

"HOW KNOWLEDGE GRAPHS SHAPE THE FUTURE"

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Philip Krauss (Trivadis)

21. September 2021,

11:45 – 12:30 h

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2 NOTES

Our digital brown bag event format will be recorded. No names or other data of participants will be used.

The recording - as well as all documents from the session - will be made available to all participants afterwards.

HALLO, GRÜEZI, HI!



SABINE ÖSTERLE



- since 01/2018 @SIB
- Dr. sc. ETH in Synthetic Biology
- Research management and data interoperability



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HALLO, GRÜEZI, HI!



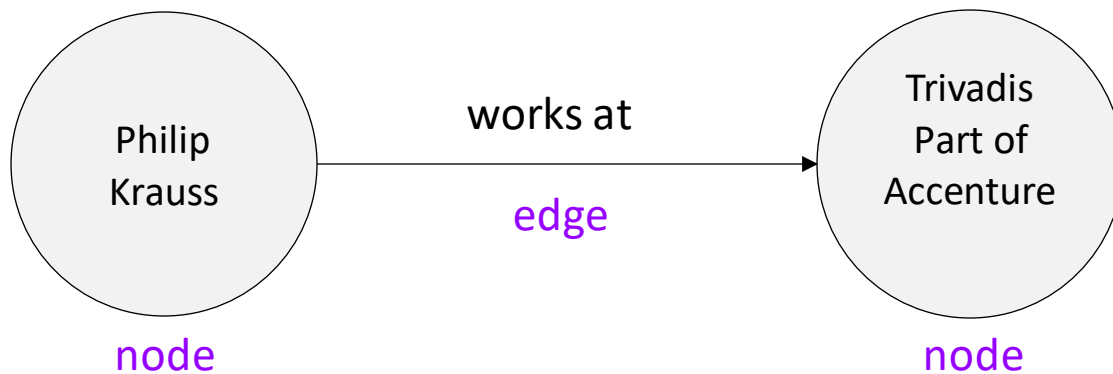
PHILIP KRAUSS

- since 01/2019 @Trivadis
- MSc Computer Science
- Semantic Web & Big Data



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5 KNOWLEDGE GRAPH : THE BASICS



