Inspiration sources at the intersection of system design and storytelling

Analysis by Gerlinde Schuller

January 2021

The Library of Babel (1941)
Jorge Luis Borges

Trajan's Column (112/113 CE)
Rome (IT)

Cultural History 1880-1983 (2003)
Hanne Darboven

Mannheim – City of Squares, Germany (1813)

Family Tree (2018)
Joanna Kaplanis, Yaniv Erlich, New York Genome Center (US)

'24' TV series (2001)
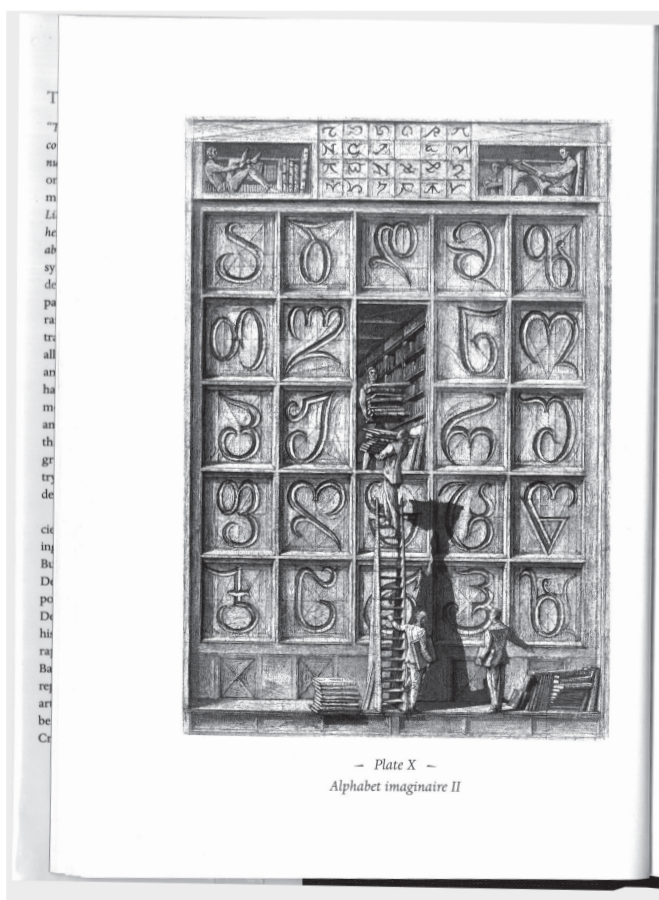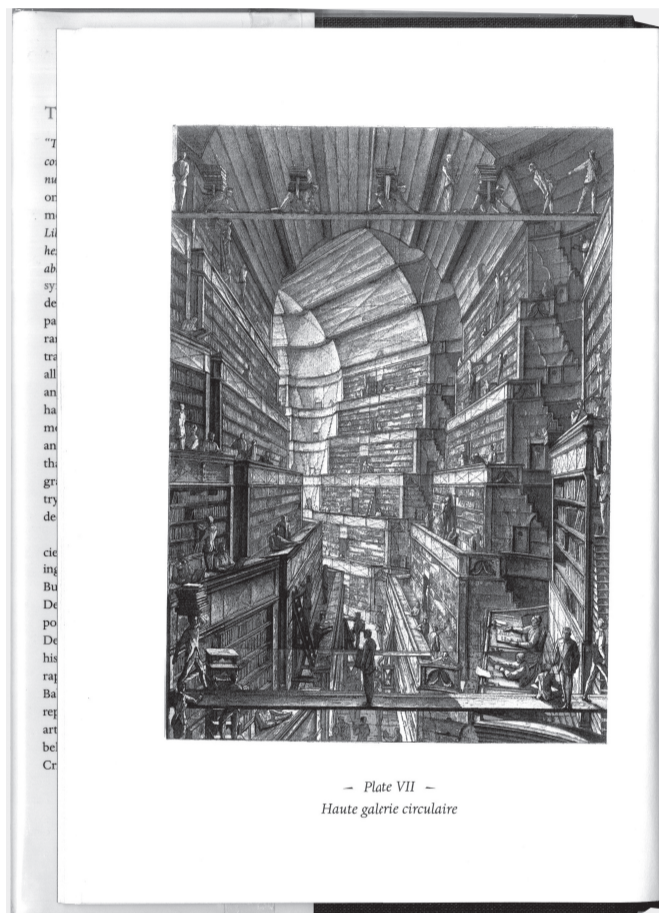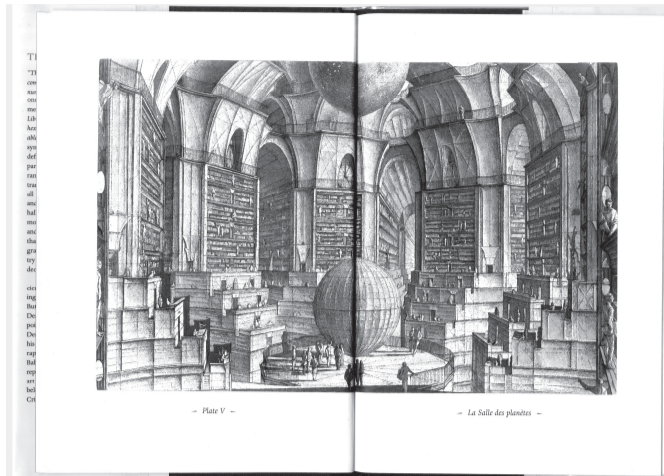Joel Surnow, Robert Cochran for Fox (US)

