Making Sense of Crises: Transdisciplinary Perspectives

Prof. Nitin Sawhney and Ali Unlu

CRAI-CIS Research Group and THL

*Department of Computer Science
Aalto University*

Red Cross Nordic Skillshare

May 23, 2024

crai cis
critical ai & crisis interrogatives

Projects

trust–M: Designing Inclusive & Trustworthy Digital Public Services for Migrants
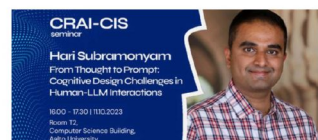
civic agency in artificial intelligence

ai—infused disinformation in media communications

Crisis Narratives

Principles & Practices

- Explore the impact of technology in critical societal contexts for responsible AI, inclusion and civic agency.

- Interdisciplinary group working at the intersection of computational & social sciences engaging HCI, participatory design, and policy.

- Focus on collaboration with societal partners, especially the public sector in Finland.

Public Engagement

CRAI-CIS seminar
Hari Subramonyam
From Thought to Prompt: Cognitive Design Challenges in Human-LLM Interactions
16:00 - 17:30 | 11.10.2023
Room T2,
Computer Science Building,
Aalto University

From Thought to Prompt: Cognitive Design Challenges in Human-LLM Interactions
11.10.2023 16:00–17:30 | Events

CRAI-CIS seminar
Sarah Pink
Life and Tech at the Edge: Refiguring Possible Futures
16:00 - 17:30 | 20.09.2023
Room T1,
Computer Science Building
Aalto University

Life and Tech at the Edge: Refiguring Possible Futures
Speaker: Sarah Pink
20.9.2023 16:00–17:30 | Events

CRAI-CIS seminar
Michel Beaudouin-Lafon
Theory-driven HCI
14:00 - 15:30
11.05.2023
Room T1
Computer Science Building

Theory-driven HCI
Speaker: Michel Beaudouin-Lafon
Professor of Computer
11.5.2023 14:00–15:30 | Events

People

Nitin Sawhney
Professor of Practice

Minttu Tikka
Postdoctoral Researcher
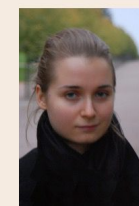
Viivi Eskelinen
Postdoctoral researcher

Fedor Vitiugin
Postdoctoral researcher

Sunok Lee
Postdoctoral Researcher

Henna Paakki
Doctoral Researcher

Kaisla Kajava
Doctoral Researcher

Karolina Drobotowicz
Doctoral Researcher

Antti Rannisto
Doctoral Researcher

Ana Paula Gonzalez Torres
Doctoral Researcher

Uttishta Varanasi
Doctoral Researcher

Rūta Šerpytytė
Design Researcher

Rahim Ahsanullah
Masters Researcher

Sophie Truong
Research Assistant

Sanni Lares
Masters Researcher

Lucy Truong
Masters Researcher

crai–cis.aalto.fi

And many more …

Affecting individual, group, community, society, nation or system

Turning point for better or worse

Krisis – to separate, to decide, to draw distinction

Decisive moment (as in a literary plot)

A situation that has reached a critical phase

Crises

Unstable or crucial time when a decisive change is impending

Different scales, durations and frequencies of impact

Physical, social or psychological stress

Crisis of moral values, an economical or political crisis

Communication

Situational awareness, trust, and contextually relevant sensemaking among all stakeholders.

Cooperation

Process of working or acting together for common, mutual, or underlying benefit.

Crises

Contestation

For democracy "agonistic confrontation" is in fact its very condition of existence.
- Chantal Mouffe

Coping with Humanitarian Crises

Public Sector & Civil Society on the Frontlines!

Afghan refugees arrive at Dulles International Airport on Aug. 27, 2021, after being evacuated from Kabul following the Taliban takeover of Afghanistan.

Olivier Douliery/AFP via Getty Images

rĕst ŏf wŏrld
Reporting Global Tech Stories

Communication in Crisis

AI translation is jeopardizing Afghan asylum claims

Cost-cutting translations are introducing errors and putting refugees at risk.

A crisis translator specializing in Afghan languages, Mirkhail was working with a Pashto-speaking refugee who had fled Afghanistan. A U.S. court had denied the refugee's asylum bid because her written application didn't match the story told in the initial interviews.

A”
Aalto University
School of Science

Lost in Translation: Algorithmic Discrimination

"Machine-learning translations are not yet in a place to be trusted completely without human review."

The challenge of "low-resource" languages like Pashto and increasing use of machine translations in immigration services!

Home Office to scrap 'racist algorithm' for UK visa applicants

Tool criticised for creating hostile environment for migrants and 'speedy boarding for white people'
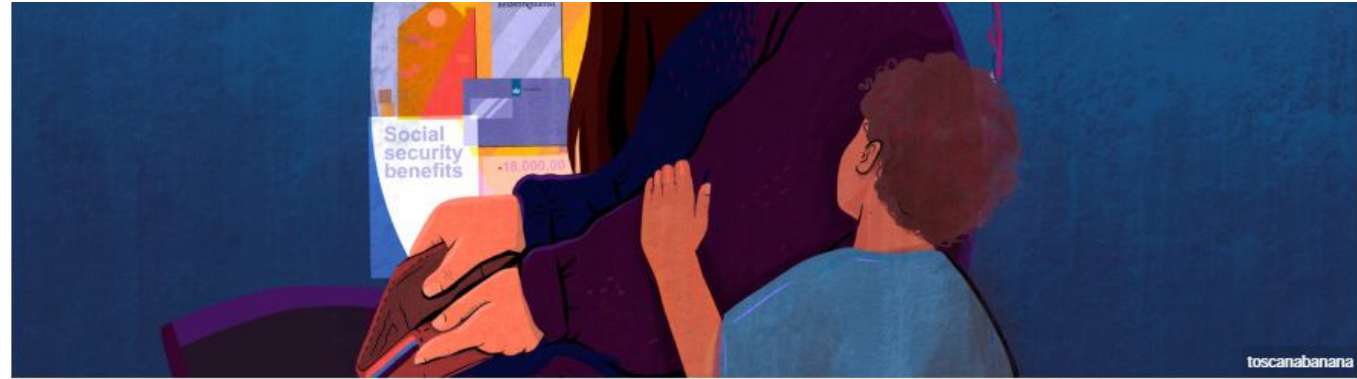

Home Office solicitors confirmed that the home secretary, Priti Patel (pictured), 'has decided that she will discontinue the use of the streaming tool to assess visa applications, pending a substitute review of its operation'. Photograph: Dominic Lipinski/PA

The Home Office is to scrap a controversial decision-making algorithm that migrants' rights campaigners claim created a "hostile environment" for people applying for UK visas.

The "streaming algorithm", which campaigners have described as racist, has been used since 2015 to process visa applications to the UK. It will be abandoned from Friday, according to a letter from Home Office solicitors seen by the Guardian.