6 KNOWLEDGE GRAPHS APPLICATIONS



Connect Data

**Combine siloed
data sources**



Data Quality

**Identify Patterns &
Relationships**



**Interoperability of
Data**

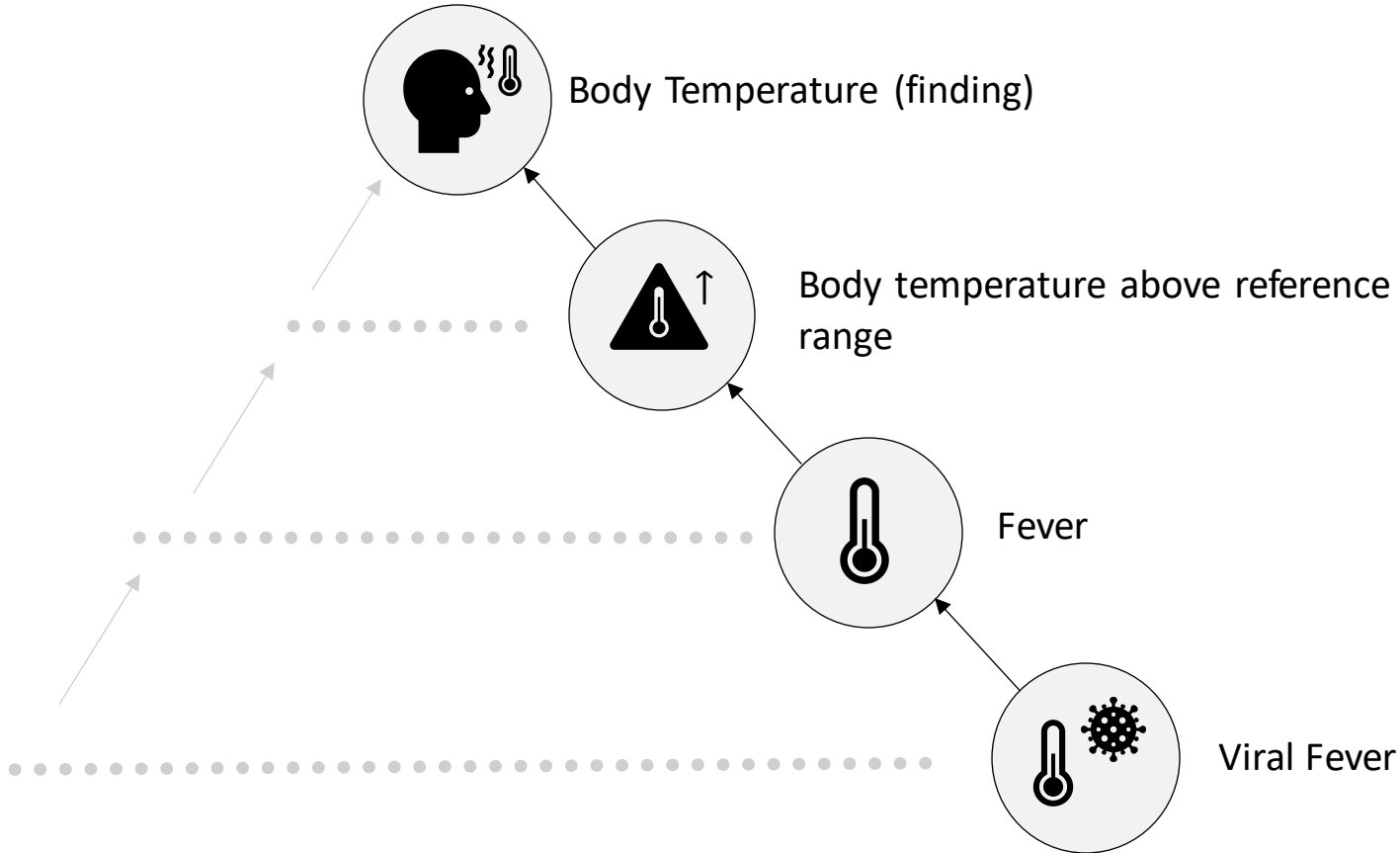
**Share Data Cross-
functionally**



Smart Data Analytics

**Context-based
Business Decisions**

7 KNOWLEDGE GRAPHS EXAMPLE



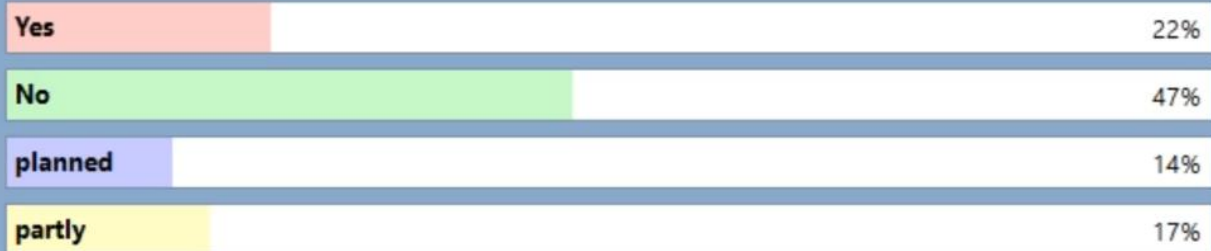
Poll

**Does your data strategy include
knowledge graphs?**

9 POLL 1 - RESULTS

Does your data strategy include knowledge graphs?

Poll Results (single answer required):



10 SWISS PERSONALIZED HEALTH NETWORK (SPHN)



- Government funded national initiative to establish a national data infrastructure network for research with health-related data
- Getting data out of silos
- A decentralized approach: SPHN does not build a central data lake.
- Reaching interoperability of data – across systems, across projects, over time, internationally aligned

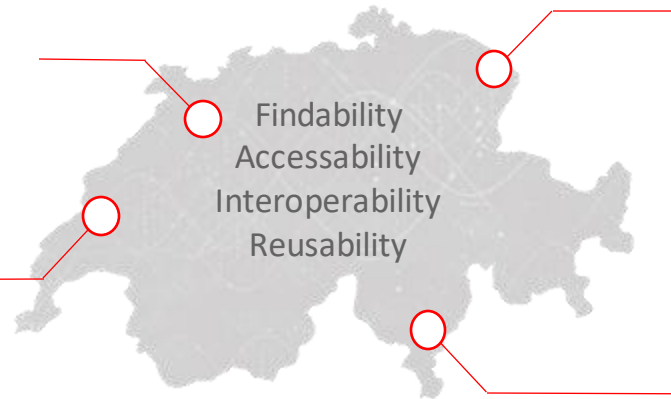
11 HEALTH RELATED DATA IS DIVERSE

Data types

- Hospital clinical data
- Molecular or *omics data
- Clinical research data
- Wearables and apps
- ...

