

# Report on online **dis**information

SPECIAL ISSUE ON CORONAVIRUS

# Table of contents

## 1. What information and disinformation offer about the coronavirus

- 1.1 Information: media coverage of the coronavirus in Italy ▶
- 1.2 Disinformation: space dedicated to the coronavirus ▶
- 1.3 Information vs. Disinformation about the coronavirus in social networks ▶
- 1.4 Weight of disinformation on the coronavirus online news ▶
- 1.5 Information vs. Disinformation: narratives about the coronavirus - First period ▶
- 1.6 Information vs. Disinformation: narratives about the coronavirus - Second period ▶
- 1.7 Main fake news on the coronavirus spread around the world ▶

## 2. What Italians watch online about the coronavirus

- 2.1 Online searches: how much information Italians look for about the coronavirus ▶
- 2.2 Interactions of Italians on social media: how they react to coronavirus contents ▶
- 2.3 Social engagement: how much and what Italians comment on the coronavirus ▶
- 2.4 Online video: the most viewed contents about the coronavirus ▶

## 3. How internet consumption changes during the epidemic in Europe

- 3.1 Online news: the consumption in Europe during the epidemic ▶
- 3.2 Social networks: the consumption in Europe during the epidemic ▶
- 3.3 Instant messaging: the consumption in Europe during the epidemic ▶

## 4. Cybersecurity threats and coronavirus

- 4.1 Cyber attacks: most frequent types and techniques ▶
- 4.2 Cyber attacks related to the coronavirus worldwide ▶
- 4.3 Cyber attacks related to the coronavirus in Italy ▶

## Methodology

*In this Report we refer to the term «coronavirus» in a broad sense to describe all topics related to the current epidemic emergency. More precisely, the scientific name of "new coronavirus" (namely, the virus belonging to the coronaviruses «family» that had never been found in humans before) is "SARS-CoV-2", while the term "Covid-19" identifies the infectious disease caused by the virus*

This issue of the Report on Online Disinformation is dedicated to the analysis of information and disinformation production on the Covid-19 theme, consumption of coronavirus news, as well as cyber security threats.

The figures shown are updated to April 20, 2020 in order to outline the information scenarios that characterize the Italian system two months after the beginning of the medical-health emergency in the country.

The special issue on the coronavirus of the Report on Online Disinformation is part of the activities of the **Roundtable on Digital Platforms and Big Data - Covid-19 Emergency** set up by AGCOM to contribute, among other things, to the fight against online disinformation on issues related to the epidemic.



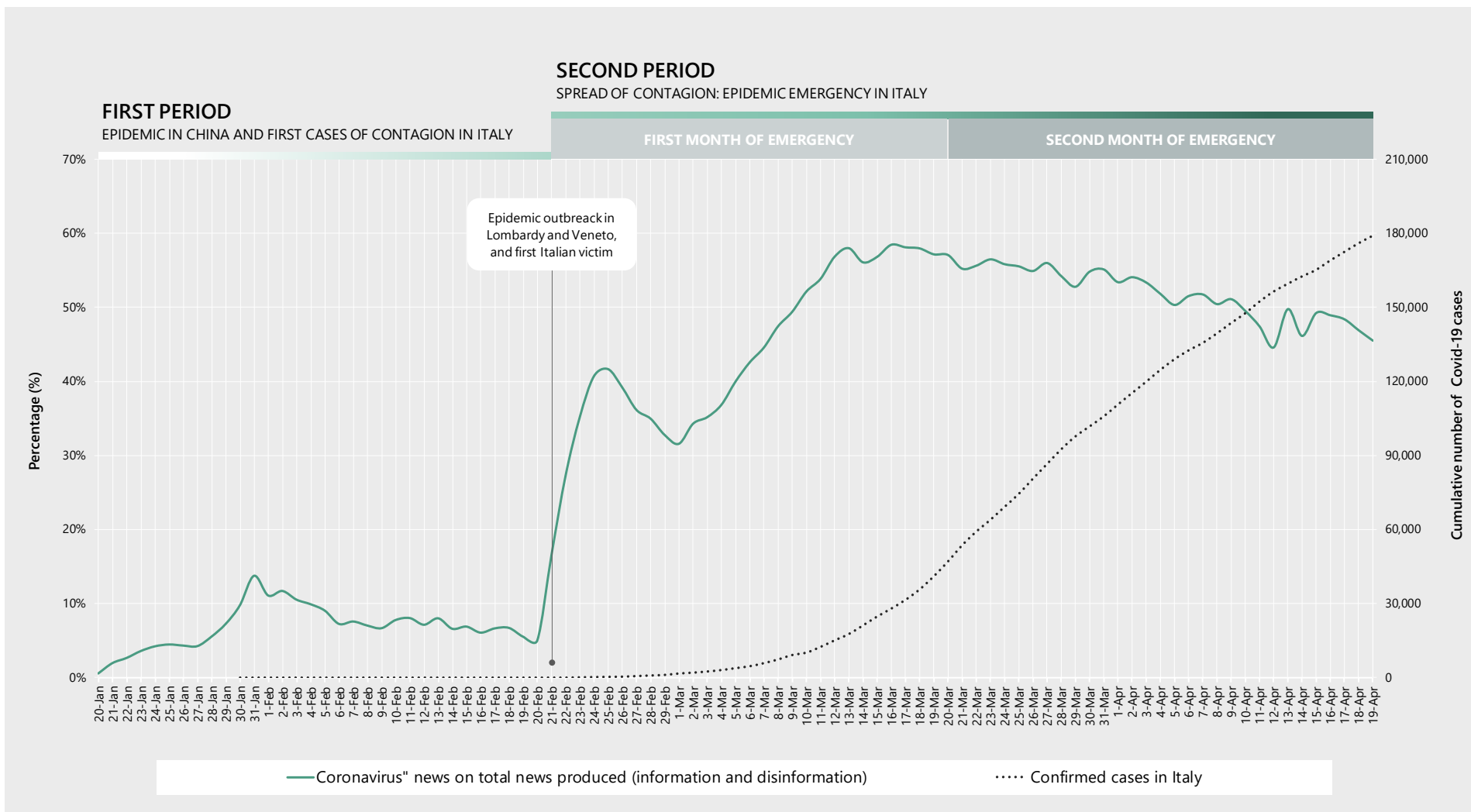
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## WHAT INFORMATION AND DISINFORMATION OFFER ABOUT THE CORONAVIRUS

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## 1.1 Information: media coverage of the coronavirus in Italy

### Daily incidence of coronavirus news on total news produced



After reaching the highest level by the end of the first month of the epidemic outbreak, the **media coverage** of the **coronavirus** news in Italy has settled on **decreasing average daily values**

#### CORONAVIRUS NEWS ON THE AVERAGE DAY

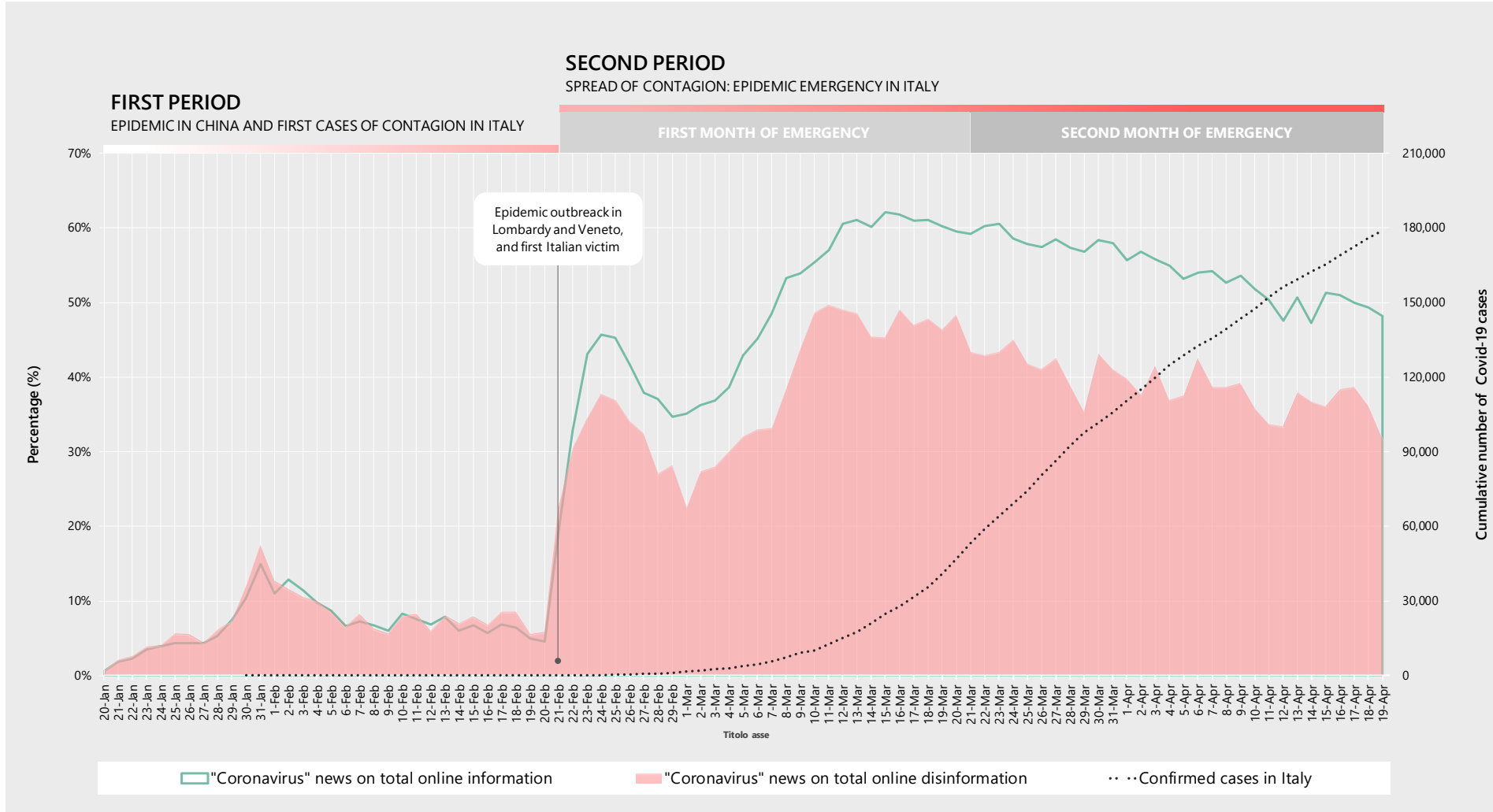
**57%** MARCH,  
of the total 16-22

**↓ 48%** APRIL,  
of the total 13-19

The quantity of daily news on the coronavirus **is still high**. Overall, there are over **1 Million** contents published by the regarding the epidemic during the second period, and more the 600 thousands in the last month

