DESIGN OF A NEW DATA STRUCTURE TO SUPPORT NON-INVASIVE DIAGNOSTIC ON HERITAGE METALS

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Content

• Context
• Problem faced by the conservators
• The model : from reality to data structures
• Our solution
• Questions
Context

Source: Images provided by the conservation-restoration department, HEG-Arc in Neuchâtel, Switzerland
Problem

Source: http://sciencenotes.org/
From reality to conceptual model

Tumi (knife), Peru (1st millennium DC), Museum der Kulturen, Basel, CH, IV c 24742 © R. Jeanneret, HE-Arc CR
Analogy with real-world applications

Source: http://www.metro.net/riding/maps/

Source: http://www.businessmodelgeneration.com/

Source: http://www.activiti.org/userguide/
From conceptual model to data structures
Querying the database

```
MATCH  (a:Artefact)-->(s:Stratigraphy)-->(st:Strata)
WHERE a.uid='artefact22'
OPTIONAL MATCH
  (st:Strata)<-[r1:IS_CONSTITUTED_BY]-(o1)
OPTIONAL MATCH
  (st:Strata)<-[r2:IS_INCLUDED]-(st1)<-[r3:IS_CONSTITUTED_BY]-(o2)
OPTIONAL MATCH
  (st:Strata)<-[r4:HAS_UPPER_INTERFACE]-(i)<-[r5:IS_CONSTITUTED_BY]-(o3)
RETURN a,s,st,st1, o1, o2, i, o3
```
Our solution
Thank you for your attention !