Different languages

- English
- German
- French
- Italian



Data origin

- Clinical routine
- Clinical trials
- Research
- Billing
- ...

Data standards

Example diagnosis

- ICD-10 (billing)
- SNOMED CT (general)
- NANDA (nursing)
- ICD-O (oncology)
- Orpha (rare diseases)
- ...

12 HEALTH RELATED DATA IS DIVERSE

Does the patient have fever? Yes

COVID patients have fever

Fieber

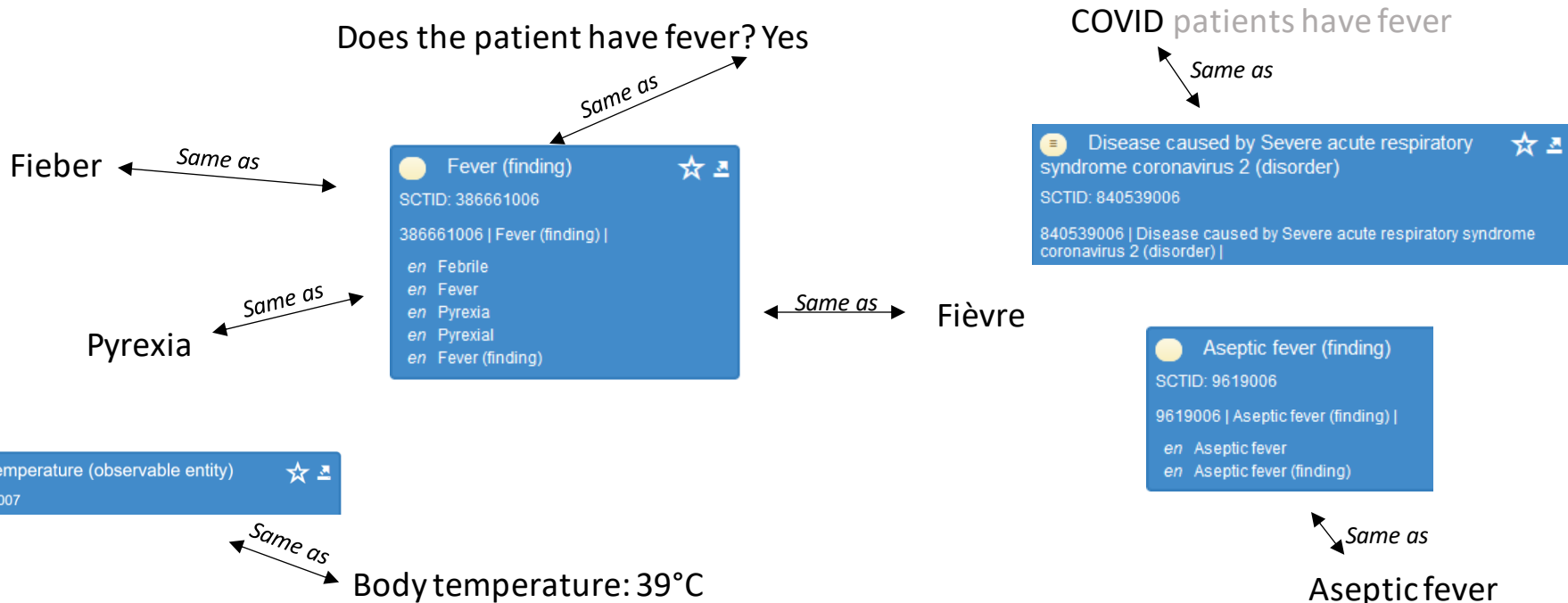
Pyrexia

Fièvre

