INTRODUCING THE NETWORKER

KNOWLEDGE GRAPHS UNMEDIATED

MICHEL BIEZUNSKI, INFOLOOM

KNOWLEDGE GRAPH MEETUP,
COLUMBIA UNIVERSITY, NEW YORK
NOVEMBER 11, 2019

WHO I AM

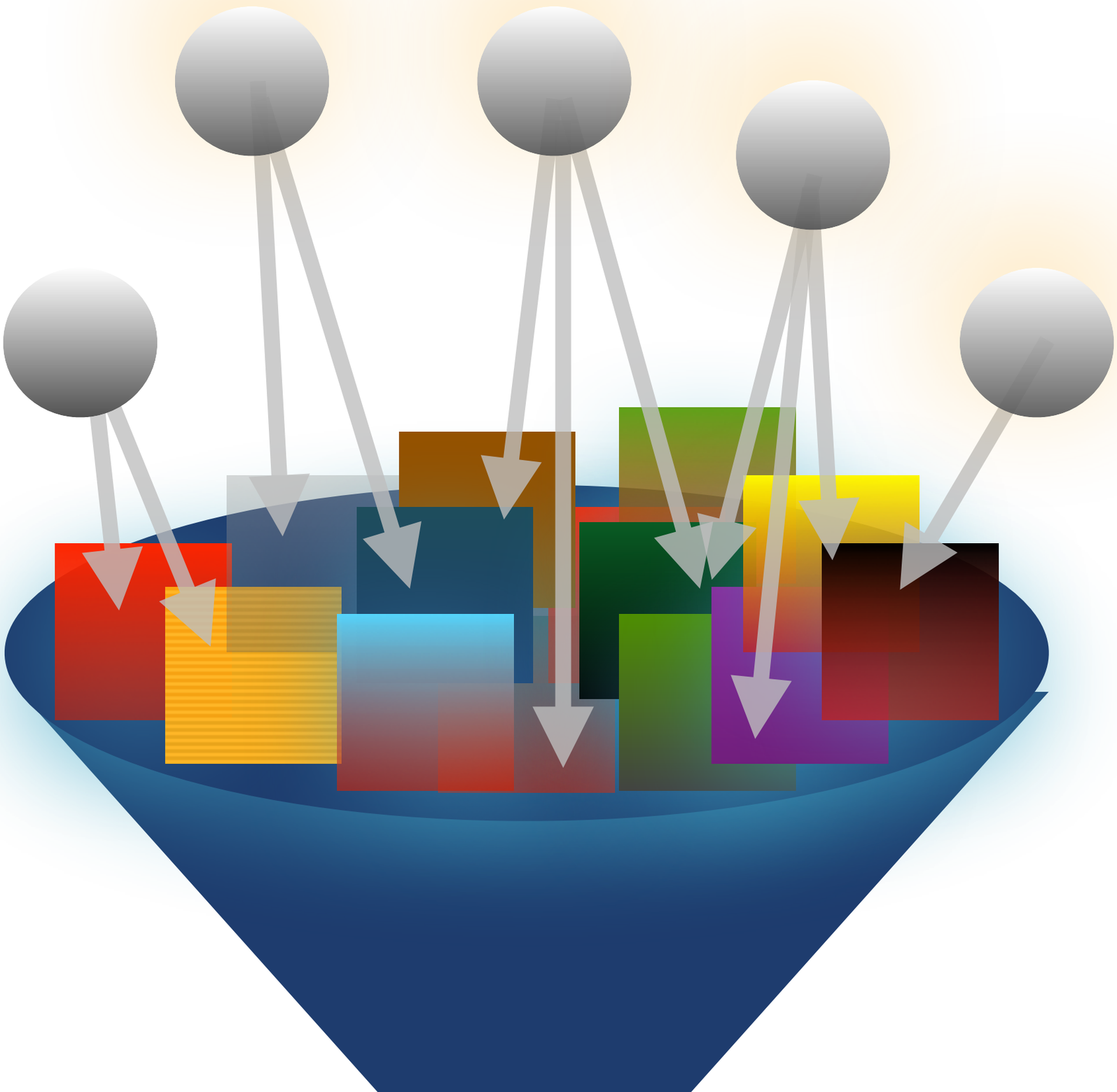
- Michel Biezunski
- CEO, Founder of Infoloom Inc., a New York based company.
- Creator of the Topic Maps Standard (ISO/IEC 13250), considered a precursor to Knowledge Graphs.
- Transitioned from XML to Web Development (Full-stack)
- Designed the "Networker"
- Background: history/philosophy of physics.

