



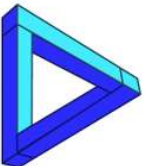
BYTE:

*Big data roadmap and cross-disciplinary community
for addressing societal externalities*

BIG DATA AND SOCIAL MEDIA MINING IN
CRISIS AND EMERGENCY MANAGEMENT –
OPEN SOURCE INTELLIGENCE CONFERENCE
2015, ROME

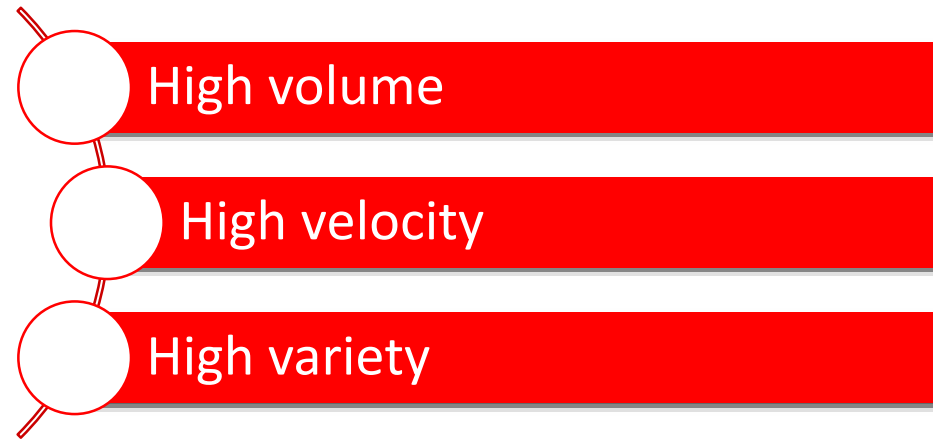
*Anna Donovan, Trilateral Research & Consulting -BYTE Project
Coordinators*

Trilateral
Research &
Consulting



BIG DATA

(Gartner – Laney, 2001)



- Ability to evaluate the **veracity of data & visualise data outputs** (Networked European Software and Service Initiative, 2012)
- Ability to **enhance insight or improve decision-making** (Australian Department of Finance and Deregulation, 2013)

BIG 'CRISIS' DATA

Data that can be used within crisis management

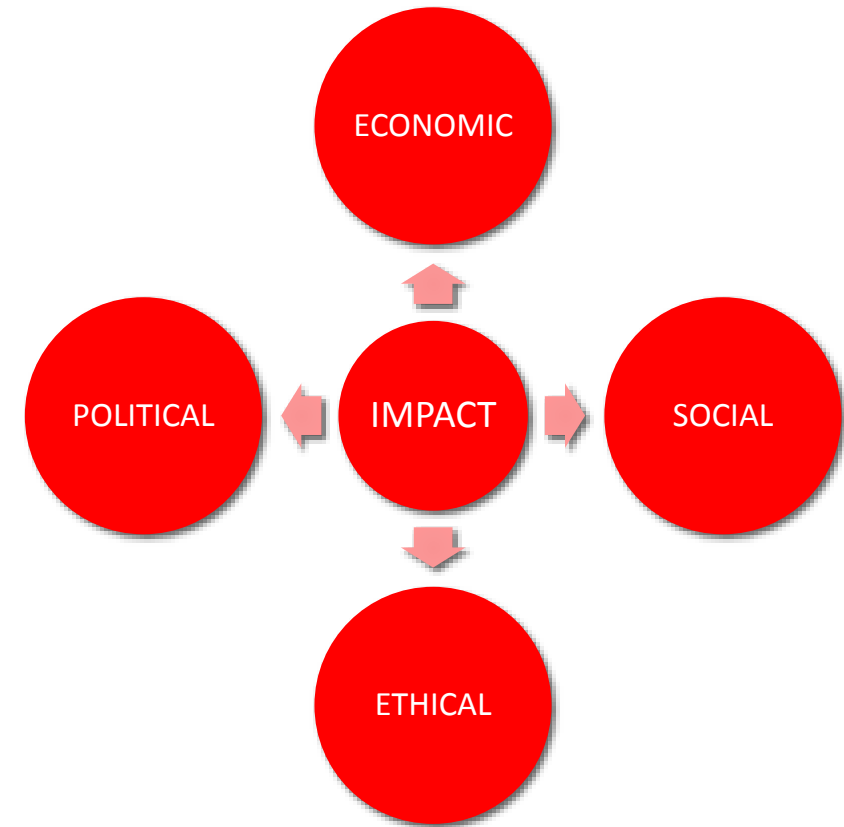


HOW to use this data in an **ethically and legally responsible manner** is essential!