## 1.2 Disinformation: space dedicated to the coronavirus

### Daily incidence of coronavirus news on total disinformation: comparison with online information



The attention attributed by the sources of **disinformation** (websites, pages and social accounts) to the **coronavirus** remains high, even if on the average day it is lower than those observed between 10 and 20 March

#### CORONAVIRUS NEWS ON THE AVERAGE DAY

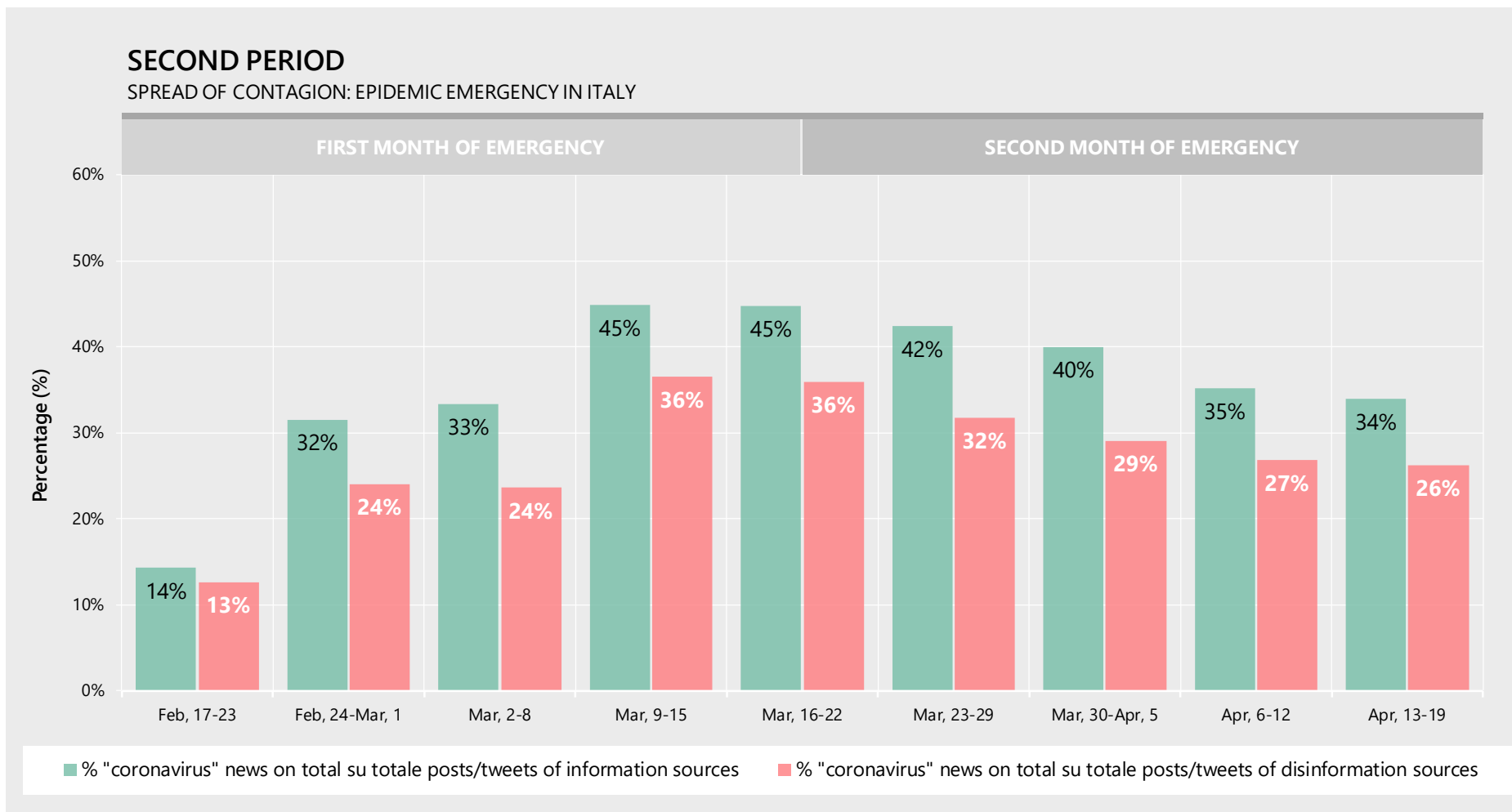
**46%** MARCH, 16-22  
of the total disinformation

**37%** APRIL, 13-19  
of the total disinformation

Comparing the daily trend of the incidence of coronavirus-related news on the total, there are confirmed higher values for online information than for disinformation. In the last week considered, in fact, the **space dedicated to the epidemic by the information component** is on average 50%

## 1.3 Information vs. Disinformation about the coronavirus in social networks

Incidence of coronavirus posts/tweets on total: information and disinformation (% on average day of the week)



**POSTS/TWEETS ABOUT THE  
CORONAVIRUS ON THE AVERAGE  
DAY**

**34%** APRIL,  
13-19  
of the total social  
information sources

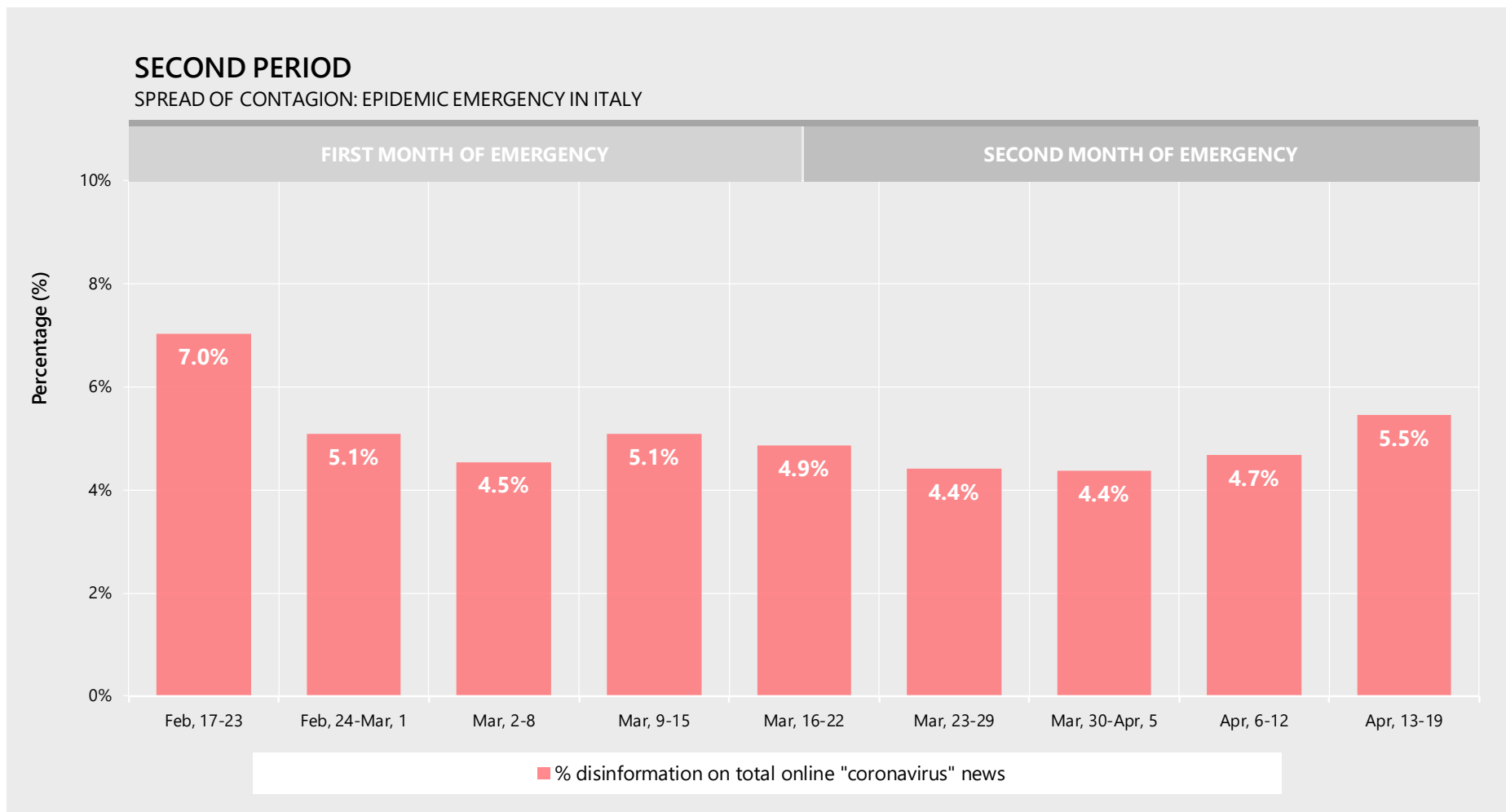
**26%** APRIL,  
13-19  
of the total social  
disinformation sources

In the second month of the epidemic in Italy, although still considerable, the percentage incidence of coronavirus posts and tweets on the total of those published shows a decrease. The **decreasing trend** is found **both for social sources of information** (-11 p.p. in the last week compared to the week from March 16 to 22) **and for those of disinformation** (-10 p.p. in the last 5 weeks)

Note: the figures indicated refer to the posts and tweets published by the pages and social accounts (Facebook and Twitter) of the sources of information and sources of disinformation identified as such by external debunking specialists. Therefore, they do not include users' posts/tweets

## 1.4 Weight of disinformation on the coronavirus online news

Fake news on total online coronavirus news (% on average day of the week)



In the last two weeks under examination, **the incidence of disinformation** on the total news concerning the coronavirus **has increased again**, to over 5%

