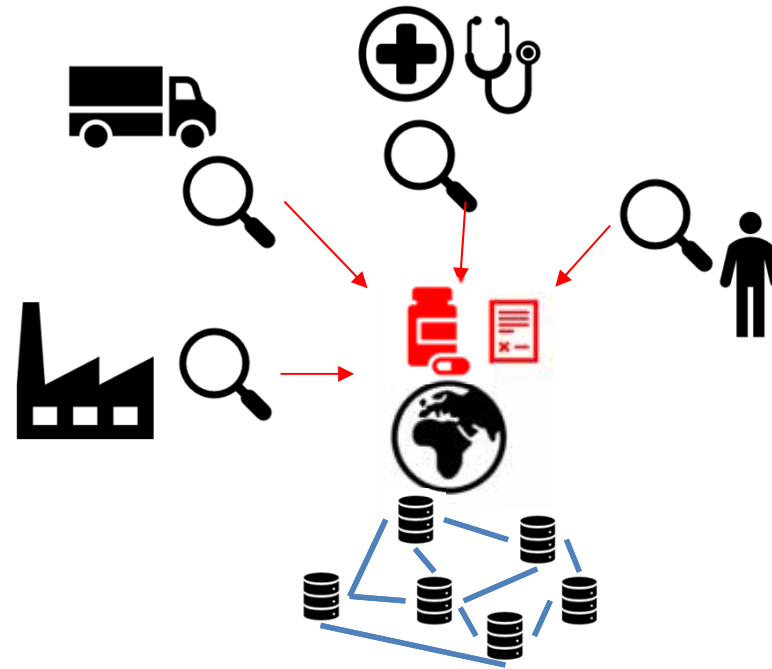
Proof of data integrity, time, author



Not all Life Science use cases require a Distributed Ledger



Shared View of the world:
You and your business partners
trust a data source



High risks when storing medical records in a distributed ledger
+ Limitation of file size

Secure genome data management enabled by Guardtime Blockchain technology and BC Platforms

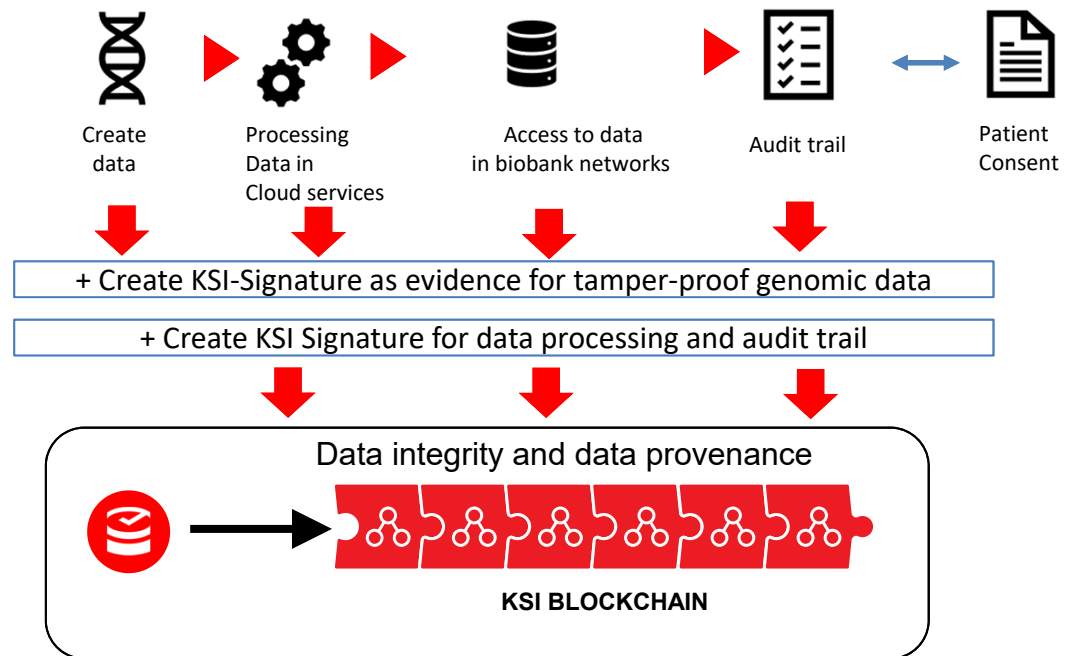
Use Case:

- Ensure data integrity and data provenance for genome data management

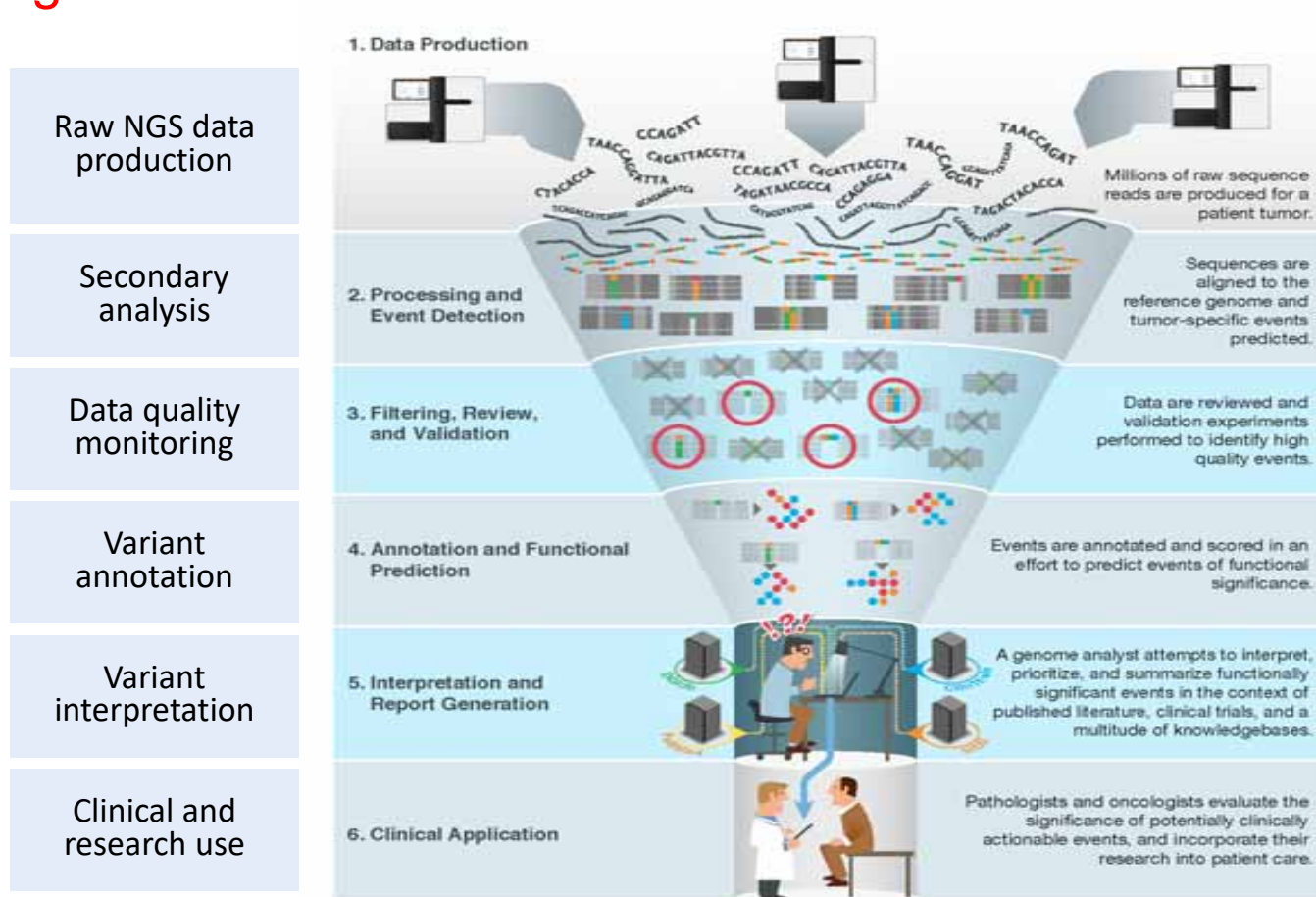
Benefits

- Data integrity is ensured in all process steps and in all environments
- Proof of data integrity, audit trails and compliance with patient consent can be combined