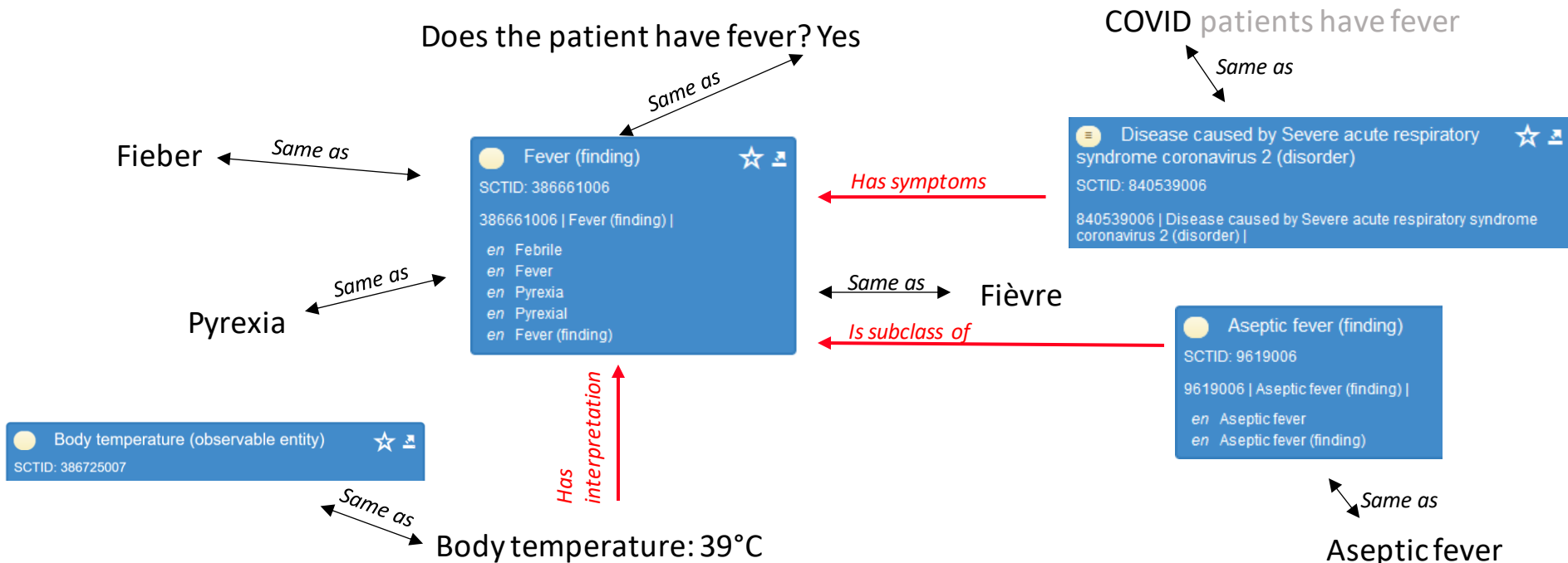
Body temperature: 39°C

Aseptic fever

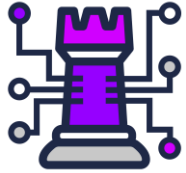
13 SEMANTIC DESCRIPTION OF THE TERMS



14 SEMANTIC DESCRIPTION OF THE RELATIONS



15 Typical Challenges



**Data
Integration**



Data Quality



**Black Swan
Events**



**Exploration,
Analytics &
Decision Making**

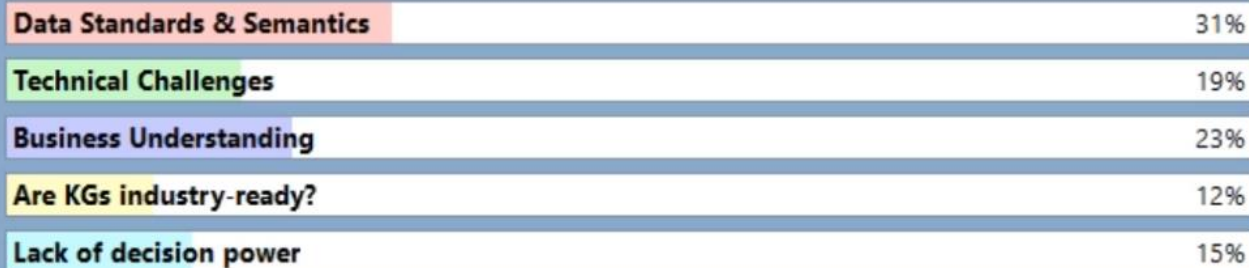
Poll

What are the current hurdles in your organization to adopt knowledge graphs?