### INCIDENCE OF DISINFORMATION ON THE AVERAGE DAY

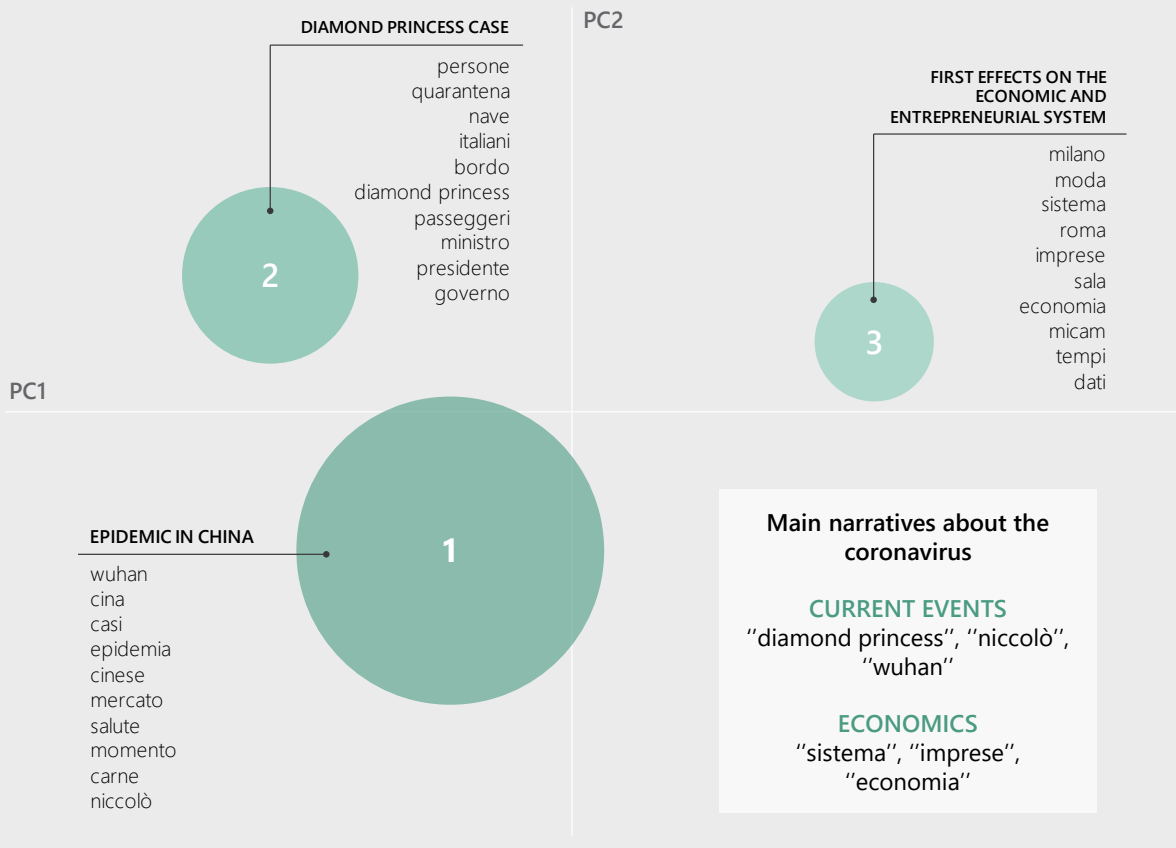
**↑ 5.5%** APRIL,  
13-19  
of the total  
"coronavirus"  
online news

**Except for** the week in which the epidemic began in Italy, where the burden of misinformation on coronavirus-related news reached **7%**, **that of the week between 13 and 19 April is the highest value** detected in the second period

Note: the figures indicated for the first 5 weeks may differ slightly from those reported in the previous issue of the Report, in view of the inclusion in the analysis of further sources of disinformation identified by external debunking specialists, which made it possible to make adjustments also with reference to previous periods

# 1.5 Information vs. Disinformation: narratives about the coronavirus - First period

## ONLINE INFORMATION



### MAIN TOPICS OF THE CORONAVIRUS NEWS

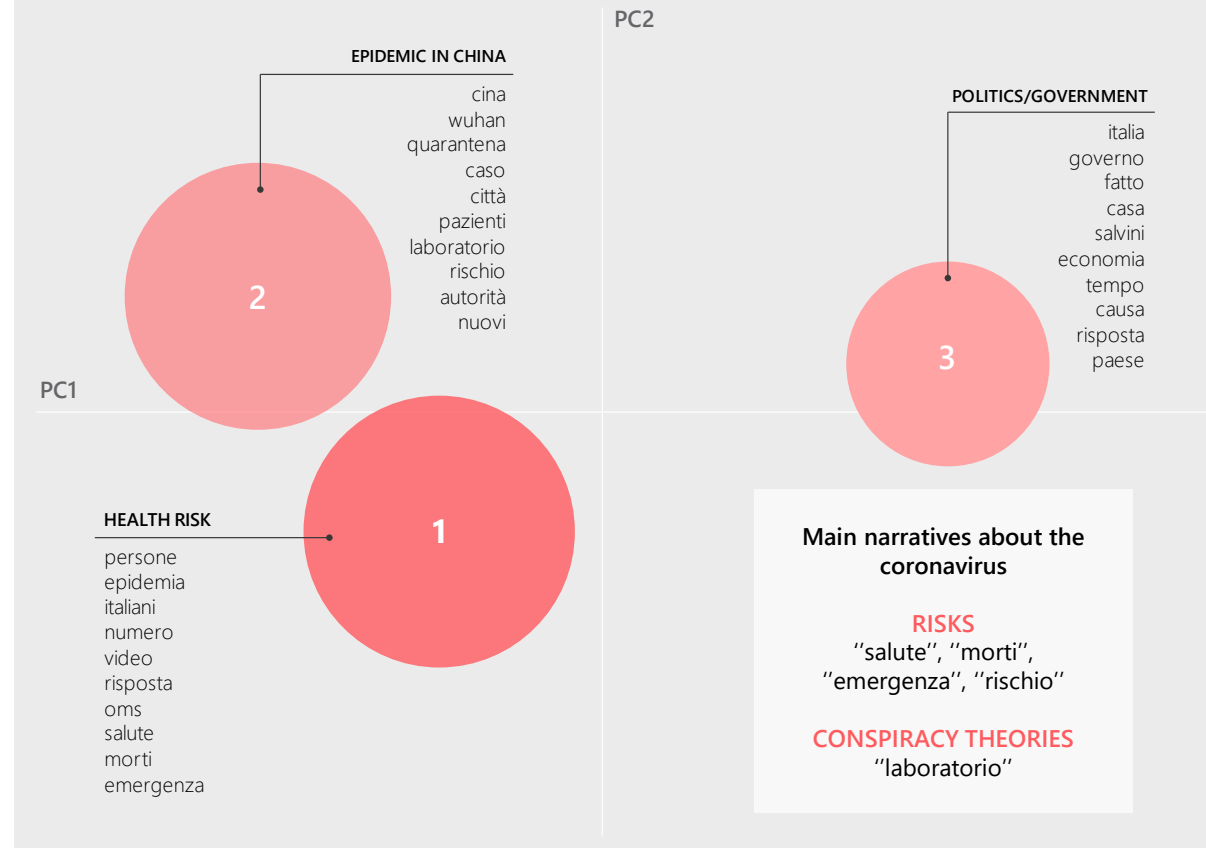
## FIRST PERIOD

UNTIL FEBRUARY, 20

### INFORMATION

Epidemic outbreak in China  
Diamond Princess cruise ship case  
First effects on the Italian economic and entrepreneurial system  
Main narratives: **current events** and **economics**

## ONLINE DISINFORMATION



### DISINFORMATION

Health risk related to the epidemic  
Epidemic outbreak in China  
Political issues and activities of the Italian Government related to the epidemic  
Main narratives: **risks** and **conspiracy theories**

The main macro-themes are identified through the **textual analysis of coronavirus news** of information and disinformation sites (**topic modeling**), which allows to obtain groups of **terms** frequently co-occurring within articles



# 1.6 Information vs. Disinformation: narratives about the coronavirus - Second period

## ONLINE INFORMATION

### EFFECTS ON EVERYDAY LIFE

casa  
vita  
tempo  
paura  
informazione  
continuare  
pagare  
giornalismo  
social  
grazie

2

PC1

Main narratives about the coronavirus

**SOCIO-ECONOMIC EFFECTS**  
"casa", "vita", "imprese", "crisi"

**HEALTH NEWS**  
"contagio", "numero",  
"protezione"

PC2

### EFFECTS ON THE ECONOMY

italia  
governo  
presidente  
misure  
economia  
imprese  
crisi  
conte  
europa  
decreto

3

### EPIDEMIC EMERGENCY IN THE ITALIAN REGIONS

persone  
casi  
lombardia  
regione  
ospedale  
milano  
numero  
veneto  
contagio  
protezione

1

MAIN TOPICS OF THE CORONAVIRUS NEWS

SECOND PERIOD

SINCE FEBRUARY, 21

## INFORMATION

Epidemic emergency in the Italian regions due to the spread of contagion

Effects of the epidemic on everyday life

Effects of the epidemic on the Italian economy

Main narratives: socio-economic effects and health news

## ONLINE DISINFORMATION

### EFFECTS ON LIFE AND WORK

emergenza  
momento  
euro  
attività  
lavoro  
mani  
vita  
economia  
mascherine  
crisi

1

PC1

Main narratives about the coronavirus

**RISKS**  
"mascherine", "emergenza",  
"diffusione", "test"

**CURRENT EVENTS**  
"casi", "ospedale", "paziente"

PC2

### HEALTH EMERGENCY

ospedale  
quarantena  
regione  
positivo  
milano  
napoli  
test  
vittima  
paziente  
ricoverato

3

### EPIDEMIC AND GOVERNMENT

italia  
casi  
governo  
epidemia  
misure  
morti  
contagi  
conte  
presidente  
diffusione

2

## DISINFORMATION

Effects of the epidemic on everyday life and work

Epidemic in Italy and government actions

Health emergency situation

Main narratives: risks and current events

The textual analysis of the coronavirus news highlights how, in the second period, information and disinformation focus on the Italian medical-health emergency situation and the impact on citizens' living conditions. In terms of **disinformation**, news communication appears to be based on the recurrent use of terms capable of stimulating **negative emotions**

THE COVID-19 VIRUS WAS STOLEN OUT OF A CANADIAN LAB BY CHINESE SPIES



**FALSE**

There is no evidence that the COVID-19 virus was stolen by Chinese spies from a Canadian lab

THE COVID-19 VIRUS CONTAINS HIV-LIKE SEQUENCES



**MISLEADING**

The similarity with HIV was deduced from a study, later withdrawn, based on extremely short sequences, which are present in many other organisms