Genome Data Management in biobanks

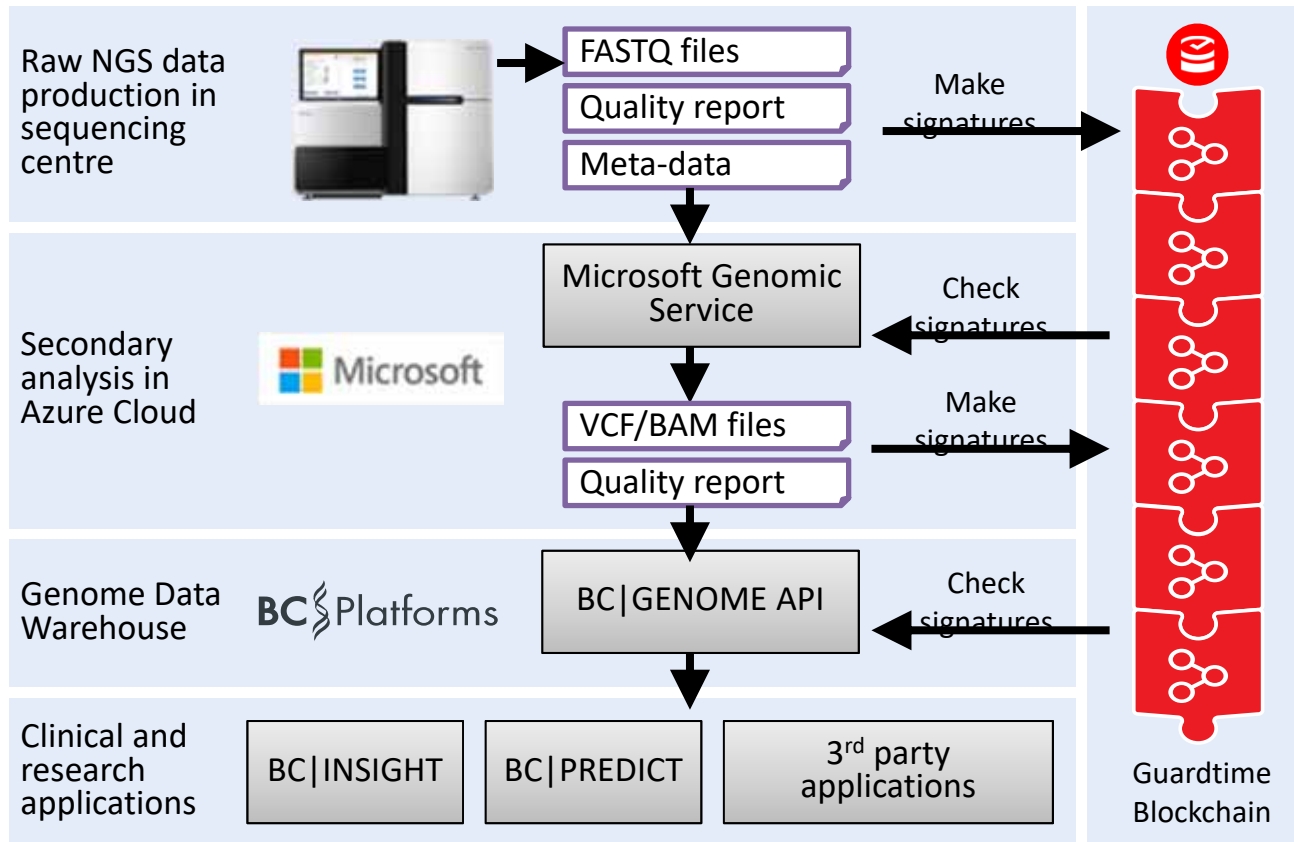


Clinical genomics workflow



Graph source:
CIViC, McDonnell
Genome Institute

Solution - Blockchain powered by Guardtime



Key questions - Blockchain in genome data management



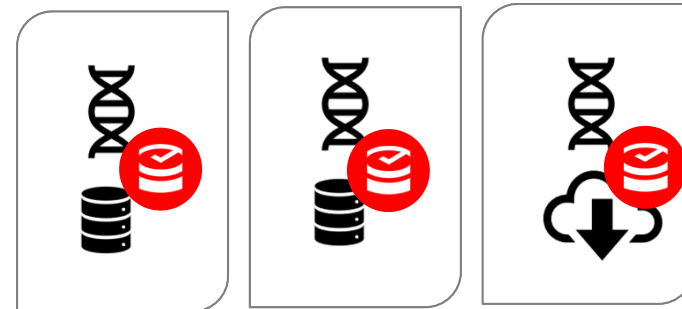
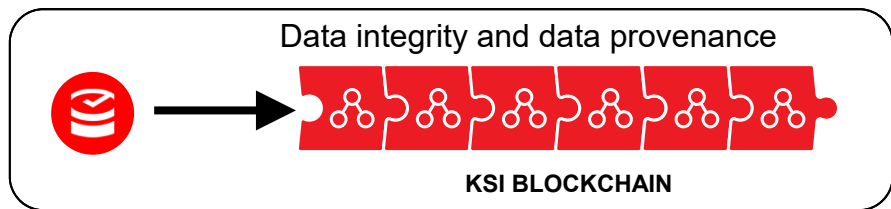
Which kind of data is stored in the Blockchain?



How is the genome data managed?

Which kind of data is stored in the Blockchain? How is the genome data managed?

Data stored in the Blockchain	Genome Data Management
<ul style="list-style-type: none"> • Only cryptographic evidence is stored in the KSI-Blockchain. • No genome data or personally identifiable information is stored in the KSI-Blockchain. 	