The decision to scrap it comes ahead of a judicial review from the Joint Council for the Welfare of Immigrants (JCWI), which was to challenge the Home Office's artificial intelligence system that filters UK visa applications.

October 25, 2021

Dutch childcare benefit scandal an urgent wake-up call to ban racist algorithms

The Dutch government risks exacerbating racial discrimination through the continued use of unregulated algorithms in the public sector, Amnesty International said in a damning new analysis of the country's childcare benefit scandal.

The report *Xenophobic Machines* exposes how racial profiling was baked into the design of the algorithmic system used to determine whether claims for childcare benefit were flagged as incorrect and potentially fraudulent. Tens of thousands of parents and caregivers from mostly low-income families were falsely accused of fraud by the Dutch tax authorities as a result, with people from ethnic minorities disproportionately impacted. While the scandal brought down the Dutch government in January, sufficient lessons have not been learnt despite multiple investigations.

> "
> Governments around the world are rushing to automate the delivery of public services, but it is the most marginalized in society that are paying the highest price.
>
> Merel Koning, Senior Advisor on Technology and Human Rights

Recently added

Senegal: The State must move from commitment to strong action to protect talibé children

FIFA misleading world on remedy for migrant workers

Op-ed: A flicker of hope for human rights in South Asia

Write for Rights 2022: Championing activists in a year of global protest

Write for Rights: World's biggest human rights event returns for Human Rights Day 2022

Amnesty International News

Way Forward?
Fostering Inclusive
Trustworthy and
Responsible AI in
the Public Sector

Creating trustworthy and accessible digital public services for migrants

strategicRESEARCH

+M trust m

- Interdisciplinary team of 30+ people
- Funded for 3 (+3) years
- Looking for hybrid services, possibly based on conversational AI and/or speech-based interaction
- One of the main migrant groups of interest is migrant women
- Piloting services in the City of Espoo.

A! Aalto University — TRUST TECH

Tampere University — DESIGN

HELSINGIN YLIOPISTO — POLICY

ESPOO ESBO — IMPACT

trustmproject.aalto.fi

Participatory Research & Collaborative Design

21.7.2023 / Collaborations

Stretching our empathy towards migrant challenges: collaborative workshops with the city of Espoo

By Rūta Šerpytytė – Design researcher at Trust M

Bhuvana Sekar, Aalto University and Irena Bakic, City of Espoo

Rahim Ahsanullah and Lucy Truong, Aalto University

Enhancing Conversations in Migrant Counseling Services: Designing for Trustworthy Human-AI Collaboration
- Lucy Truong, Thesis Research (2023)

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Aalto University
School of Science

Understanding Concepts of Trust

Research by Avanti Chajed
Aalto University
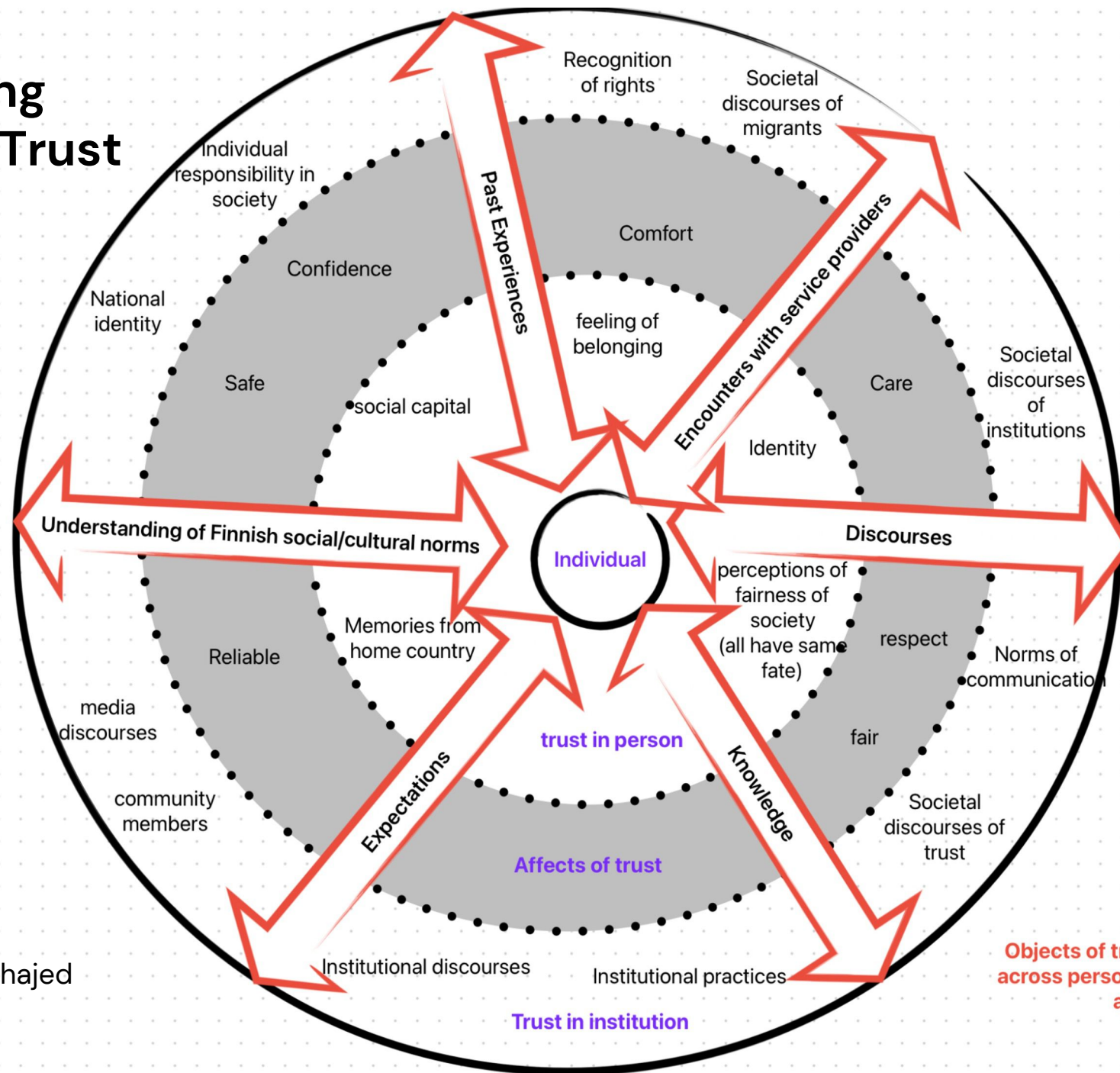
Trust & Context in Crisis Communication

Research Project: *Reconstructing Crisis Narratives for Trustworthy Communication and Cooperative Agency*