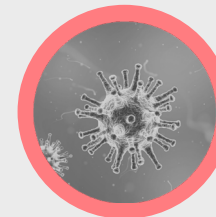
THE COVID-19 PANDEMIC WAS PREDICTED IN A SIMULATION



**FALSE**

The Event 201 pandemic preparedness exercise involved a fictional coronavirus, with different characteristics than the COVID-19 virus

A GROUP FUNDED BY BILL GATES PATENTED THE COVID-19 VIRUS



**FALSE**

The patent in question covers a different strain of coronavirus that affects only chickens, not humans

THE COVID-19 VIRUS IS A MANMADE BIOWEAPON



**FALSE**

Scientific studies show that the new coronavirus is not a laboratory construct or a purposefully manipulated virus

5G CELL PHONE TECHNOLOGY IS LINKED TO THE CORONAVIRUS OUTBREAK



**FALSE**

There is no evidence that the health effects of the COVID-19 virus are related to 5G cell phone technology

COLLOIDAL SILVER CAN CURE COVID-19



**FALSE**

There is no evidence of the effectiveness of dietary supplements in preventing or curing Covid-19, and colloidal silver can have serious side effects

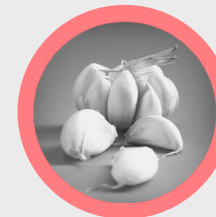
MIRACLE MINERAL SOLUTION CAN CURE COVID-19



**FALSE**

There is no reliable evidence supporting its use for COVID-19 or any other disease, and ingesting it can cause serious side effects

GARLIC CAN CURE COVID-19



**FALSE**

According to the WHO, there is no evidence that garlic consumption has protected people from the new coronavirus strain

THE EFFECTIVENESS OF DOSES OF VITAMIN C FOR COVID-19 HAS BEEN PROVEN



**FALSE**

It is true that a clinical study is underway in China, but the claim that it is a proven treatment is not supported by scientific evidence

Source: Newsguard, analysis of J. Gregory e K. McDonald (Coronavirus Misinformation Tracking Center)

 [For more information, go to the Fact-checking section of the Roundtable on Digital Platforms and Big Data - Covid-19 Emergency](#)

2

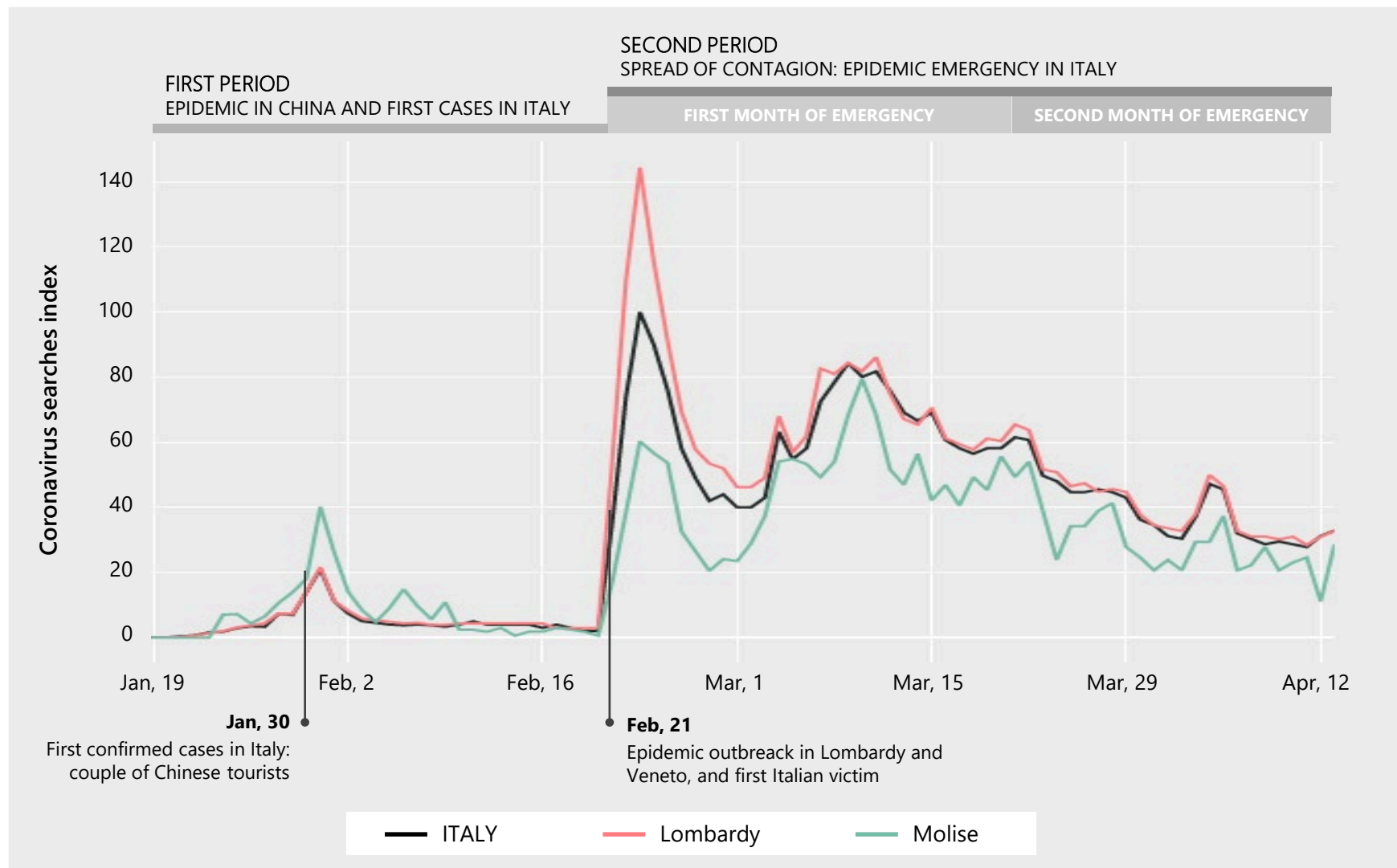
WHAT ITALIANS WATCH ONLINE ABOUT THE CORONAVIRUS

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## 2.1 Online searches: how much information Italians look for about the coronavirus

### Daily index of coronavirus searches on Google



Note: for Italy, the index is the value of searches normalized on a scale from 0 to 100; for regional indices, the scale of values is based on the relative importance with respect to the national figure

Source: Agcom Data Science Task Force elaborations on Google Trends data

The searches carried out by users are a clear **indication of the information needs** of the Italian population on the Covid-19 epidemic. In this sense, the **searches index** expresses how much on average the user of a given area is looking for information on the topic

#### SEARCHES TREND IN ITALY

The **interest of Italian users** in the topic of coronavirus **begins to manifest itself at the end of January**. The **peak** is recorded in the days (21-23 February) that mark the beginning of the epidemiological emergency in the country. **After 9 March** (national lockdown), **searches for the topic gradually decreased**, with a trend, in the second month of the emergency phase, similar to that of the coronavirus information supply

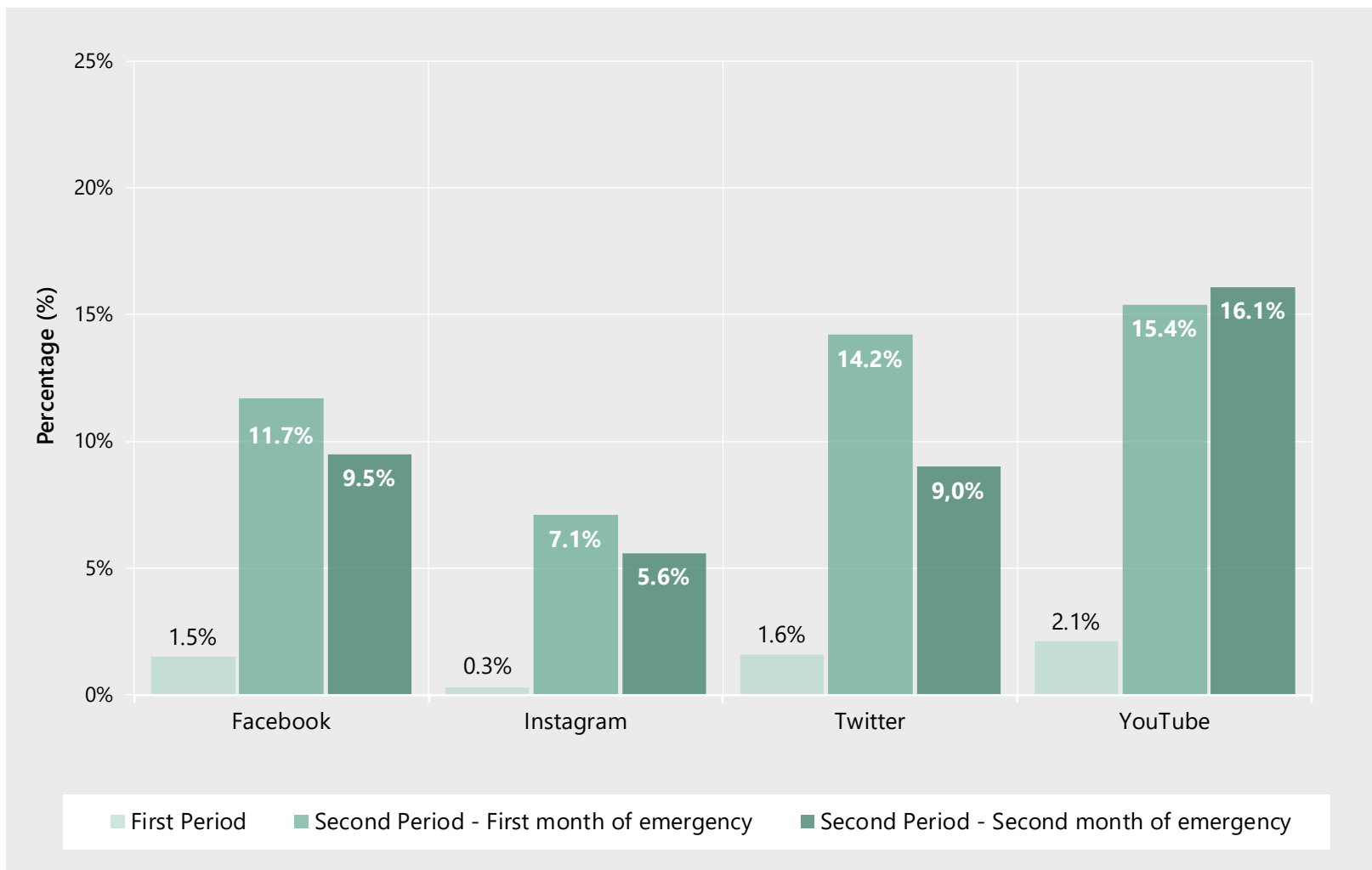
#### SEARCHES TREND IN THE ITALIAN REGIONS