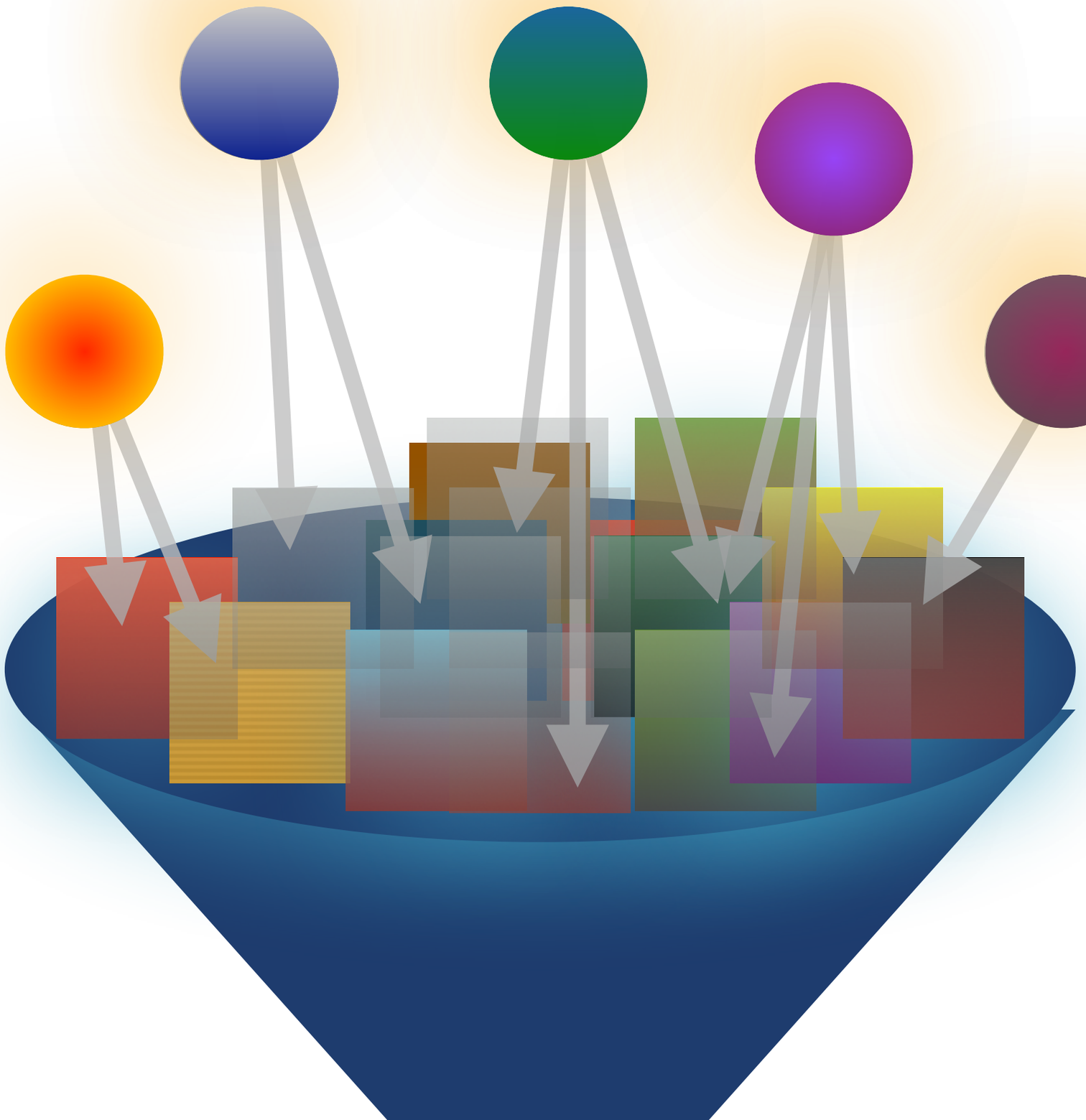
CONTENTS

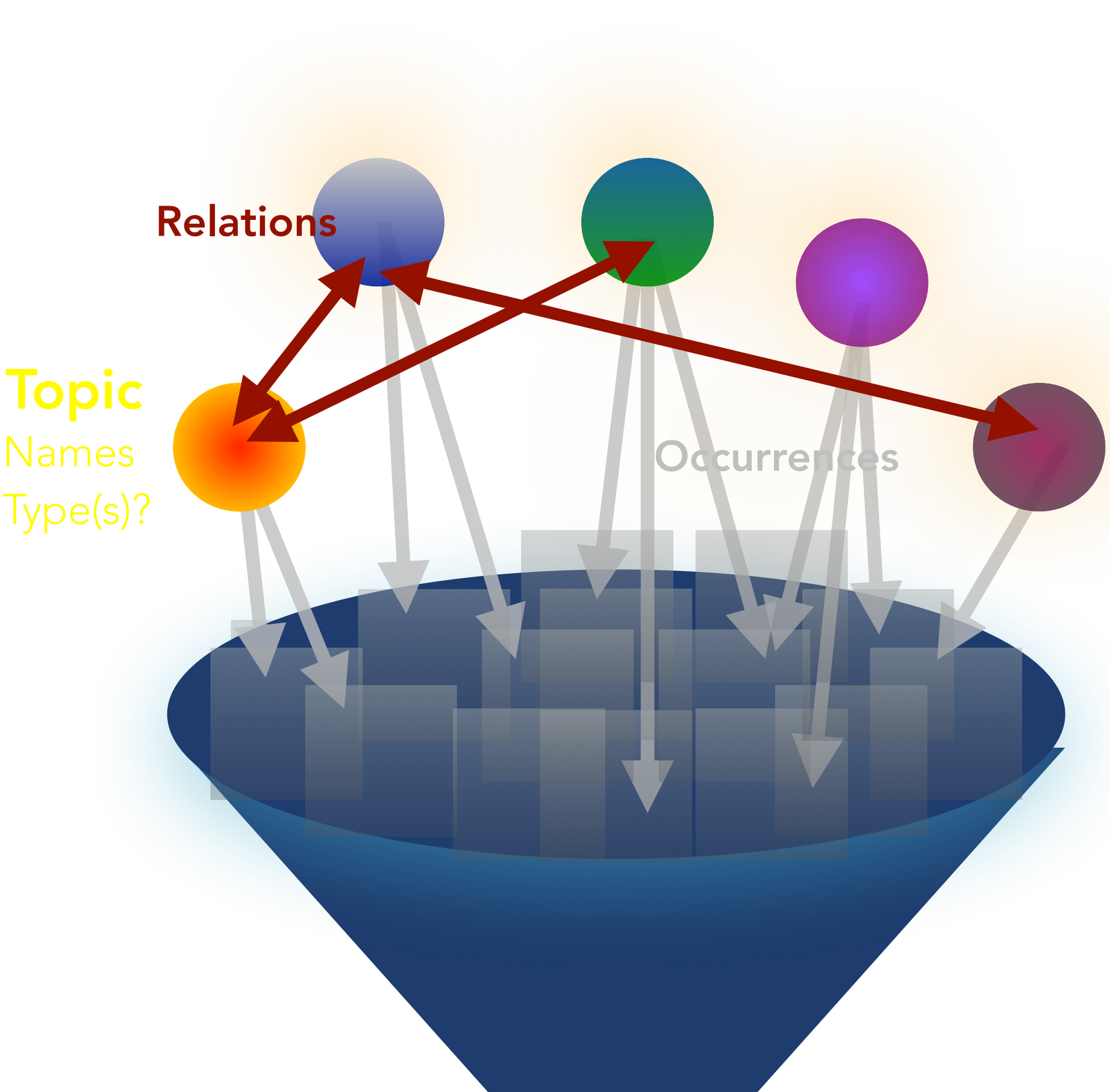
- Notion of Knowledge Graph Template
- The Networker Platform:
  - Data Connections: Spreadsheet to Knowledge Graph
  - Data Curation

KNOWLEDGE GRAPH TEMPLATE

- Objects with predefined generic properties, ready for connectedness.
- Based on concepts inherited from topic maps: knowledge base as overlay, topics as nodes, scoped names, user-defined relation semantics, reified relationships.