Trust in crisis communication
- Relational: bridging authorities and citizens (Hardin 2001)
- Increases the willingness to cooperate (Hoffman 2001)
- Resource and outcome (Offerdal et al. 2021)
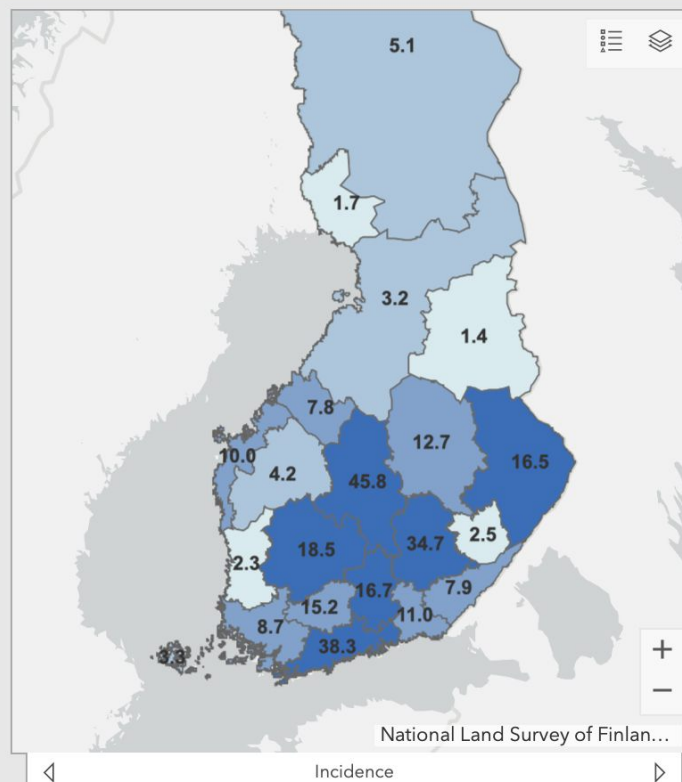
Context in crisis communication
- Crises are temporal and spatial (Dynes 2000; Tierney 2007)
- Contextual vulnerabilities (Hoffman & Oliver-Smith 2002)
- Context resonates in the responses of publics and organizations (Boltanski 1999; Hayes et al. 2021)

* Research by Minttu Tikka, Aalto University & Vuokko Härmä, THL

Confirmed coronavirus cases (COVID-19) in Finland

☰

THL

Source: THL / National Infectious Disease Register, the latest data are from 30/9/2020.

Information in the National Infectious Diseases Register is updated with a few days' delay. The data may be updated retroactively. The information is updated at 12 noon.

The tabs on the map show the incidence of the disease, and the number of cases and tests by hospital district and municipality. The upper right corner of the Incidence tab in the map view allows you to select different map layers. You can either view data from the entire period (cumulative) or from the last 14 days. By default, the map displays data from the previous 14 days. You can find an explanation of the map symbols by clicking on the menu in the upper right

Map (Incidence)

5.1
1.7
3.2
1.4
7.8
10.0
4.2
45.8
12.7
16.5
2.3
18.5
34.7
2.5
15.2
16.7
7.9
8.7
11.0
3.3
38.3

National Land Survey of Finlan…

◁ Incidence ▷

Confirmed cases (cumulative number)

9,992

+100

(change from previous day)

Cases (last 14 days)	Incidence (last 14 days)	Tests (total)
⊕ 1,149	⊕ 20.9	1,038,721
586	10.7	+12,637
(previous 14 days)	(previous 14 days)	(change from previous day)

Cases by age-group

Age group	Cases
0–9	362
10–19	847
20–29	2k
30–39	1.8k
40–49	1.5k
50–59	1.6k
60–69	819
70–79	399
80+	558
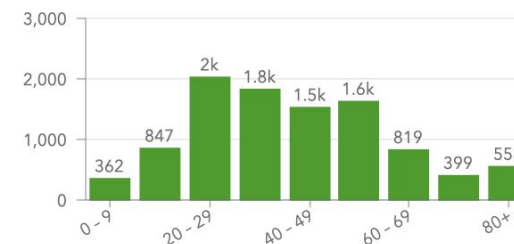
Cases by municipality
(municipalities with fewer than 5 cases excluded)

Cases	Municipality
3459	Helsinki
19	Hollola
101	Hyvinkää
10	Ii
23	Iisalmi
6	Inkoo
17	Jämsä
15	Janakkala
155	Järvenpää
21	Joensuu
270	Jyväskylä
21	Kaarina
30	Kajaani
16	Kangasala
40	Kauniainen
60	Kemi

Number of tested specimens (by date of testing)

Per day | Cumulative

Cases by day (by date of specimen collection)

Per day | Cumulative

PARTICIPATORY DESIGN RESEARCH

In our contextual inquiry we recognized trends indicating that the current pandemic is not the last health crisis and we must be well prepared for future pandemics. Another trend highlighted that in managing crises, collaborative digital tools and services may play a more important role. Furthermore, we observed that engaging with social media interactions plays a growing role in crisis communications; hence in part related to this communication professionals working in local healthcare municipalities are crucial actors. We also engaged other stakeholders involved in public sensemaking processes. As a preliminary design challenge we examined the current communication practices of healthcare professionals working on the frontline. We noticed that they were rather alone in their work, struggling to make sense of the situation in different times of crises.

CONTEXTUAL INQUIRY

PARTICIPATORY DESIGN

We conducted 4 participatory design workshops and multiple interviews with communication experts across regional and national health agencies across Finland. Based on them, a platform was conceptualised with the coronavirus pandemic as its primary "crisis" or scenario of use.

PRODUCT DESIGN

The platform was designed as a "mental prototype" or artefact based on the earlier research conducted in the form of interviews and workshops. The aim was to better define and visualise the use cases and basic interaction. The prototype was intended as a manifestation of the user stories, and needs, rather than an actual solution. A complete look at the prototype can be found on the next page.

SOFTWARE PROTOTYPE AS HYPOTHESIS

The prototype also served as a "hypothesis", whereby we asked the question; **"Will a collaborative, data-based platform allow health communication experts to more effectively make sense of the varied narratives that emerge during a crisis?".**
The fourth participatory design workshop that followed the "software prototype as hypothesis" stage of the research-based design process aimed to use the prototype as a probe, to better understand the approach taken by crisis management and communication experts in sensemaking during crises. A scenario based workshop, the prototype was intended to actualise concepts around sensemaking in a familiar setting of a crisis, which might have otherwise been abstract or vague to those unfamiliar with the term.