For the regions of **Lombardy** and **Molise** (respectively the regions with **the highest and lowest average searches index**), the trend follows the national one. Comparing the two periods, it can be observed that, **before February 21**, interest in coronavirus information in **Molise** is on average **higher** than in Lombardy (and the Italian average). On the contrary, in the **second period**, with the spread of the contagion especially in **Lombardy**, the concern of the citizens of the region affects the need to find information on the epidemic and research updates on the emergency situation



## 2.2 Interactions of Italians on social media: how they react to coronavirus contents

Social contents dedicated to the coronavirus: the share of actions/views on total interactions per platform



Note: the percentage of actions (for Facebook, Instagram and Twitter) and views (for YouTube) indicates the share of actions (comments + reactions) or views reached by the main contents dedicated to the coronavirus (max. 5,000 for each platform) compared to the total contents published on each platform analyzed in the 3 months under review

Source: elaborations on Sensemakers-Shareablee data

### ACTIONS/VIEWS ON THE CORONAVIRUS

First Period vs. Second Period (first month of emergency)

Although YouTube reaches the highest percentage share of views achieved by the coronavirus contents in both months, the **highest** percentage (+1,832%) and absolute (+46 million) **increase** in coronavirus actions is observed for Instagram

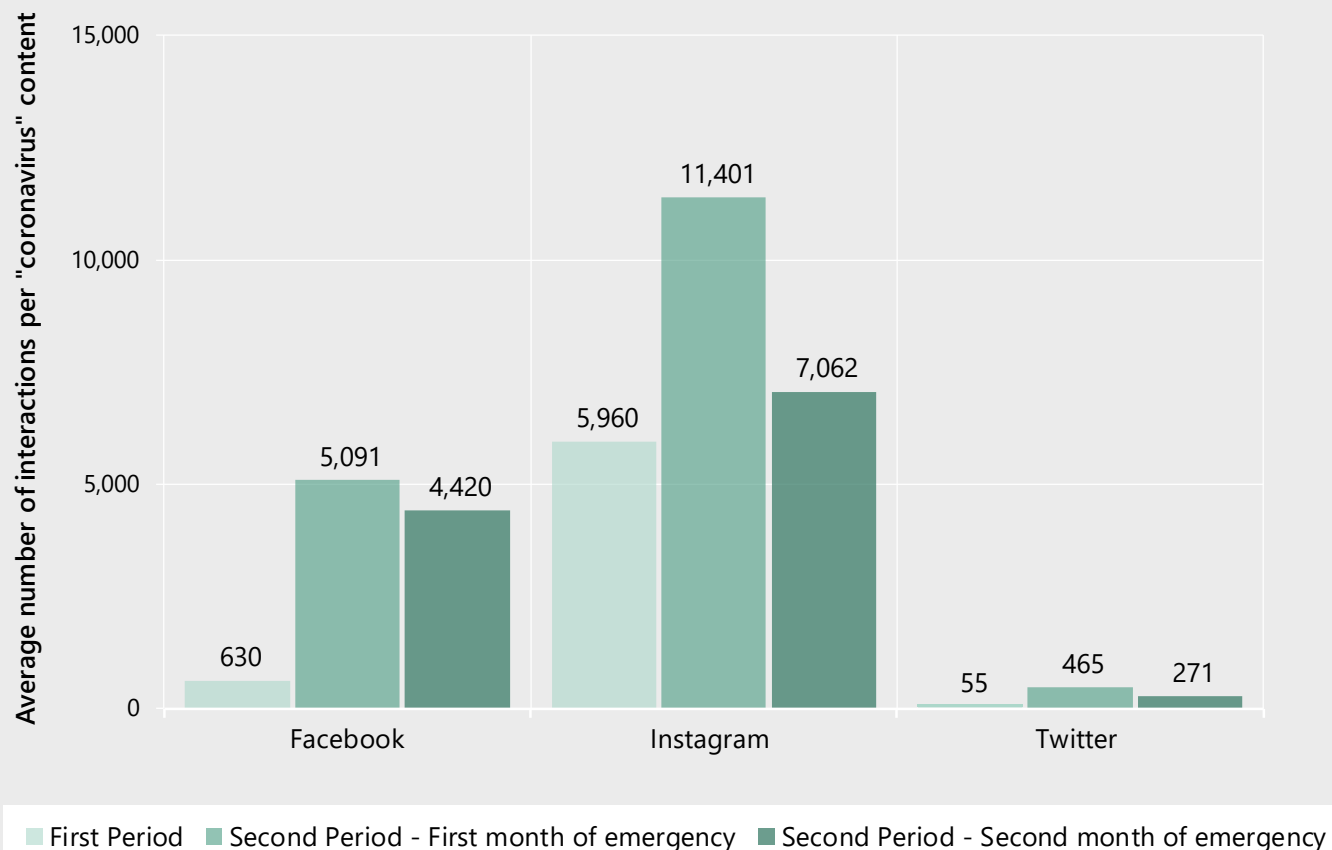
Second Period: first vs. second month of emergency

Although the second month of the second period coincides with the so-called total lockdown, the percentage share of actions decreases on all social networks (only the percentage of views on YouTube increases). The biggest decrease of actions on the coronavirus (-42%) is observed for Twitter, the absolute decrease (-13.7 million) for Instagram

In the second period, in any case, at least 1 action out of 10 relates to coronavirus contents. Given its greater use in fields far from information and news, Instagram is the only social network in which interactions related to coronavirus contents are around 6%

## 2.3 Social engagement: how much and what Italians comment on the coronavirus

### Social contents dedicated to the coronavirus: the average engagement

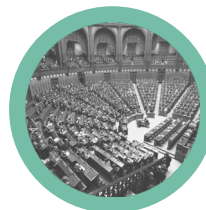


Note: the average engagement of contents on the coronavirus is calculated by dividing the total number of actions (comments + reactions) related to content contents (posts, images, videos) on the coronavirus by the total number of contents dedicated to the theme (max. 5,000 for each social network). It was not possible to calculate the average engagement of the coronavirus content published on YouTube

Source: elaborations on Sensemakers-Shareable data

### TOP 20 CORONAVIRUS CONTENTS

#### FACEBOOK



In the **first period** the contents with the highest engagement are those published by **editorial organizations** and **satirical pages**. By contrast, in the **second period** the contents published by **influencers** and **entertainment pages** (even if not strictly related to health or news topics) stand out. **Institutions** and **politicians** find the interest of users in the **second month**

#### INSTAGRAM



Also on Instagram, there is a clear difference **between the first and second period**, with a **shift from politicians and journalists to influencers, advocates of charity projects, and entertainment pages**, the latter increasingly at the center of users' attention in the **second month** of the emergency

#### TWITTER



Twitter is the only social network where the statuses (texts) find space among the most engaged content. As noted by numerous scientific and market analyses, Twitter is the place of choice for **journalists** and **politicians** interested in reaching their followers

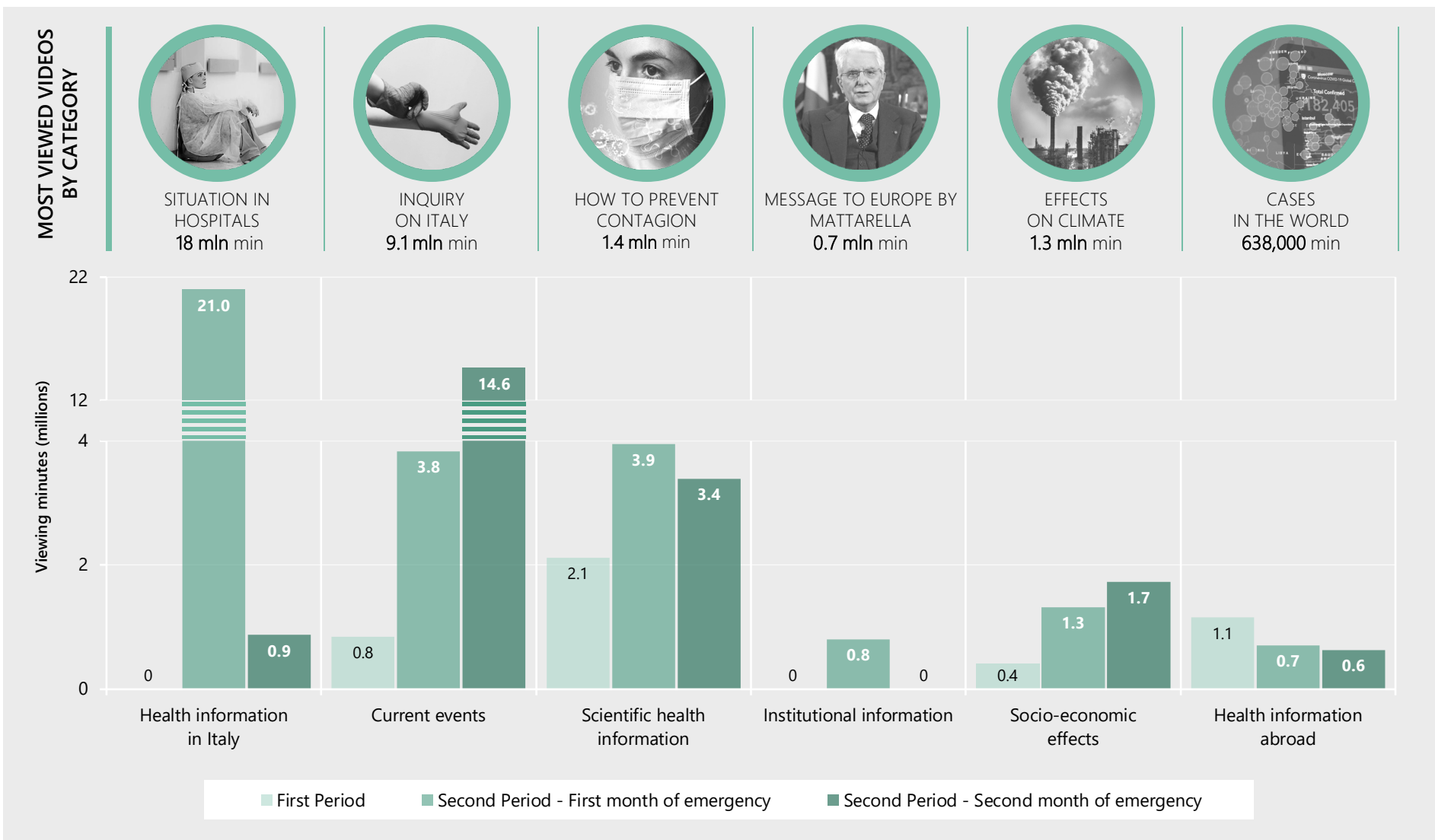
#### YOUTUBE



In the **first period**, views related to coronavirus content focus mainly on **institutional subjects** and **publishers**. In the **second period**, in addition to **publishers**, the interest of users (particularly in the second month of emergency) is also felt by **influencers** and **companies producing consumer goods**