Relations
Topic
Names
Type(s)?
Occurrences

KG++

- Blurring the difference between data and metadata.
- Transactions and Processes considered relationships.
- Reified Relationships (i.e., edges are nodes too).

THE NETWORKER PLATFORM

- Cloud-based.
- **Backend**: PostgreSQL + Django web framework, RESTful API.
- **Front end**: Independent from the backend. Current editorial interface in React (previous version in Angular).
- Customizable scripts for **import and export** of data using built-in API. Multiple formats: JSON, XML, RDF, Property Graphs, HTML, SQL, CSV, XLSX, etc.

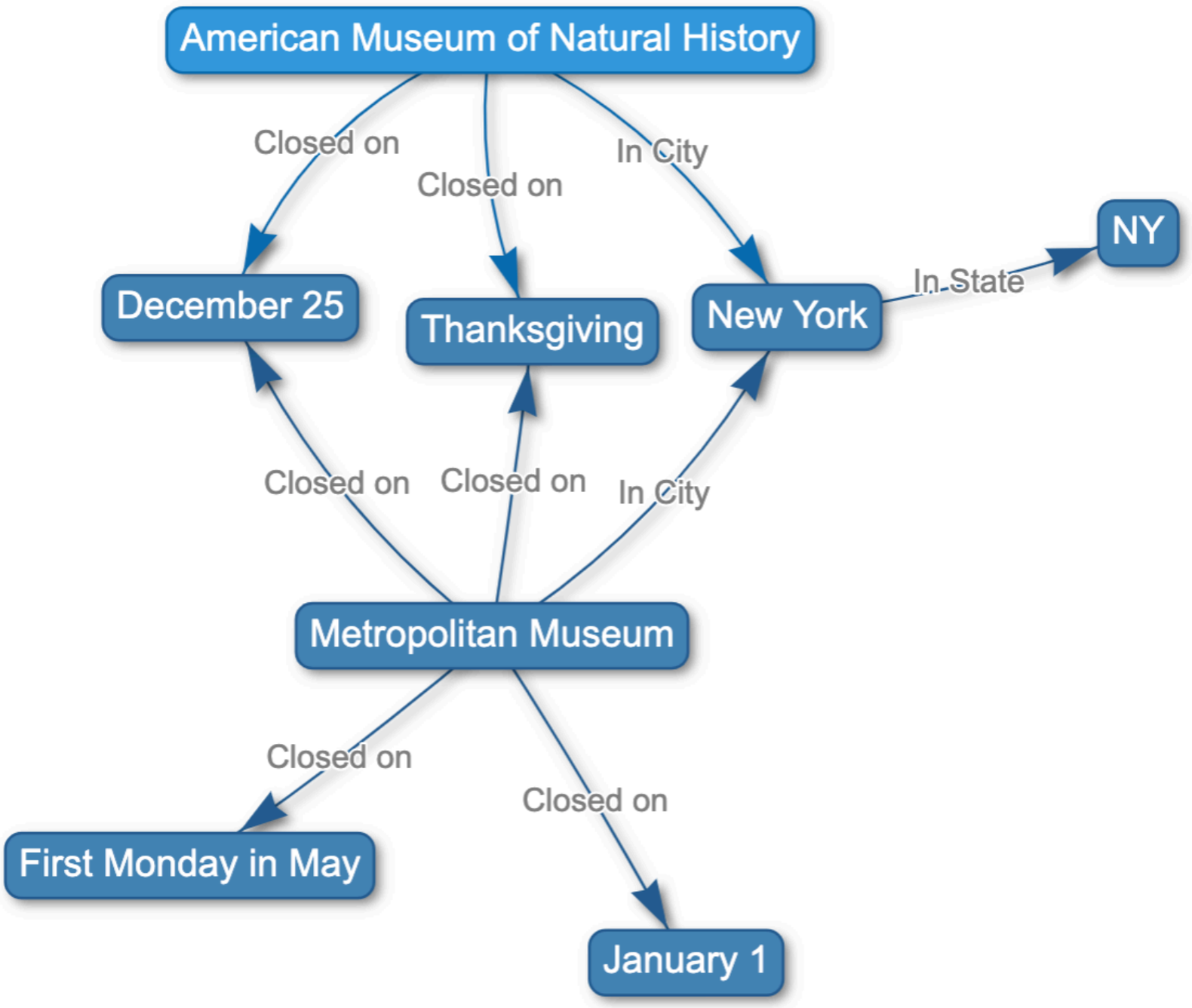
OPTIMIZING TWO WORKFLOWS

- No learning curve required for Subject Matter Experts
- Easy, powerful and flexible for Programmers.

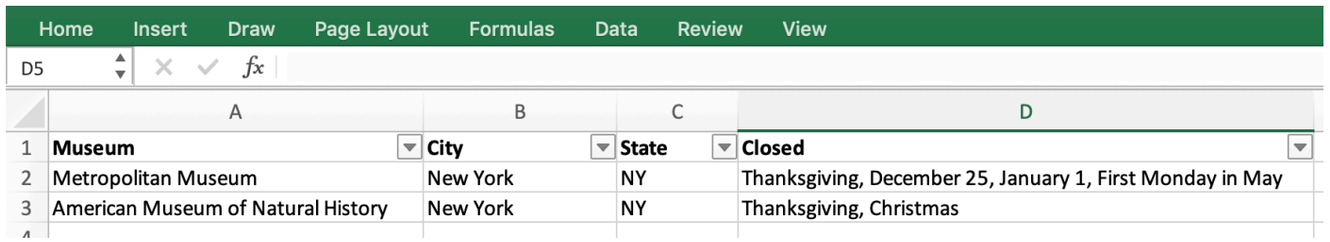
Home Insert Draw Page Layout Formulas Data Review View

D5

	A	B	C	D
1	**Museum**	**City**	**State**	**Closed**
2	Metropolitan Museum	New York	NY	Thanksgiving, December 25, January 1, First Monday in May
3	American Museum of Natural History	New York	NY	Thanksgiving, Christmas



```python
from django.conf import settings
from otcore.management.utils import get_spreadsheet_data
from otcore.management.api import topic, relation, merge

