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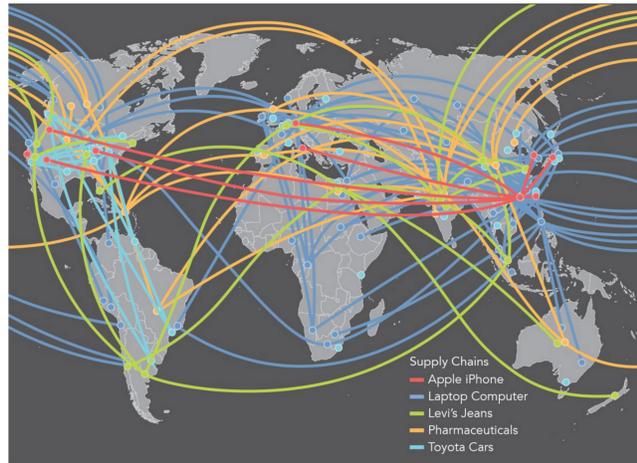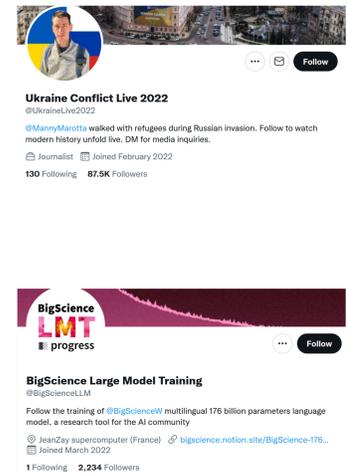
ECIR 2022
ECIR 2022 - Industry day
Stavanger, Norway

Event detection system to support decision making for raw materials supply chain management