## 2.4 Online video: the most viewed contents about the coronavirus

Most popular online videos by total viewing time (top 15 videos for each period)



### TIME SPENT FOR CORONAVIRUS-RELATED VIDEOS

In the first month of the epidemic emergency, **Italians** have paid increasing attention to **online video on the coronavirus**: the related viewing is **8 times higher** than in the first period.

**Afterwards**, there is a **drop in consumption** that are however higher (7 times more) than the values recorded before the epidemic emergency in Italy

### TOP 15 VIDEOS ON THE CORONAVIRUS

The most viewed videos **before the epidemic emergency** in Italy were **scientific and medical-information** contents that highlight the risks of contagion in Italy and all around the World, as well as updates on the Chinese outbreak and the related containment measures.

By the **beginning of the epidemic spread** in Italia, there is an increasing attention around the **health-care system in Italy** and the situation in the most hit intensive care units.

In the **second month of the emergency**, much attention has been paid to **current events** and, more specifically on the journalistic investigations regarding the possible causes of the contagion

Note: the values refer to the total number of minutes of viewing (Total Time Spent) of the single video content on demand or of the video category through the online platforms of the publishers RAI, Mediaset, Sky Italia and La7

Source: elaborations on Auditel data



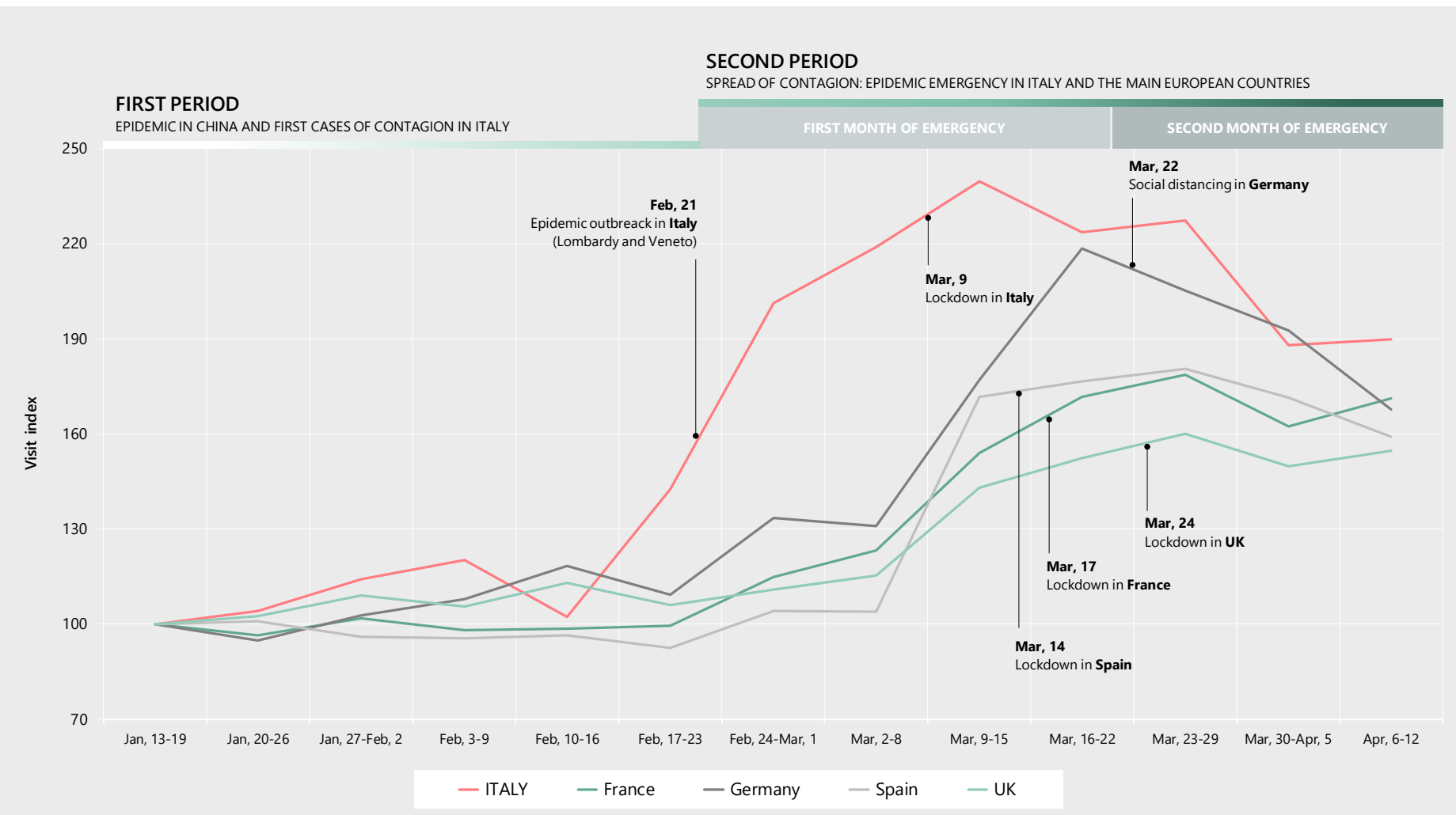
3

## HOW INTERNET CONSUMPTION CHANGES IN EUROPE DURING THE EPIDEMIC



## 3.1 Online news: the consumption in Europe during the epidemic

### Total visits to general news sites and apps (index)



The attention to news about national and international affairs **gradually increases in all countries** with the beginning of the emergency and continues, reaching peaks in correspondence with the spread of the epidemic in different countries. **Starting from the week 30 March-5 April**, there is a **reduction** in user interest in these contents

#### GROWTH IN TOTAL VISITS

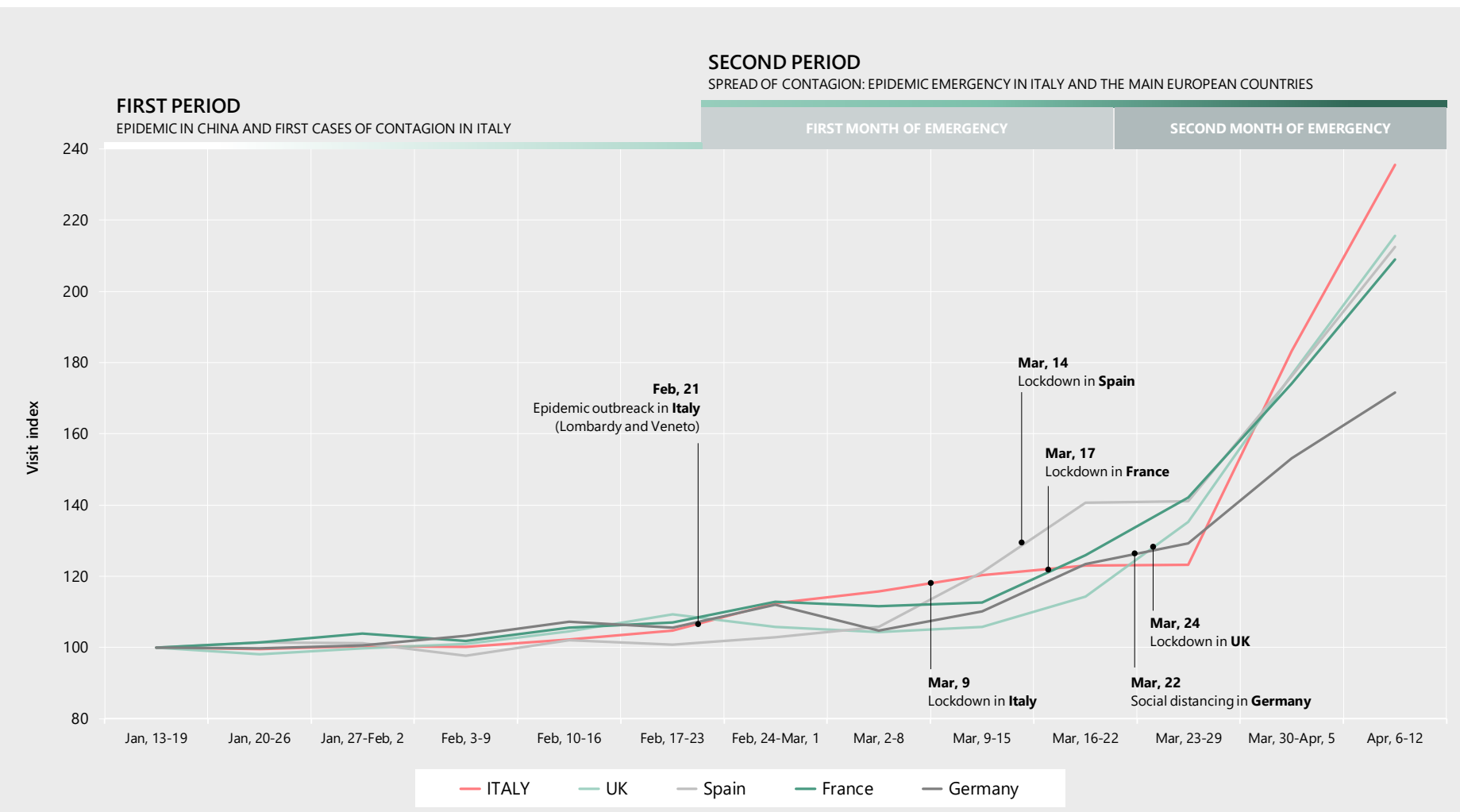
|   |       |         |
|---|-------|---------|
| MARCH,<br>9-15<br>compared to week<br>13-19 Jan | +140% | Italy   |
|   | +77%  | Germany |
|   | +72%  | Spain   |
|   | +54%  | France  |
|   | +43%  | UK      |
| APRIL,<br>6-12<br>compared to week<br>13-19 Jan | +90%  | Italy   |
|   | +71%  | France  |
|   | +68%  | Germany |
|   | +59%  | Spain   |
|   | +55%  | UK      |