Research-based design (Leinonen et.al, 2010)

4 total workshops

16 workshop participants

1 **Contextual Inquiry Workshop**

Participants from
YLE, THL, AVI, Regional Hospital

2 **Contextual Inquiry Workshop**

Participants from
Head of communications at southern Finland's AVI, communications at Social Services, SOTE, Journalist / TV-host

3 **Participatory Design Workshop**

Participants from
Social media analyst, communications at TRAFI, AVI, THL

4 **Participatory Design Workshop**

Participants from
communications at AVI, THL, LVM

YLE- Finnish Broadcasting Company

THL- Finnish institute for Health and Welfare

AVI- Regional State Administrative Agency

LVM- Ministry of Transport and communications

SOTE- Health Care and Rescue Services Division

TRAFI- Finnish Transport Safety Agency

Narratives

News	Social media	Visuals

Topics | Masks | Vaccines | Quarantine | THL |

Statistics Coronavirus ▼

Vaccinations	Deaths

Hospitalisations

Context

Mask mandate for HSL public transport starting from 13 March 2021: information and instructions

HSL | HRT

The Metropolitan Area coronavirus coordination group decides on stricter mask recommendations and extensive remote work

Helsinki

+

Mandatory wearing of face masks by HSL

Maskipakko palasi HSL:n julkiseen liikenteeseen: "Erilaiset variantit leviävät, ja tartuntaluvut ovat nousussa"

HELSINGIN SANOMAT

HSL muutti taas maskilinjaustaan: ensin oli suositus, sitten pakko, nyt maskin käyttöä edellytetään

yle

Flights req...

500
400
300
200
100

Aug Sep Oct Nov Dec Jan Feb Mar Apr
2021

Conversation Notes

Masks *12/03/21*

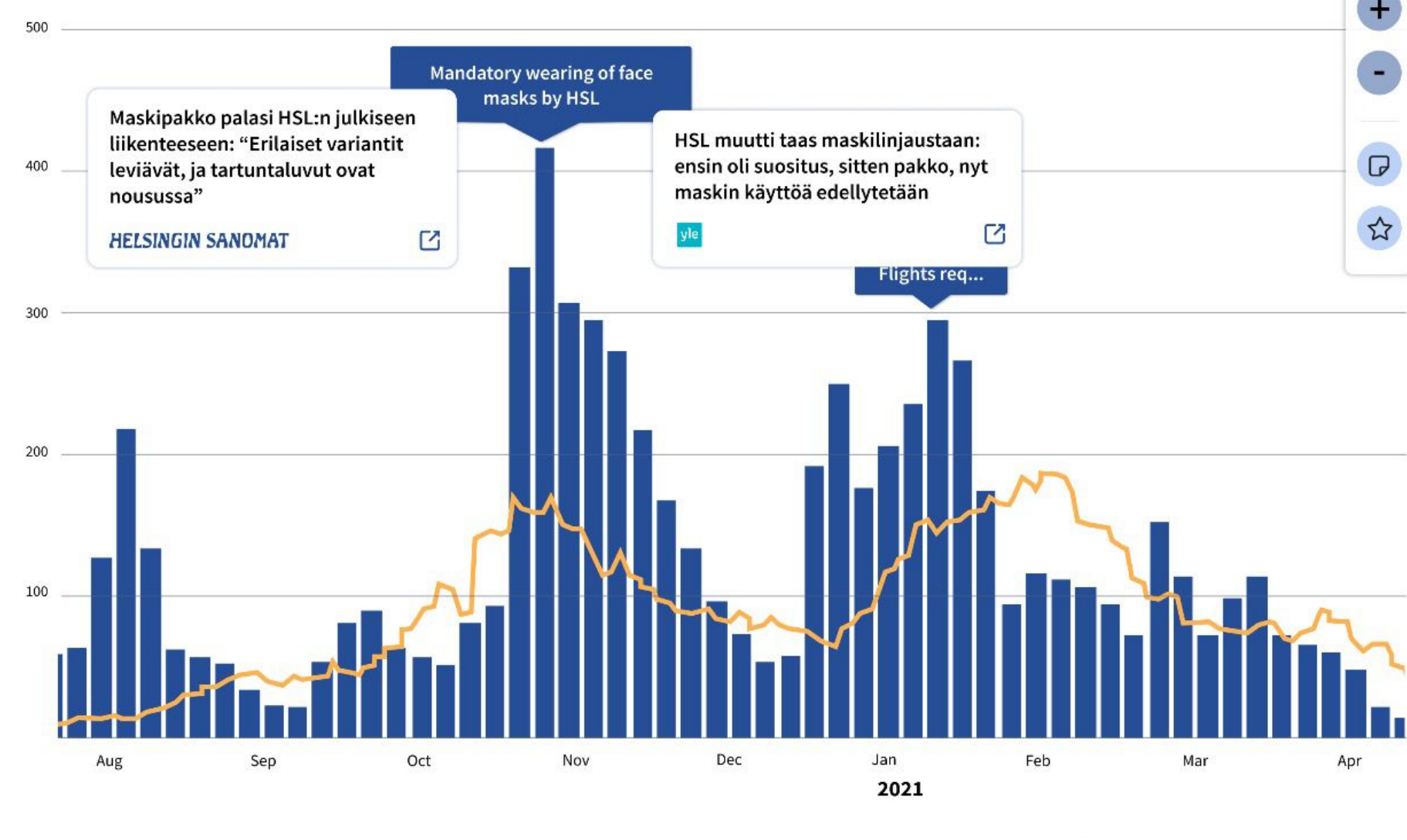Members: Janne Döe   Jari Döe   Hannu Döe   Jakko Döe   Jan Döe

The public was very apprehensive about the new quarantine rules. This point is made in the context of PM's announcement on the 5th of January.

THL did mention the different timeframes for the quarantine. What is the main concern with quarantines? I believe the key concern is for families with small children.

Quarantine *22/05/21*
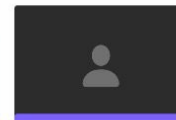
Archive	Export Conversation	Settings

