# **Panning For Insight**

Amplifying Insight through Tight Integration of Machine Learning, Data Mining, and Visualization

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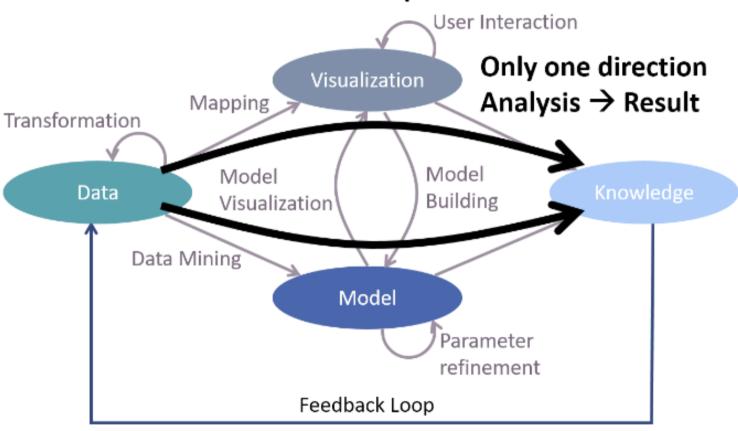
Inga Scheler, Hans Hagen

2018-06-04

### **Classical Model**

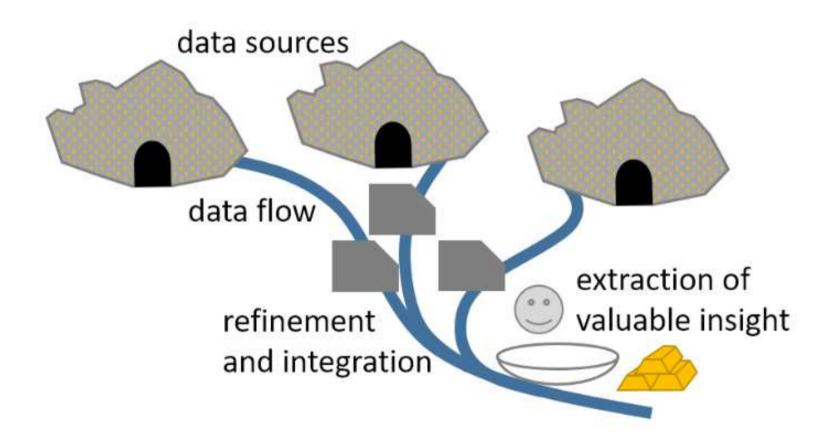
Visual Analysis (Keim et al.)