Note: for the second month of the emergency, data are available until the week 6-12 April

Source: elaboration on Comscore Custom Reporting, Jan - Apr 2020

## 3.2 Social networks: the consumption in Europe during the epidemic

### Total visits to social networks (index)



Also the visits to social networks, which, as seen above, in Italy devote great attention to the coronavirus, grow in all countries in the second period. Unlike general news sites and apps, user interest continues to grow even in the second month of the emergency, and even more so in the last 2 weeks

### GROWTH IN TOTAL VISITS

MARCH,  
9-15  
compared to week  
13-19 Jan

- +21% Spain
- +20% Italy
- +13% France
- +10% Germany
- +6% UK

APRIL,  
6-12  
compared to week  
13-19 Jan

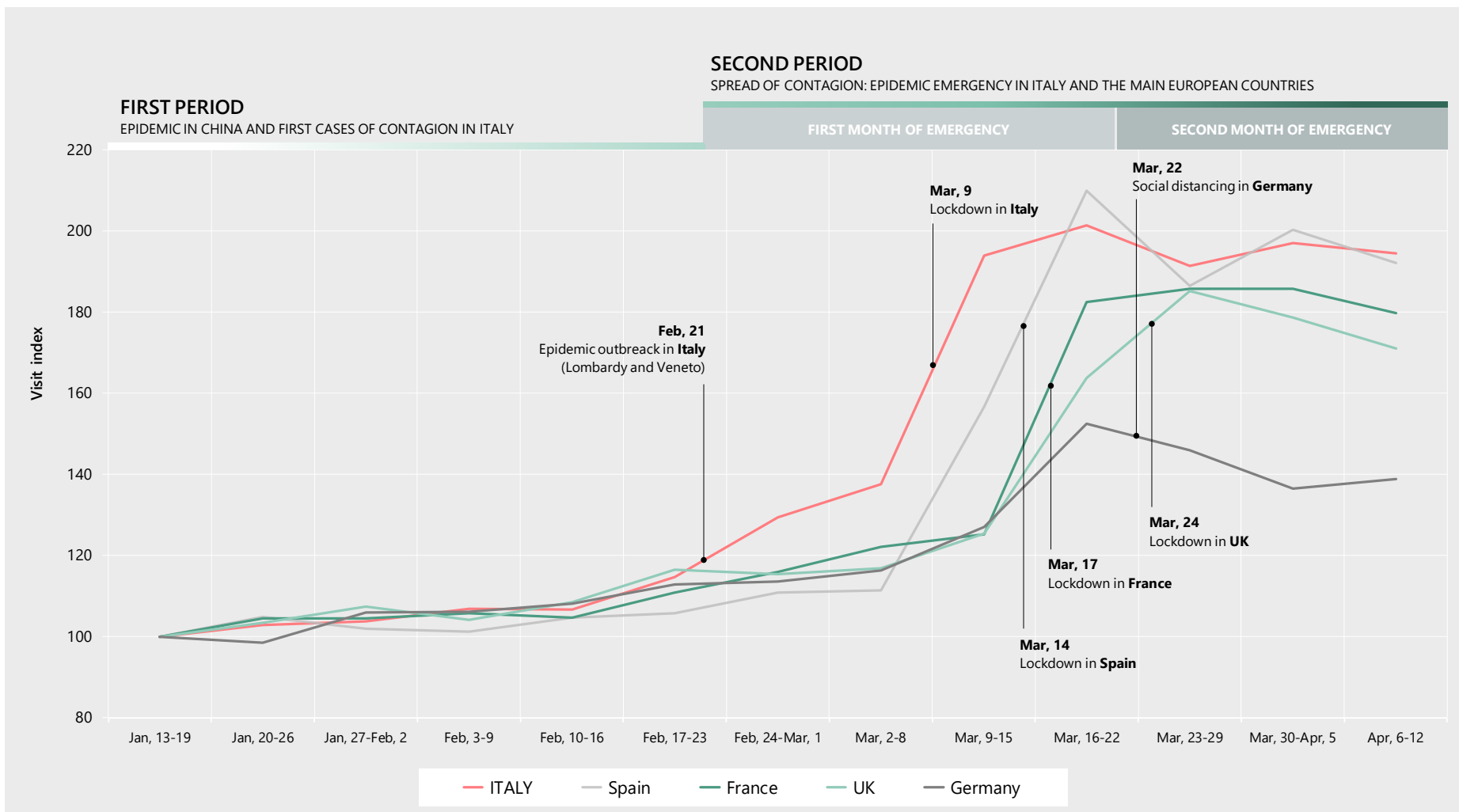
- +136% Italy
- +112% Spain
- +109% France
- +116% UK
- +72% Germany

Note: for the second month of the emergency, data are available until the week 6-12 April

Source: elaboration on Comscore Custom Reporting, Jan - Apr 2020

### 3.3 Instant messaging: the consumption in Europe during the epidemic

#### Total visits to instant messaging sites and apps (index)



Traffic to instant messaging sites and apps remains almost unchanged in the first period and **increases with the spread of coronavirus contagion** in Italy and other countries, as the respective containment measures are adopted. The use of these services, **through which users also receive information about the coronavirus**, begins to return as of March 30

#### GROWTH IN TOTAL VISITS

**MARCH,**  
9-15  
compared to week  
13-19 Jan

- +94% 🇮🇹 Italy
- +57% 🇪🇸 Spain
- +27% 🇩🇪 Germany
- +25% 🇫🇷 France
- +25% 🇬🇧 UK

**APRIL,**  
6-12  
compared to week  
13-19 Jan

- +94% 🇮🇹 Italy
- +92% 🇪🇸 Spain
- +80% 🇫🇷 France
- +71% 🇬🇧 UK
- +39% 🇩🇪 Germany

Note: for the second month of the emergency, data are available until the week 6-12 April

Source: elaboration on Comscore Custom Reporting, Jan - Apr 2020

# 4

## CYBERSECURITY THREATS AND CORONAVIRUS

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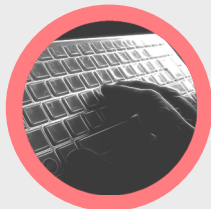
## 4.1 Cyber attacks: most frequent types and techniques

### APT (HACKERS)



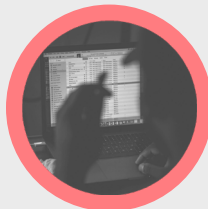
Targeted and persistent cyber attacks by subjects with considerable technical skills and resources

### COMMAND AND CONTROL (C2)



It refers to the ability to influence, through dedicated servers, a compromised computer system by being able to control it

### MALSPAM



Massive sending of emails containing malicious attachments in order to infect computer systems and steal confidential information

### MALWARE



Abbreviation for "malicious software". Any form of code used to bring a computer system to perform unplanned operations

### PHISHING



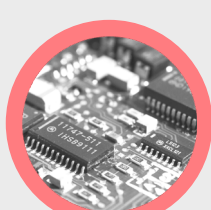
Email artifacts and/or malicious sites to induce the user to provide personal information or download files to infect the system

### RANSOMWARE



Malicious program that restricts the use of the user device by encrypting the data and asking the owner for a ransom to unlock it

### RAT



Acronym for "Remote Access Trojan". Malicious program aimed at capturing credentials and controlling the attacked user's machine

### SPOOFING



In the context of email, masking for malicious purposes of the source address of an email

### SPEAR PHISHING



Phishing aimed at specific categories of users. The emails are built ad hoc, with content targeted to a specific field