Crisis Narratives

Narratives

News

Social media

Visuals

Topics Masks Vaccines Quarantine THL

Statistics Coronavirus ▼

Vaccinations Deaths

Hospitalisations

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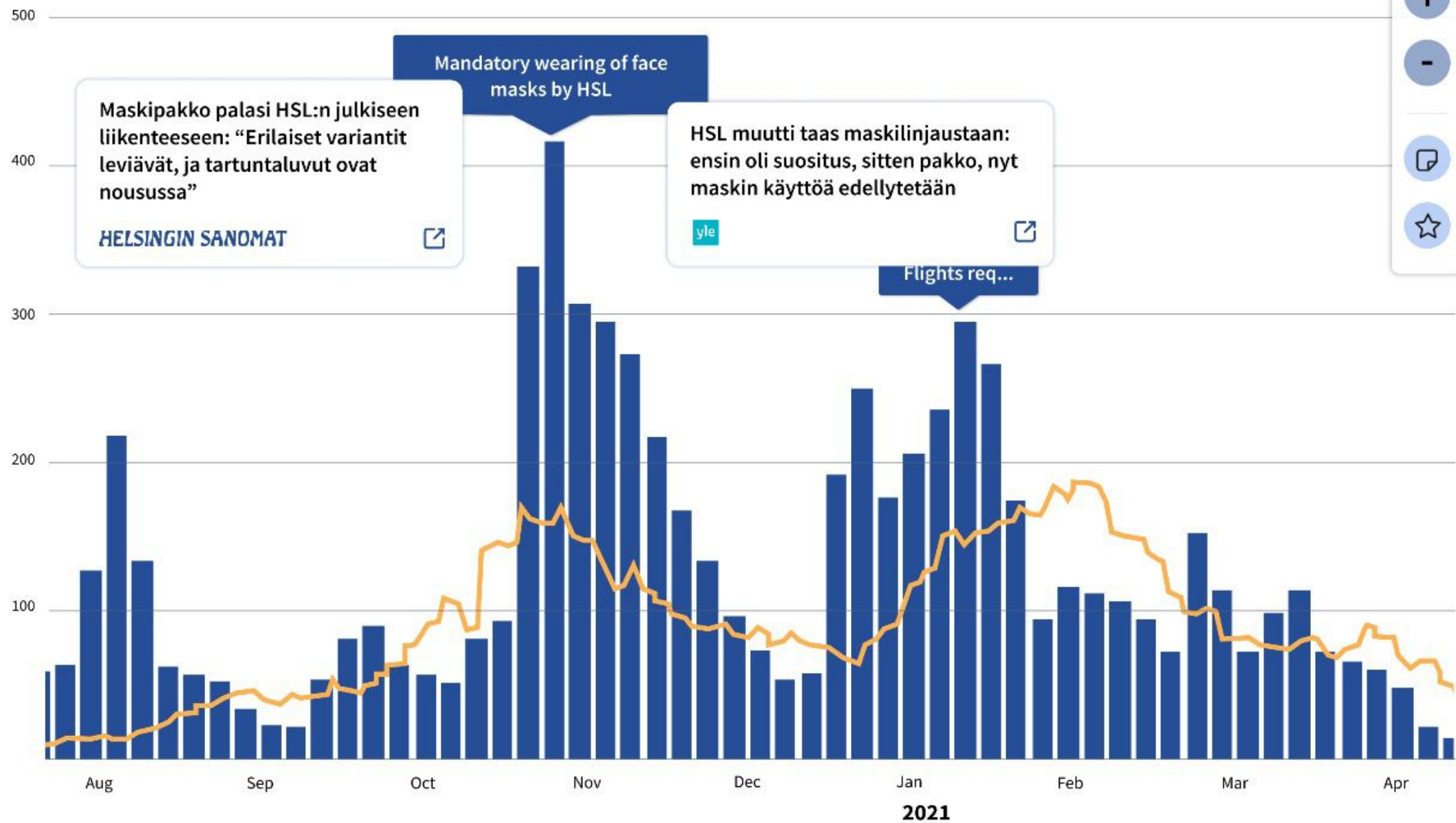
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Statistics Coronavirus ▾

Vaccinations

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Mask mandate for HSL public transport starting from 13 March 2021: information and instructions

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ory wearing of face masks by HSL

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yle

Flights req...

Conversation Notes

Masks   *12/03/21*

Members: Janne Döe   Jari Döe

Hannu Döe   Jakko Döe

Jan Döe

The public was very apprenhensive about the new quarantine rules. This point is made in the context of PM's announcement on the 5th of January.

THL did mention the different timeframes for the quarantine. What is the main concern with quarantines? I believe the key concern is for families with small children.

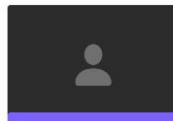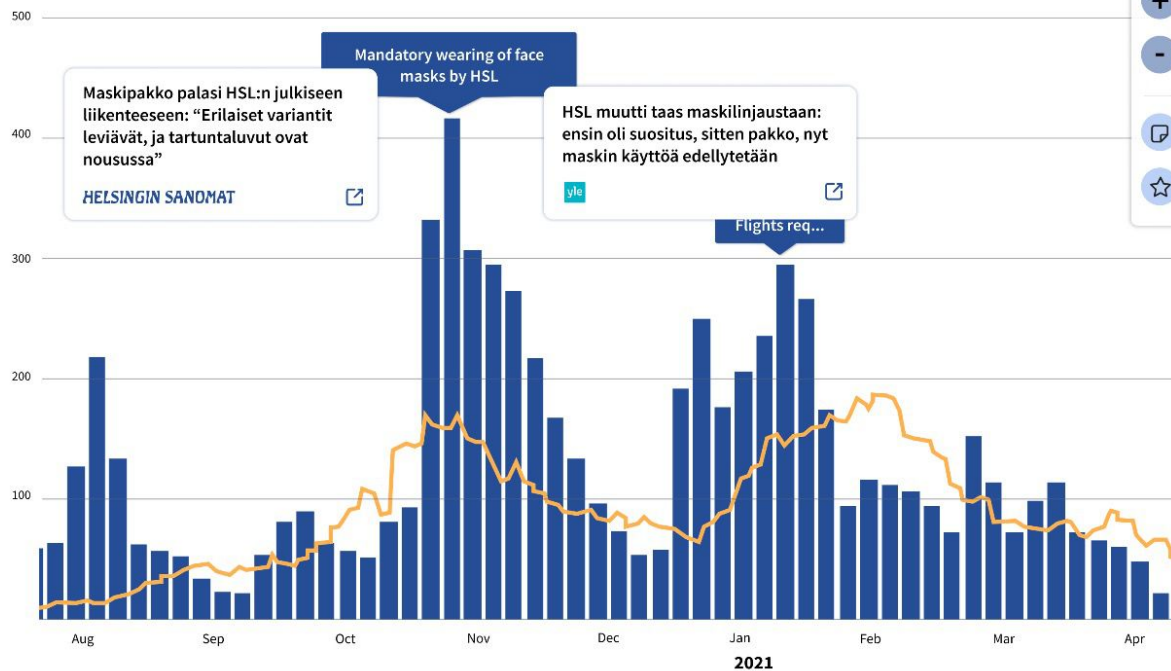**Mandatory wearing of face masks by HSL**

Maskipakko palasi HSL:n julkiseen liikenteeseen: "Erilaiset variantit leviävät, ja tartuntaluvut ovat nousussa"

HELSINGIN SANOMAT

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Flights req...

500

400

300

200

100

Aug   Sep   Oct   Nov   Dec   Jan   Feb   Mar   Apr

2021

Masks

Members: Janne Döe   Jari Döe
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Quarantine

Archive   **Export Conversation**

Data last updated on 11.02.21

DESIGN PRINCIPLES

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DIEGETIC ARTEFACTS

Focus on situational awareness

Sensemaking as a tool

Platforms for collaborative sensemaking

Holistic design of ancillary services

Technology/Solution should be an existing, pre-crisis practice/tool

Sensemaking as a practice

Sensemaking hackathons

Solution must be cross-departmental

Addressing actionable information

Sensemaking as public engagement

Citizen-centred collaborative sensemaking

The solution must have a public facing component

Rather than data-driven dashboards for crisis awareness and decision-making, how do we facilitate cooperative sensemaking among all stakeholders?