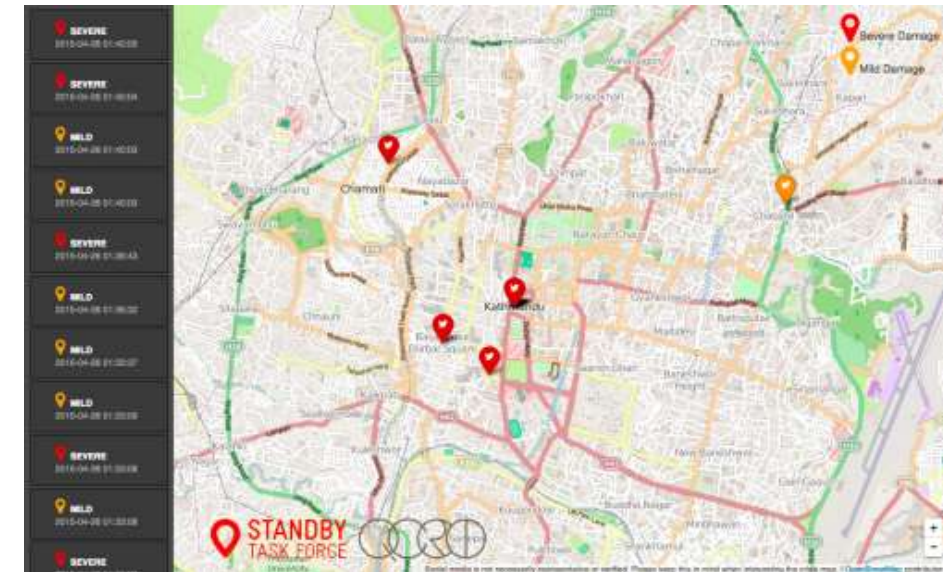
UNDERSTANDING 'EXTERNALITIES'

- In BYTE we consider the **externalities** or **impacts** of big data
- **Positive** effects or benefits realised by a third party
- **Negative** costs (or harm) that affects a third party
- Externalities relate to **social processes** linked to big data, as well as the opportunities & risks that may arise as a result of the **existence of the data**.
- Some effects may be **unexpected or unintentional**



CASE STUDY

- **FOCUS:** The use of social media & GIS data to produce ‘crisis maps’.
- **QUESTION(S):**
 - Which positive and negative societal externalities are associated with the use of big data in crisis management?
 - Who are the (positively and negatively) affected parties?
 - How might potential positive impacts captured, and how might challenges associated with negative impacts addressed?
- **WHO:** Research Institute for Crisis Computing (RICC), Crisis Mappers, humanitarian organisations & other relevant groups. 2 specific projects – 1) automatic classification of Tweets & text messages; 2) multi-media content in tweets to identify damage to infrastructure
- **METHODS:** Desk-based research and primary research



Meier (2015)

POTENTIAL EXTERNALITIES

- Build situational awareness, increase citizen protection & trust through interactive & responsive relief actions.
- Enhancing & facilitating engagement with digital volunteers – also enhances verification of social media data!