### TROJAN



Type of malware that hides within an apparently useful and harmless application

### CYBER ATTACKS IN THE WORLD

**+16%** 1st BIMESTER  
2020

compared to the 1st bimester  
2019

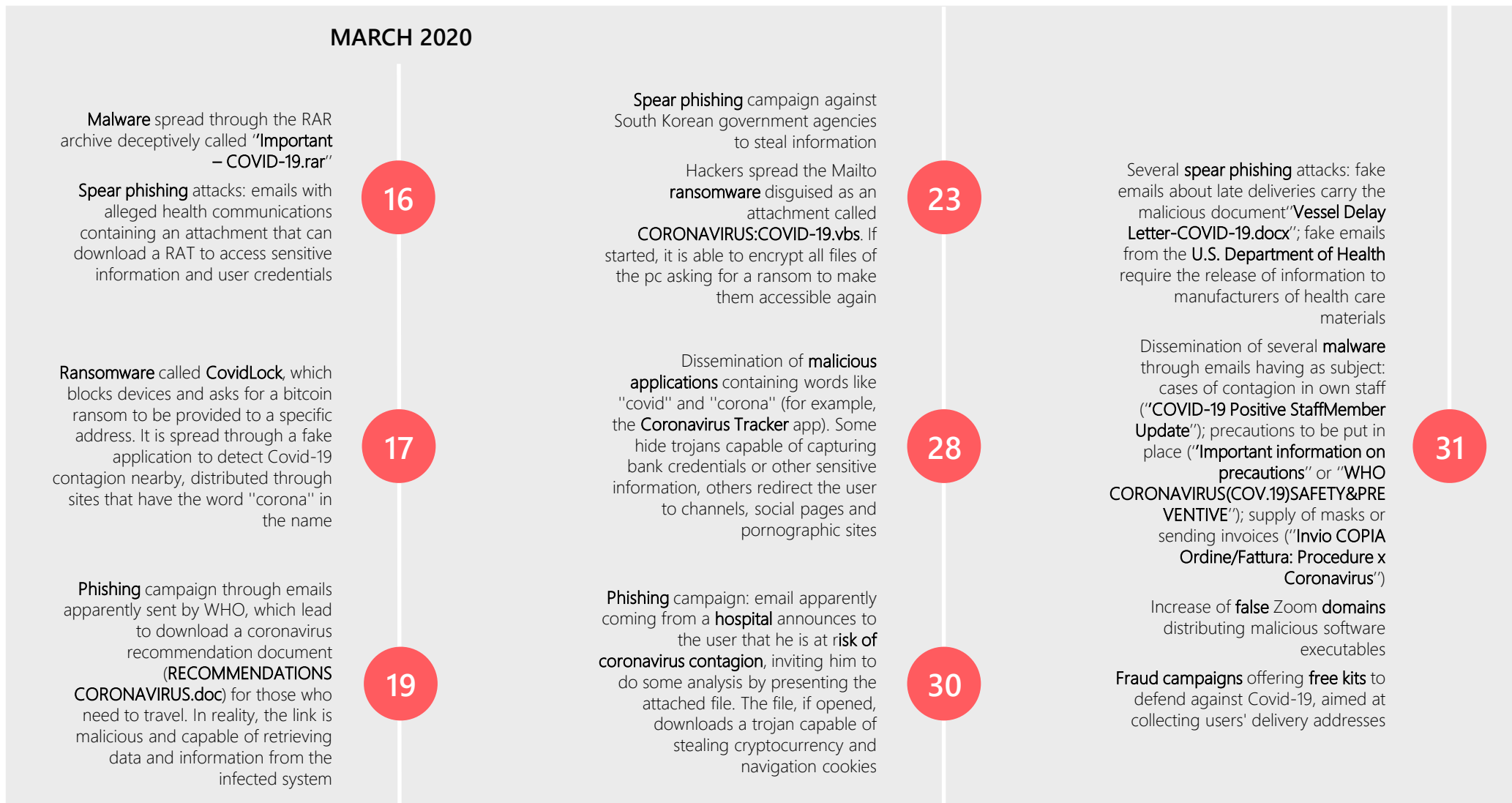
Worldwide, in the first months of 2020, there has been a significant **increase** in cyber threats and attacks, many of which are based on the exploitation of the socio-psychological vehicle of the current pandemic.

The apprehension and the need for up-to-date information make both **users** and **companies** involved in the economic and health crisis particularly vulnerable to attacks

Source: Sogei

## 4.2 Cyber attacks related to the coronavirus worldwide

### Timeline of the main cyber attacks detected in the world from March 15 to 31



### NEW INTERNET DOMAINS RELATED TO COVID-19

↑ **16,000** FROM BEGINNING 2020

of which around **20%** are **malicious** or with a low reputation

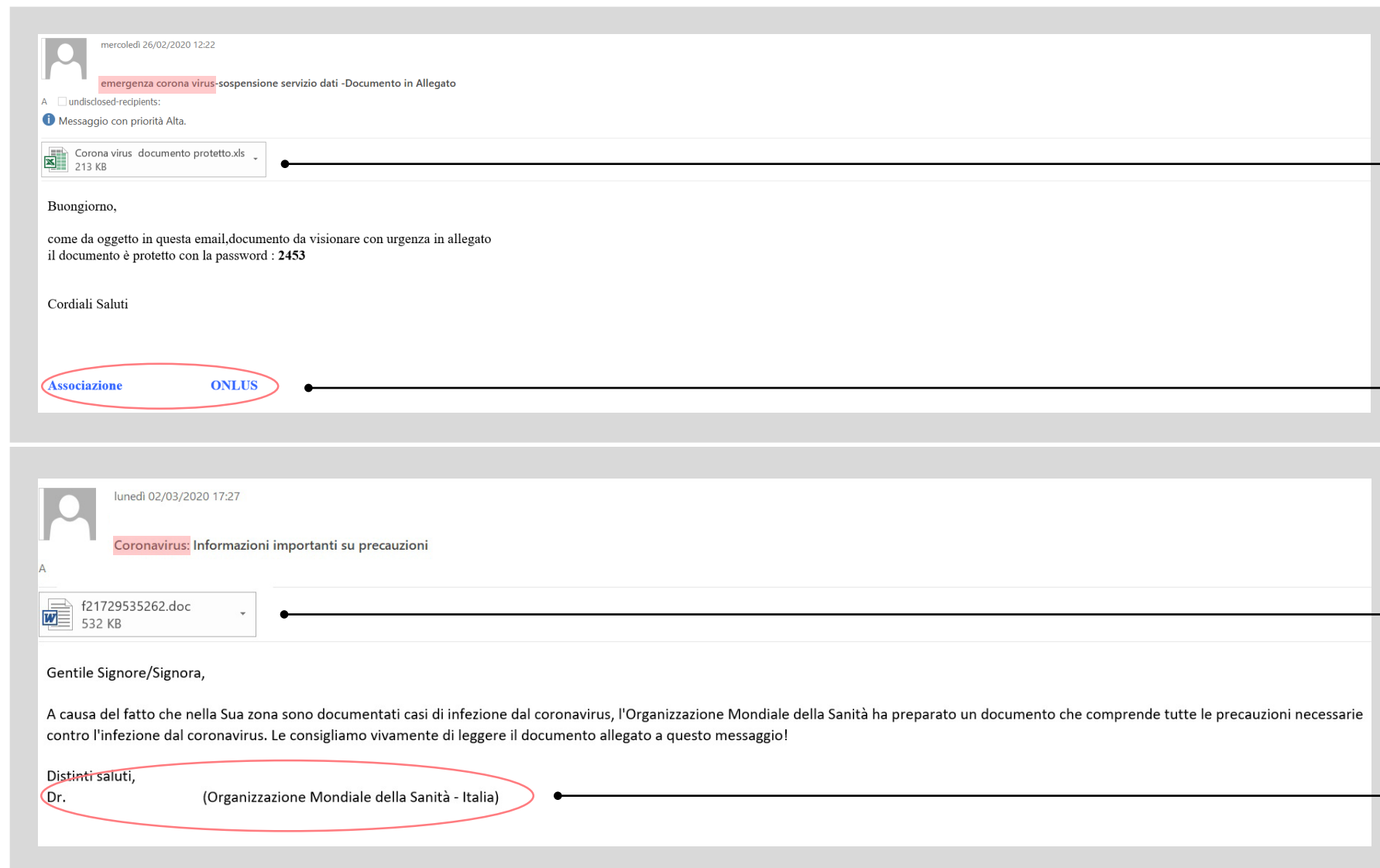
In March, **several types** of cyber attacks related to the coronavirus issue were detected. Among the sneakiest is the spread of **apps** that leverage users' fears about Covid-19. The prevailing **purpose** of these threats seems to be **economic**, in addition to stealing credentials for future attacks

Malicious campaigns spread in certain parts of the world can often resemble and potentially be **replicated** on a **global scale**

Source: Sogei

## 4.3 Cyber attacks related to the coronavirus in Italy

### Examples of phishing campaigns carried out through malicious coronavirus emails



**Attachment** in excel format that, if opened, downloads **malware** that infects the computer and tries to steal data

**Real existing** sender, whose previously compromised mailbox is exploited to spread the attack

**Attachment** that, if opened, downloads **malware** that infects the computer and tries to steal data

**Fictitious** sender: the WHO doctor who signed the email does not exist but the references are used to give credibility

Source: Sogei



## COMPOSITION OF THE DOCUMENT DATABASE

If not differently stated, the figures reported in Section 1 of this Report, are the result of AGCOM elaborations carried out on a database built from data extrapolated through the platform developed by *Volocom Technology*.

More specifically, the analyzes were conducted on the entire textual content extrapolated from around **5 million documents** created in Italy (from January 1 to April 20, 2020) by **more than 2,000 information sources** (national television and radio channels, newspapers, news agencies, websites of traditional publishers, native online news outlets, and related pages and accounts of social networks), and **sources of disinformation** (websites and social pages/accounts) identified as such by external subjects specialized in debunking activities. The amount of online disinformation produced in Italy was therefore estimated using a subjective methodology, i.e. considering the total number of documents created monthly by the aforementioned sources of disinformation.

The reference set of sources of information and disinformation is constantly updated. As a result, adjustments may need to be made to the estimates for previous periods, so that, for some indicators, there may be slight deviations in the values reported in different issues of the Report.

The database is composed by the entire textual content of all documents produced during a day by every information and disinformation source. For document, we mean the entire article, in the case of newspapers and websites; the transcription of a transmission segment; in the case of Tv and radio; all tweets/posts in the case of online platforms.

## TOPIC MODELING

For the study of the main topics of coronavirus news (Section 1), analyses were conducted on the entire content disseminated by information and disinformation sites from January to April 2020, adopting a methodological approach known as **topic modeling**.

A topic model is a statistic model for the automatic individuation of topics appearing in a collection of documents.

In particular, the classification of the text together to the group of fake contents in determined topics was obtained by means of the use of a **LDA-model (Latent Dirichlet Allocation)** - an algorithm of not-supervised automatic learning considering the frequency and the co-occurrence of the terms used in the collection of documents.

The same is at the basis of LDAvis (Sievert e Shirley, 2014), the interactive visualization system that supplies an overall vision on the **identified topics** (and of the way in which they differ), allowing at the same time a deep analysis of the most **salient terms**, associated to every one of them.

In detail, every topic is represented by a circle, which amplitude shows the occurrence frequency in the entire group of the examined documents. Moreover, the topics have a position in the Cartesian coordinate system, being around the horizontal and vertical axes, representing the two main dimensions that explain the variability of the data.

## SUPPLEMENTARY DOCUMENTS

Further studies and updates on the AGCOM initiatives regarding online disinformation and the Covid-19 epidemic are available in a dedicated area of the AGCOM webiste: [Tavolo piattaforme digitali e Big data – Emergenza Covid-19](#), and in the related pages [Covid-19 per gli utenti](#) and [Fact-checking](#)

A more detailed description of the methodology is presented in the AGCOM Report (2018), [News vs. fake in the information system](#)

More in-depth analysis on the definitions and technical dimensions of online disinformation are in the AGCOM Report (2018), [Online disinformation strategies and the fake content supply chain](#), conducted within the [Roundtable on pluralism and online platforms](#)

The AGCOM policy recommendations and action plan on the online news system have been recently published in the [document](#) closing the [Sector Inquiry on digital platforms and the online information system](#) (2020)

[www.agcom.it/osservatorio-sulla-disinformazione-online](http://www.agcom.it/osservatorio-sulla-disinformazione-online)



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