Crisis Narratives

A! Aalto University School of Science

thl

Role of AI in Crisis Communication?

Facilitating Communication in Crisis contexts

- The role of **social media** (benefits & challenges)
  - Fast information delivery
  - Overwhelming information a human being can process
  - Algorithmic settings that lead to filter bubbles and echo-chambers
  - Not a one-way communication; several actors involved
  - Bots, misinformation/disinformation, political polarization

- The role of **public health agencies**
  - Providing accurate and timely information
  - Pre-bunking and debunking
  - Public opinion mining

Our research focus

Spread of misinformation and vaccine hesitancy on social media

Relationship between misinformation and vaccine hesitancy

Change in political trust in THL during the crisis on social media (Facebook and Twitter)

Effectiveness of THL in crisis communication

Online communities and their effects on health communication

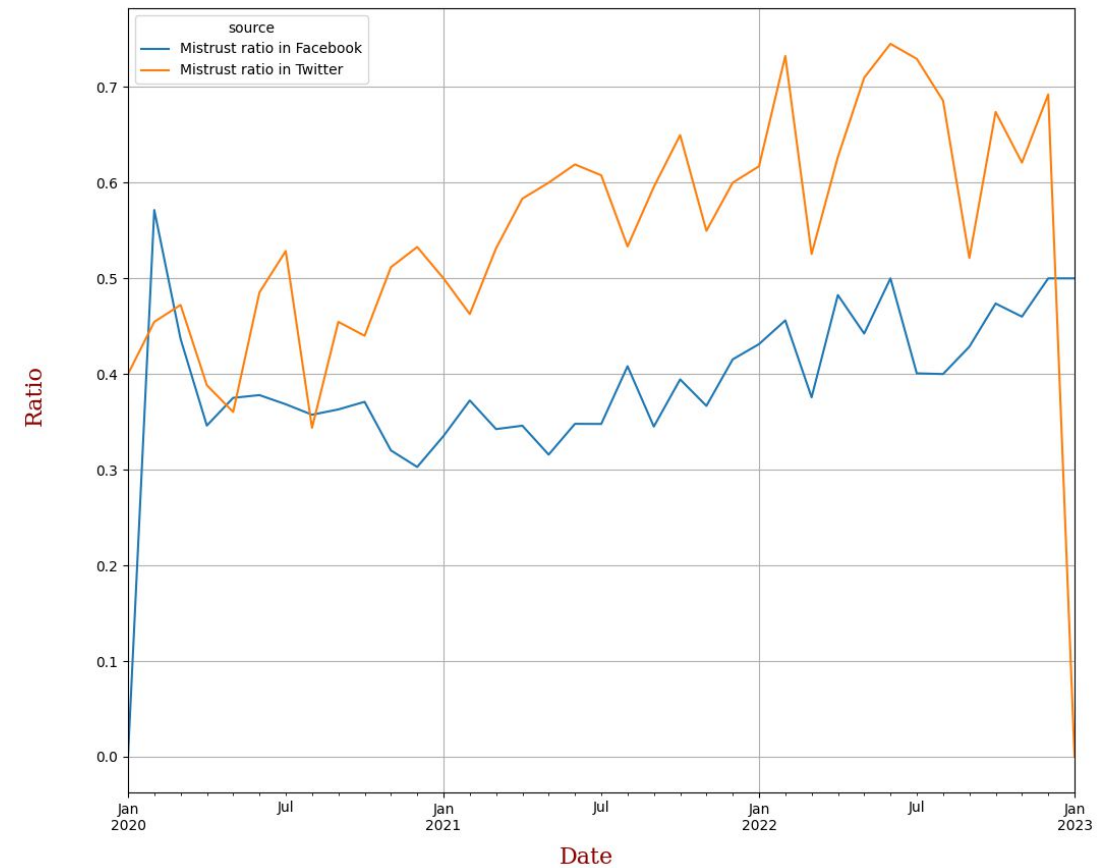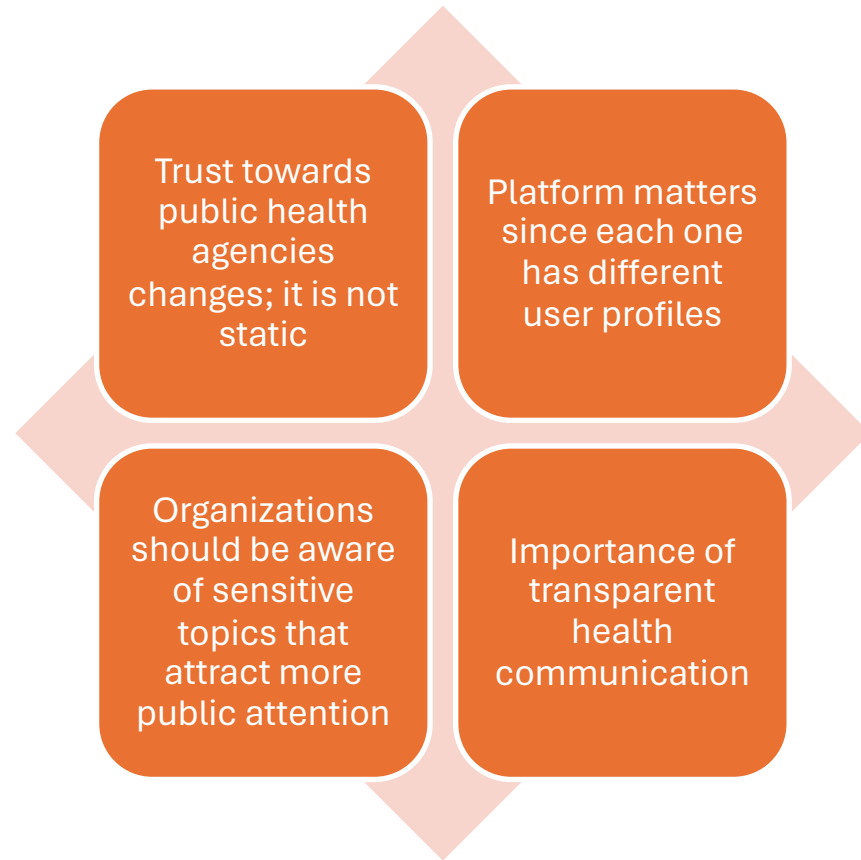The impact of social media bots and other malicious actors on public health communication