<ul style="list-style-type: none"> • Genome data does not leave the borders of the research organization. • In addition to the blockchain a file with cryptographic evidence (KSI-signature) is created and stored within the organization.



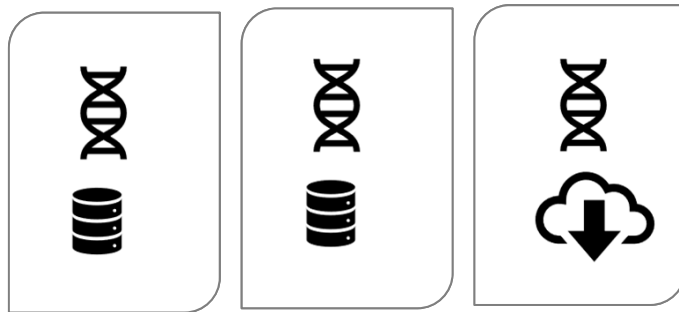
Key questions - Blockchain in genome data management

How do you proof
data integrity in
the overall
process of
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How do you proof data integrity in the overall process of genome data management?

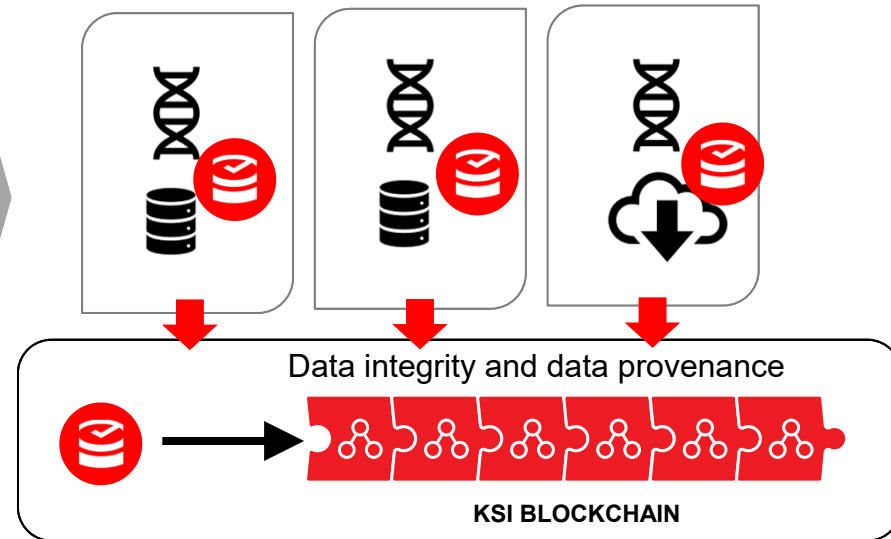
AS-IS	Solution Guardtime/BC Platforms
Every research organization runs a digital archive. No overall method to proof data integrity.	All involved research organizations and cloud providers use the KSI Signatures.