TYPHOON YOLANDA (HAIYAN) – PHILIPPINES 2013

DIGITAL VOLUNTEER GROUPS MOBILISED TO COLLATE IMAGE BASED DATA – SUPPORT UN OCHA

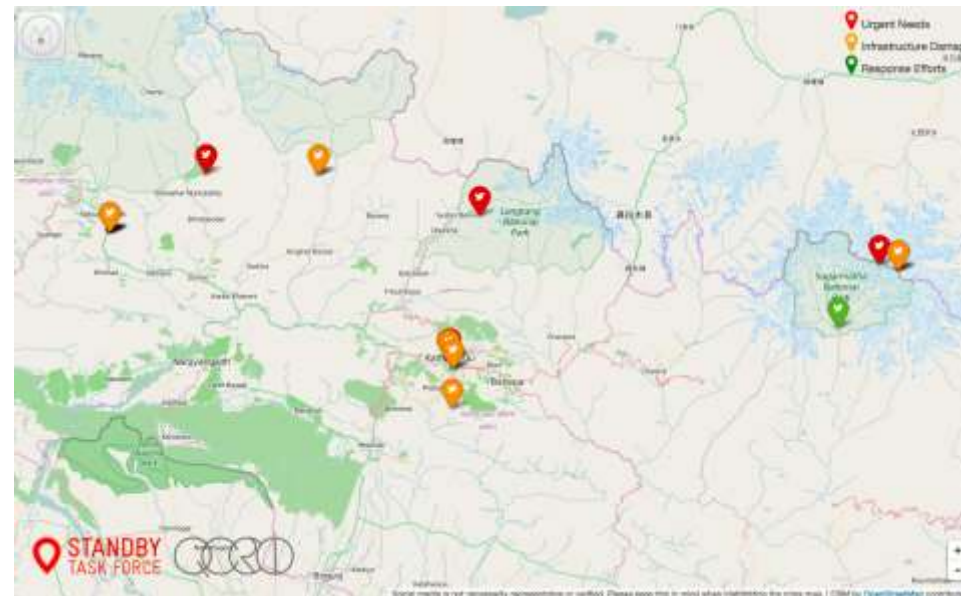
MAY NOT INCREASE THE RATE AT WHICH SUPPORT CAN BE GIVEN BUT CAN SUPPORT IN ENHANCING
SITUATIONAL AWARENESS & GUIDE RESPONDERS



POTENTIAL EXTERNALITIES

- Rich & detailed information resource – increased efficiency in planning and use of resources
- Enhancing R&D – particularly open sourced software

**SBTF – APRIL 2015
- NEPAL
DEPLOYMENT –
CRISIS MAPS**



Micromappers (2015)



@BYTE_EU

www.byte-project.eu



POTENTIAL EXTERNALITIES

- **Privacy and data protection infringements** – mining of social media & other citizen-produced data
 - Progress is being made in this area!
- **Enhancing ethical practices** - “we don’t retain personal information, we don’t share personal information” (Programme Manager, RICC).
 - Edit the data so that different stakeholders get access to a different degree of detail.
 - Screening digital volunteers (via application process) – conflict of interest?
- A case of **exception**? ‘trade-off’ model of privacy & security
- Undermining **trust** of citizens towards governments – unauthorised collection of information
- **Sampling bias** - data coming from social media users is always inherently biased towards young, educated and physically able populations – over-reliance - disproportionate provision of aid to some locations and populations
 - With respect to data acquisition, acquiring proprietary data, acquiring a full data set, and acquiring valid data were reported as key issues.



NEXT STEPS

Analysis of focus group (March 2015) findings

- Beyond response – support preparedness activities as well – e.g., prediction of vulnerable populations for risk assessment purposes
- Technical challenges
- Organisational culture challenges
- Economic benefits gained through improved situational awareness – better targeting of services
- Ethical data practices
- Secondary use of data – misinterpretation
- Discrimination
- Political externalities – e.g., established partnerships,

ELSEWHERE IN BYTE

- Additional case studies (x6) – environment, transport, smart cities, cultural, energy and health.
- Consideration of how to diminish negative externalities to support European innovation.
- Foresight analysis to consider how big data will develop to the year 2020.
- Develop a research and policy roadmap that provides incremental steps necessary to support industry, scientists, practitioners and members of the public to address these externalities.



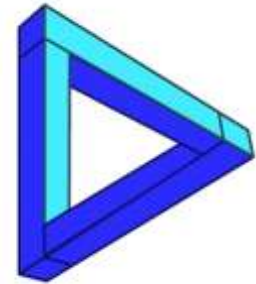
THANK YOU

Any questions?

Key contacts:

- **Anna Donovan** – anna.donovan@trilateralresearch.com
- **Rachel Finn** – rachel.finn@trilateralresearch.com
- **Kush Wadhwa** – kush.wadhwa@trilateralresearch.com

**Trilateral
Research &
Consulting**



@BYTE_EU

www.byte-project.eu