Crisis Narratives

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Key Research Outcomes

TRUST

ORGANIZATIONS

ACTORS AND SETTINGS

Role of Trust

Trust towards public health agencies changes; it is not static

Platform matters since each one has different user profiles

Organizations should be aware of sensitive topics that attract more public attention
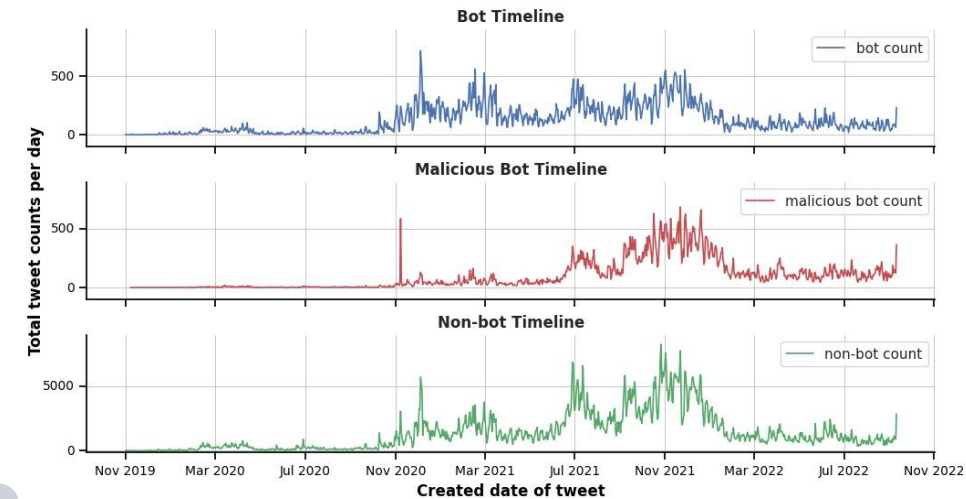
Importance of transparent health communication

Role of Organizations

- Actors engaged with public health organizations have varied

- The type of engagement, content, and actors can change over time

- Better communication strategies require better recognition of your counterparts
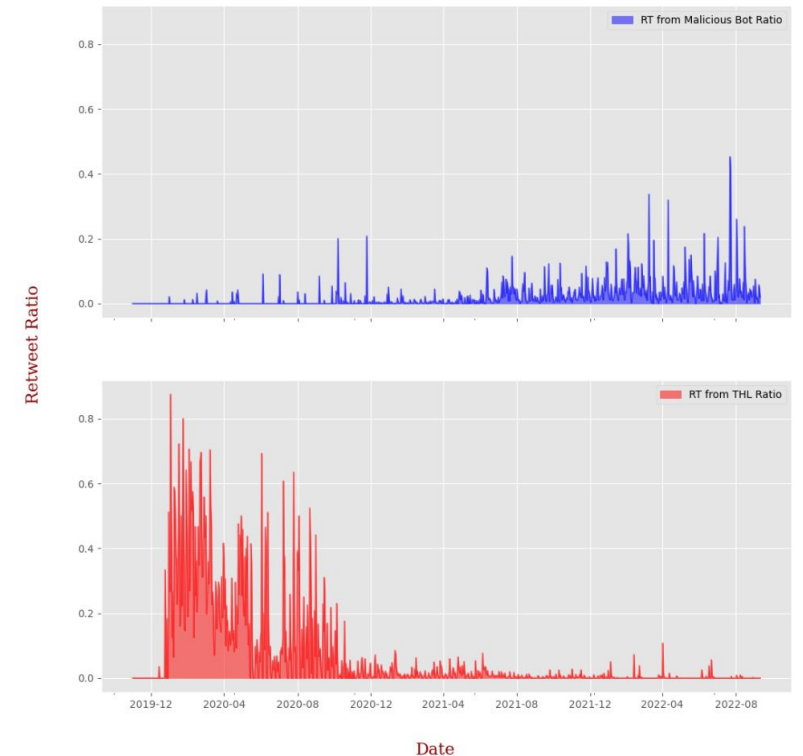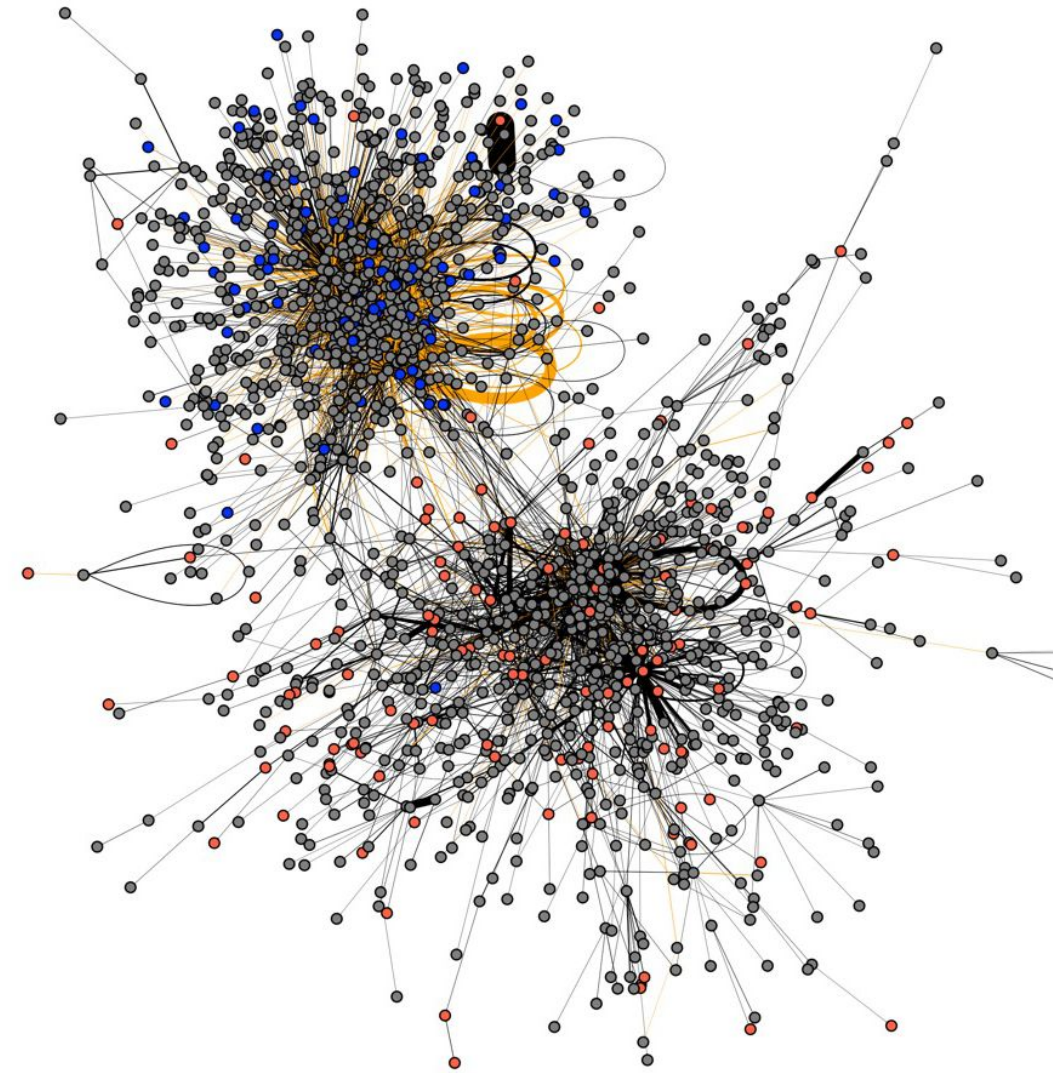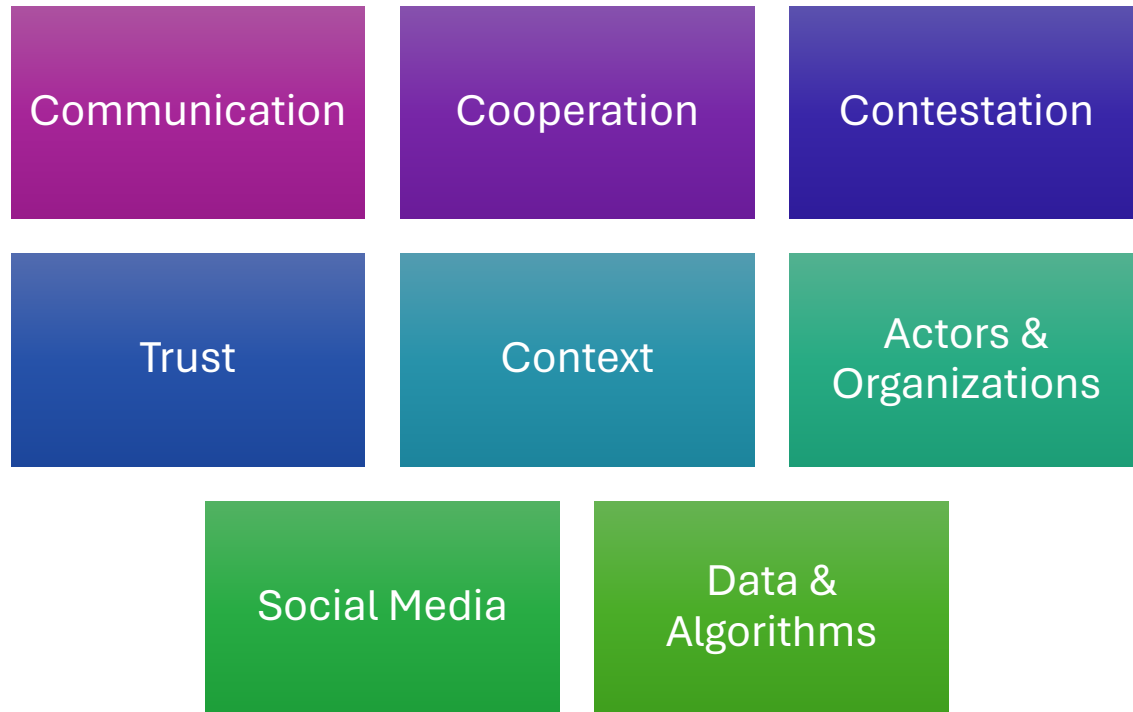
Role of Actors and Settings