e.g. Archive with hardware-based WORM Storage

e.g. Archive with software-based WORM Storage

e.g. Cloud Service



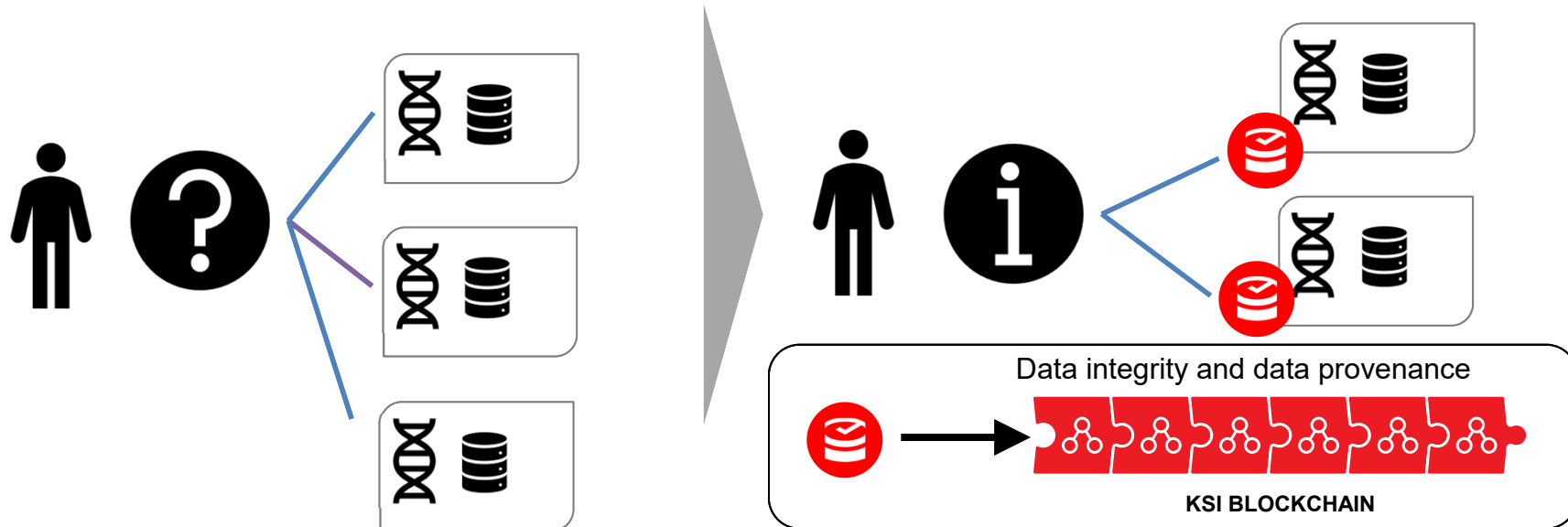
Key questions - Blockchain in genome data management

**How can you proof
that you are
compliant with the
patient consent?**



How can you proof that you are compliant with the patient consent?

AS-IS	Solution Guardtime/BC Platforms
Patient has to «trust» that all parties act according to his consent	Evidence of data and process integrity in all processing matched with audit trails



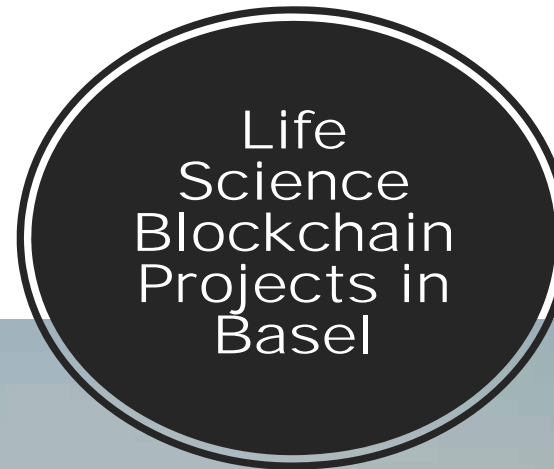
Thank you...and hope to see you soon in Basel, Switzerland...

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www.bcplatforms.com



Project partners:

guardtime 

BC  Platforms

 Microsoft