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CONTEXT

source: @paragkhanna, #connectography
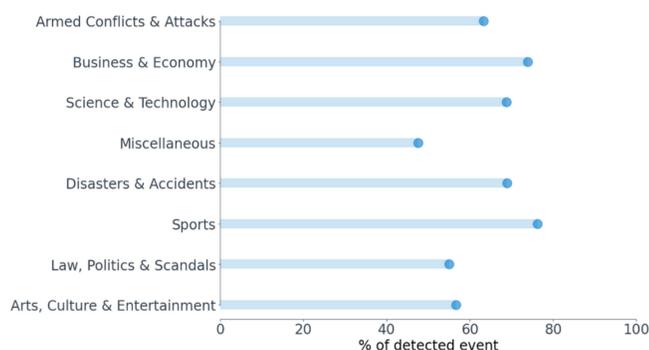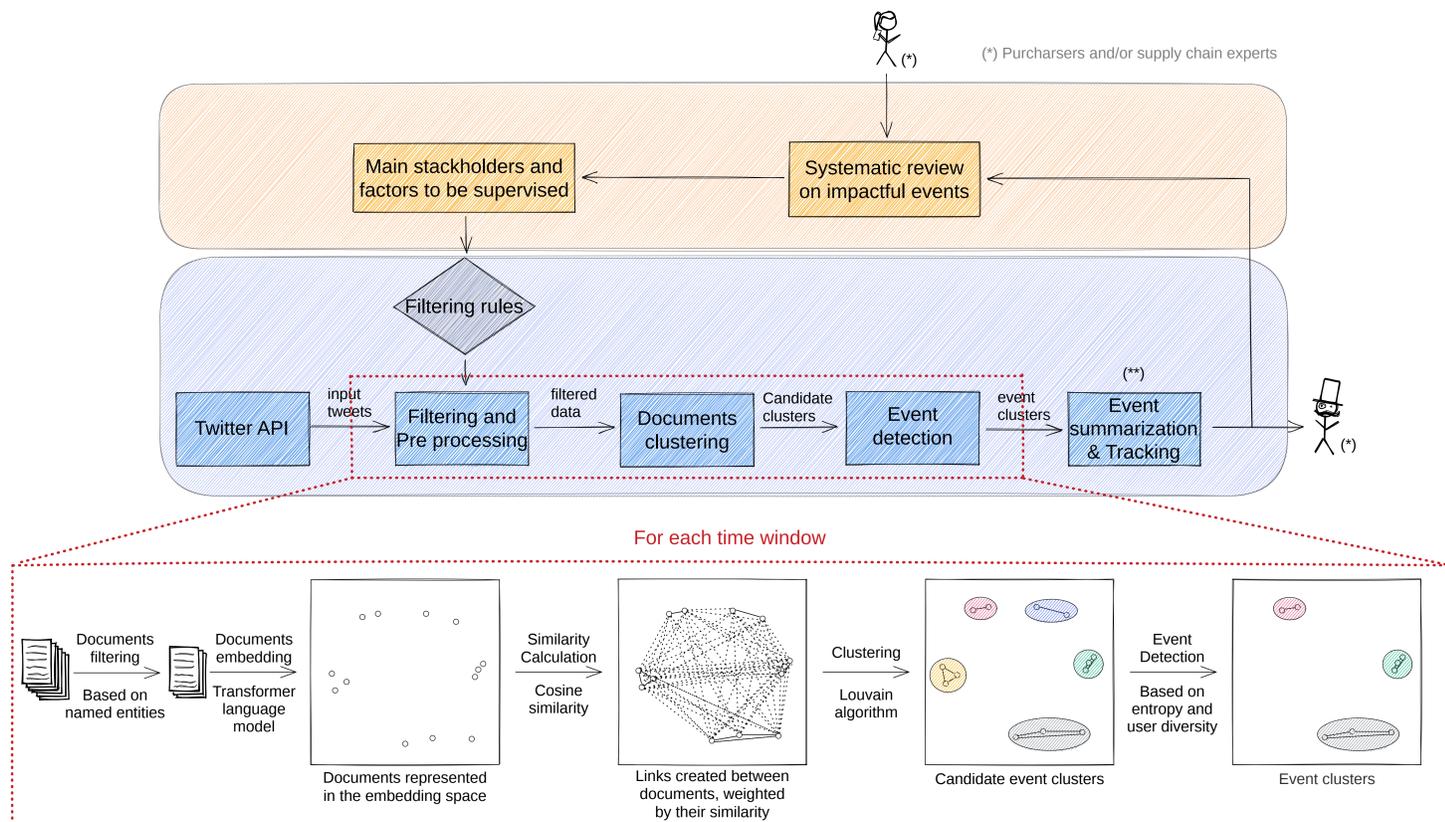
SCIENTIFIC CHALLENGES

SPECIFICITIES OF THE EVENT DETECTION TASK
- Unknown number and types of events,
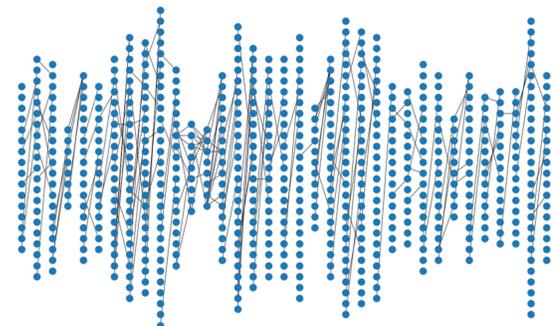- Of different sizes and impact,
- Evolving in time.

SPECIFICITIES OF EACH SUPPLY CHAIN
- Geographical locations,
- Main actors,
- Particularity of the domain.

METHODS

Event Detection System

(*) Purchasers and/or supply chain experts

For each time window

Documents filtering — Based on named entities

Documents embedding — Transformer language model

Documents represented in the embedding space

Similarity Calculation — Cosine similarity

Links created between documents, weighted by their similarity

Clustering — Louvain algorithm

Candidate event clusters

Event Detection — Based on entropy and user diversity

Event clusters

RESULTS

Performances of the system on the Event 2012 dataset, containing 120 million tweets. The system detects approximately 70% of the events.

(**) Illustration of the event tracking process. Each column is a time window, each dot is an event. the process is based on a similarity calculation between representative entities of the events.