- Identification of influential actors is important

- Actors have different communication strategies and priorities

- Setting the agenda requires strategic communication on social media

Community

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

Bot Types

△ bot

☐ malicious bot

○ non-bots
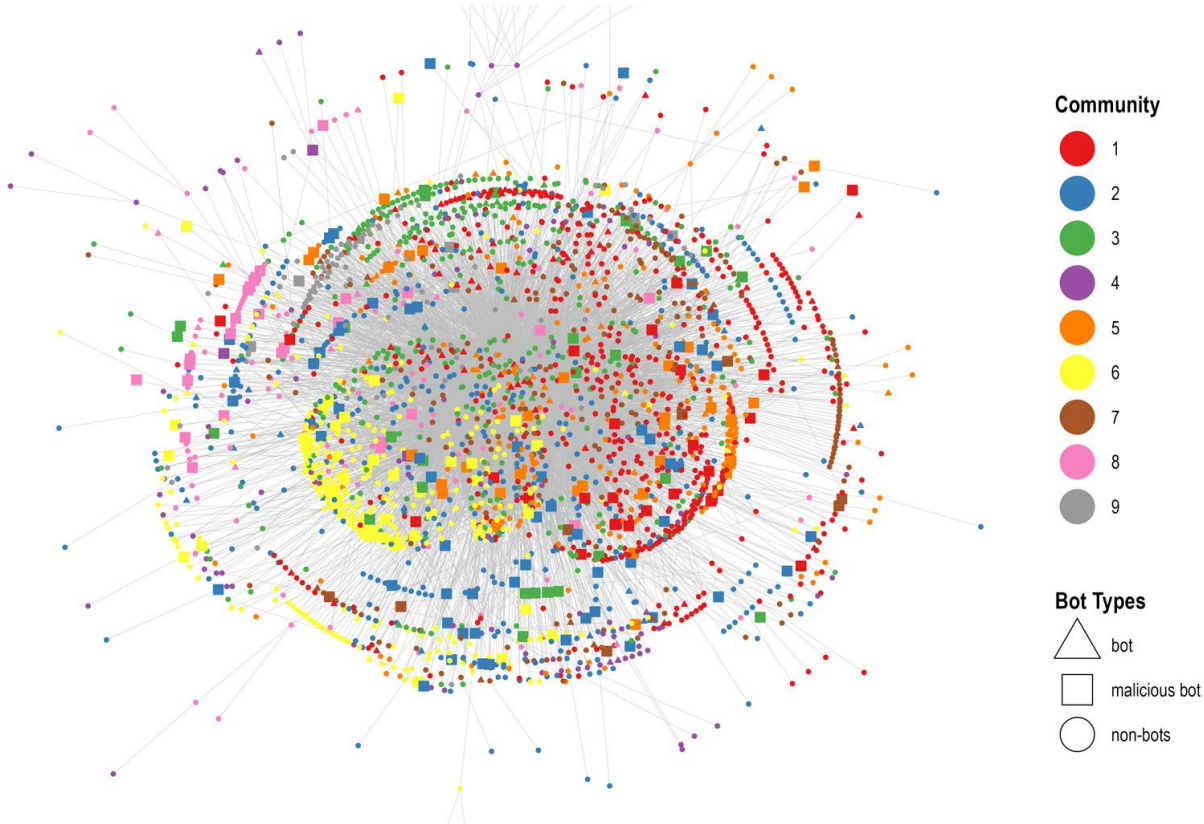
Making Sense of Crises:
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