def run():

    filename = f'{settings.MEDIA_ROOT}museums.xlsx'
    sheets = {
        'Sheet1': {
            'first_row': 2,
            'last_column': 'D'
        },
    }
    data_dict = get_spreadsheet_data(filename, sheets)
    data = data_dict['Sheet1']

    for row in data:
        col = data[row]

        relation(topic(col['A']), topic(col['B']), topic('In City'))
        relation(topic(col['B']), topic(col['C']), topic('In State'))

        days = [day.strip() for day in col['D'].split(',')]
        for day in days:
            relation(topic(col['A']), topic(day), topic('Closed on'))

    merge(topic("Christmas"), topic("December 25"))
```



Home Insert Draw Page Layout Formulas Data Review View

D5

	A	B	C	D
1	**Museum**	**City**	**State**	**Closed**
2	Metropolitan Museum	New York	NY	Thanksgiving, December 25, January 1, First Monday in May
3	American Museum of Natural History	New York	NY	Thanksgiving, Christmas

FEATURES

- Indexes
- Merge / Detach
- Create / Delete Topics
- Editing Relationships
- Taxonomies
- Reified Relationships
- Graph editing
- Shortcuts (Underline, minimal settings)
- Writing tool.
- Export HTML, JSON, XML, SKOS, Property Graph,

QUESTIONS

mb@infoloom.com

https://www.infoloom.com