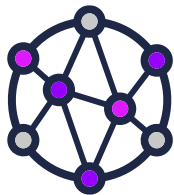
17 POLL 2 - RESULTS

What are the current hurdles in your organization to adopt KGs? (Challenges...)

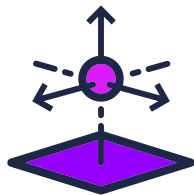
Poll Results (single answer required):



18 KG PROJECT ADVICE



**do
pragmatically**



**highest
potential, lowest
complexity first**

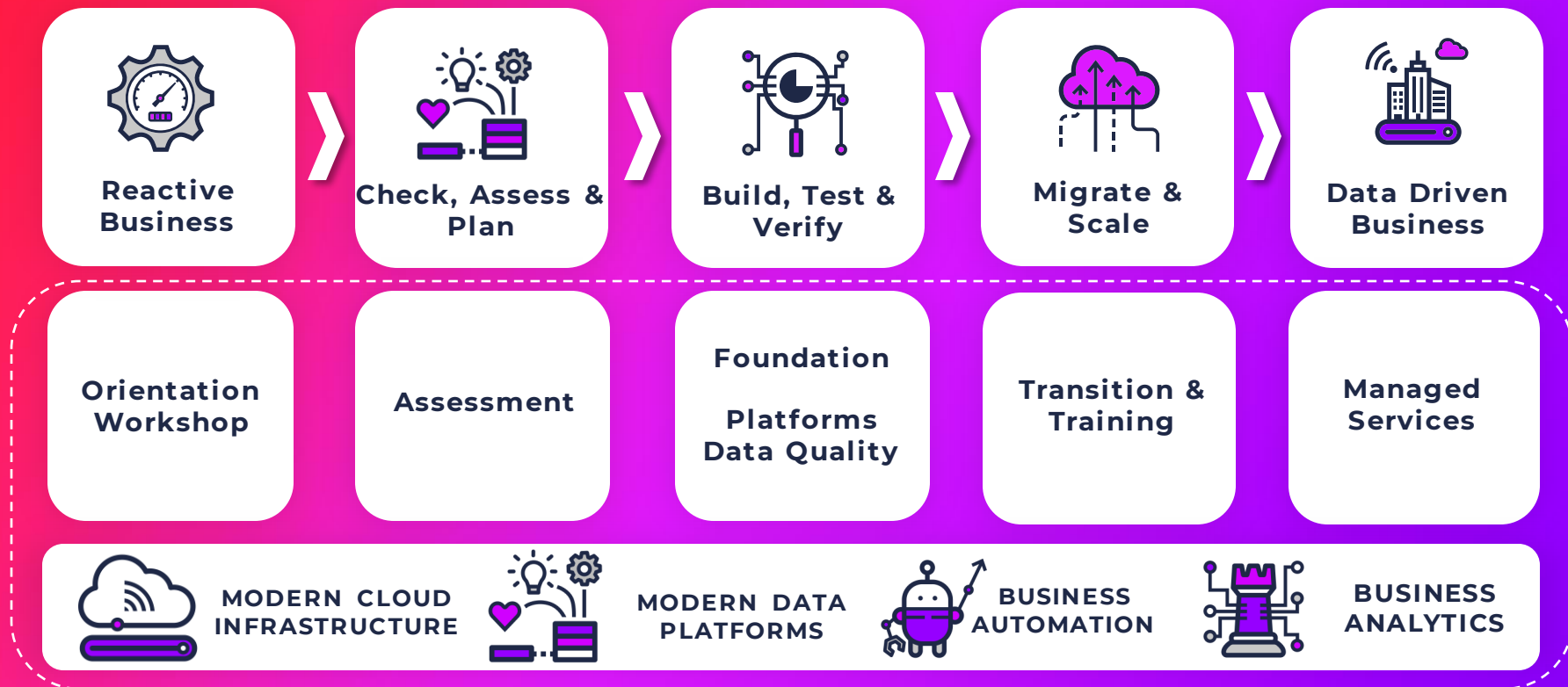


**community
building**



Education

19 DATA DRIVEN BUSINESS JOURNEY



20 HEALTH AUTOMATION & ANALYTICS



[Health Automation](#) ► [Workshops and Analytics Assessments \(trivadis.com\)](#)

**TOGETHER WE ARE
#1 PARTNER FOR BUSINESSES TO
HARNESS THE POWER OF DATA
FOR A SMARTER LIFE**