#### **Visual Data Exploration**



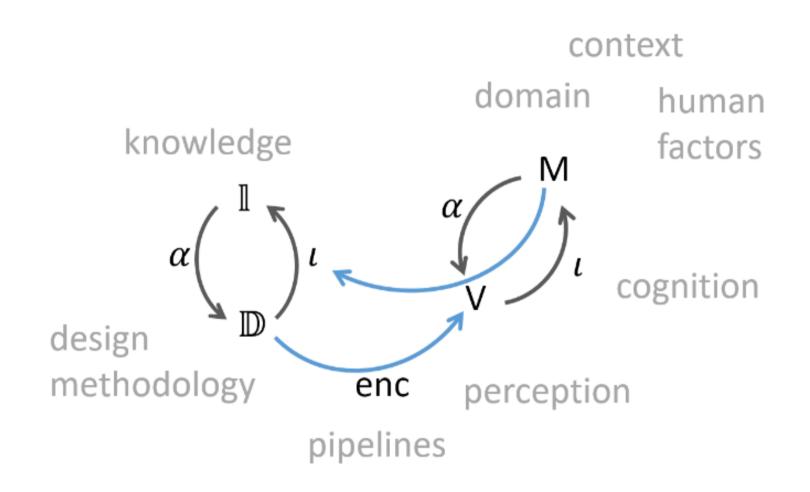
**Automated Data Analysis** 

# Analogy Panning for Gold



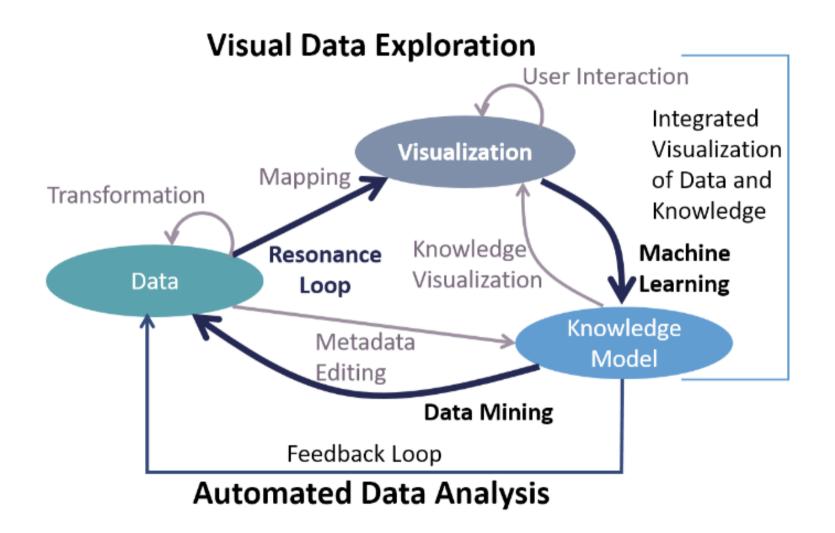
### **Information-Centric View**

Actually Transports Information to Information



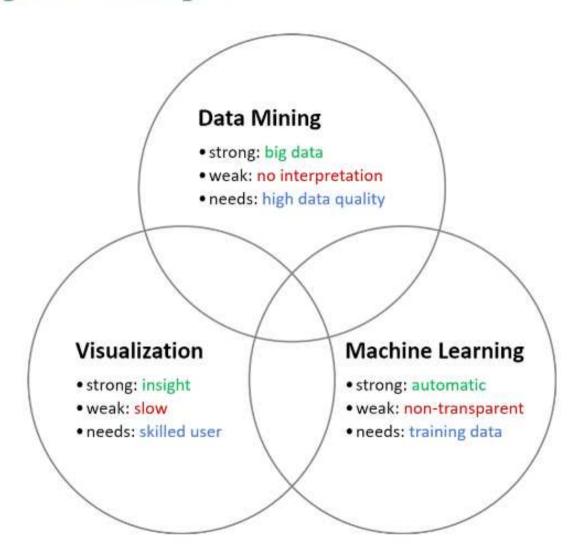
### **Refined Workflow**

Install a Loop



# **Sweet Spot**

### Leverage the Strenghs



# **Loop Workflow**

## Assign Clear Roles

#### Machine Learning

- Learn structures and recognize similar objects in the data
- Apply semantics globally

#### Data Mining

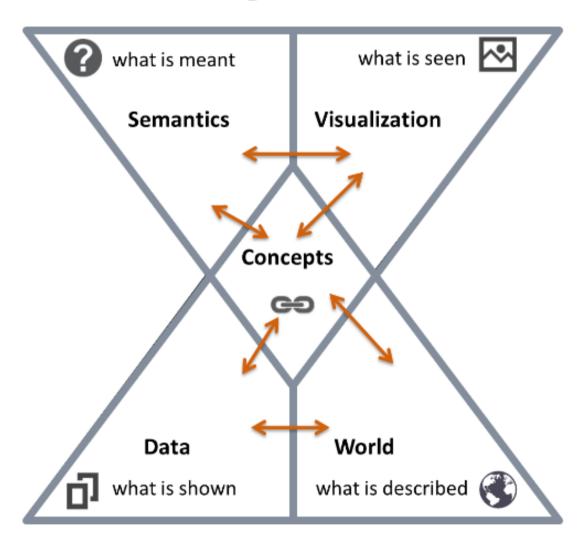
- Find potentially interesting data
- Identify correlations of data values and semantics

#### Visual Analytics

- Investigate, evaluate and interpret
- Define semantically meaningful objects

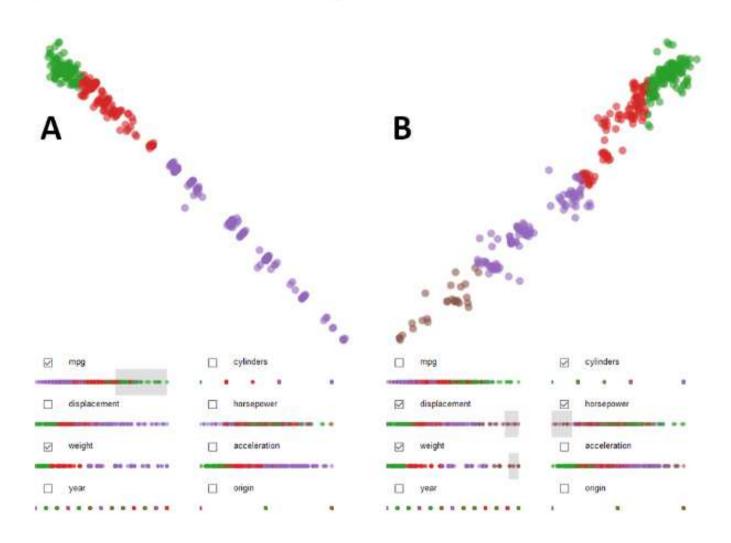
# (Meta)Data Structure

How to make the reintegration work



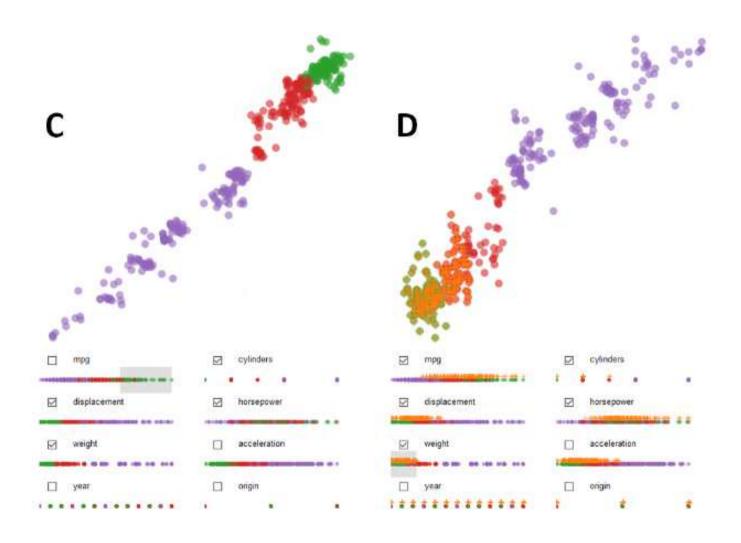
# **Application**

# Semantics-Focused Analysis



# **Application**

# Semantics-Focused Analysis



# Summary

Reintegrate the Talk's Insights into the Audience

- insights are discovered, not mined
- reintegrating knowledge makes it accessible for analysis
- information-focus reduces dimensions, introduces meaningful distances

# **Thank You!**

Questions?