Today Series (1966-2014)
On Kawara

Garden Cities of To-morrow (1902)
Ebenezer Howard

It was me. Diary 1900-1999 (2002)
Daniela Comani

COVID-19 Dashboard (2020)
Ensheng Dong, Hongru Du, Lauren Gardner,
Center for Systems Science and Engineering
at Johns Hopkins University, Baltimore (US)

This analysis is part of the project *The Infinite Narrative*
https://theworldasflatland.net/the-infinite-narrative/

– Plate V –   *– La Salle des planètes –*

– Plate VII –
Haute galerie circulaire

– Plate X –
Alphabet imaginaire II

The Library of Babel (1941)
Jorge Luis Borges

In his short story Jorge Luis Borges (1899-1986) describes the universe as an infinite library that contains every book that has ever been written or is still being written.

System

Classification system:
The order of the books in the library is random.

Standards:
The books – each having 410 pages, with 40 lines on each page and 80 characters on each line. Thus, there are $410 \times 40 \times 80 = 1,312,000$ characters in each book. The library contains every possible book of this form, that is, one book with each of the possible orderings of the characters. Borges used an alphabet of 25 letters, so the total number of books is 25 raised to the power 1,312,000. This corresponds approximately to two followed by 1.8 million zeros, an unfathomable number. No matter if a book is lost: there are more than 30 million others that differ from it by only a single character.

Universal (design) methods:
universal library, a complete collection of knowledge

Network:
a geometrically organized labyrinth of rooms with a centre

Rules:
The library is 'total' and contains every single combination of letters that is possible.

Modularity:
geometrical hexagons

Flexibility:
open system, an infinite number of identical rooms

Storytelling

Theme:
the meaning of life

Setting (place/time):
an infinitely large library; present

Characters (main/secondary):
librarians, scientists, purifiers (arbitrarily destroy books), admirers (call for idolatry of books)

Plot:
An infinitely large library is described as a fantasy universe that contains all information, including predictions of the future, biographies of any person, and translations of every book in all languages. It contains the total number of possible combinations of 25 written symbols. The meaning of life and the answer to life are out there in the library, in a book somewhere. Thousands of librarians rush out to seek their own fortunes. They also search for the one book that must be a perfect index of the library's content. Chaos and violence ensue because valid information is swamped by multitudinous tomes of gibberish.

Climax:
The narrator's big realization is that 'everything' in the library has meaning, even the seemingly random assortments of letters. For every word that looks like gibberish, there's a book in the library that decodes that gibberish and gives the word meaning. The narrator's conclusion is that the library is periodic and that therefore there must be order to the universe.

Time concept:
The library is infinite but periodic (it repeats itself).

Narrative style:
novel, fiction

Narrative perspective:
first person narration from an unnamed librarian

Tone of voice:
philosophical, cynical

Other characteristics

Users/target group:
library inhabitants

Access:
Readers live and grow old in the library.

Scope:
The infinite library building is their world/universe.

Language:
Every book exists in all languages.

Material:
fictional architecture

Interactivity:
Not really, the librarians don't write their own books.

Response (production) time: –

Images: Engraving by Erik Desmazières in *The Library of Babel,* 1941
Sources: https://cirogpodany.wordpress.com/2014/02/09/library-or-universe/

Conclusion
In order to fight the gibberish we need structured overviews, preferably about the past, the present and the future.

Trajan's Column (112/113 CE)
Rome, Italy

The victory column was constructed for the Roman emperor Trajan (53-117 CE) and depicts scenes from successful wars in a spiral.

System

Classification system:
The structure is about 30 metres in height and 35 metres including its large pedestal. The shaft is made from a series of 20 colossal Carrara marble drums, with a diameter of 3.7 metres. The 190-metre frieze winds around the shaft 23 times. Inside the shaft, a spiral staircase of 185 steps provides access to a viewing platform at the top. The total length of 200 meters marked the height of the hillside that had to be cut away to construct Trajan's Forum. The relief portrays Trajan's two victorious military campaigns against the Dacians, the lower half illustrating the first (101–102), and the top half illustrating the second (105–106). A room at the base of the column holds his ashes upon his death in 117 CE.

Standards:
The frieze repeats 155 standardized scenes of imperial address, sacrifice and the army setting out on campaign.

Universal (design) methods:
reading from bottom to the top; different carving styles are used to enhance visibility

Network:
Trajan appears at regular intervals, up to 60 times.

Rules:
one spiral height throughout

Modularity:
repeating 155 standardized scenes

Flexibility:
Napoleon III requested in 1861 that moulds are taken from the original relief. Sets of plaster casts of the relief can be viewed in various museums worldwide.

Storytelling

Themes:
good vs. evil (Romans against Dacians); the pain of war

Setting (place/time):
Roman Empire; past

Characters (main/secondary):
Trajan, the emperor and 2,662 human figures

Plot:
The relief portrays Trajan's two victorious military campaigns against the Dacians, a civilization in what is now Romania. It contains detailed descriptions of the war with elements of propaganda, particularly with the repeated emphasis on the barbarity of the Dacians compared to the Romans.

Climax:
The column is storytelling and tombstone in one. Five Dacian women are depicted torturing three naked men – it is remarkable that women are included at all in a war monument.

Time frame:
4 years of Roman history – 101-102 and 105-106 CE

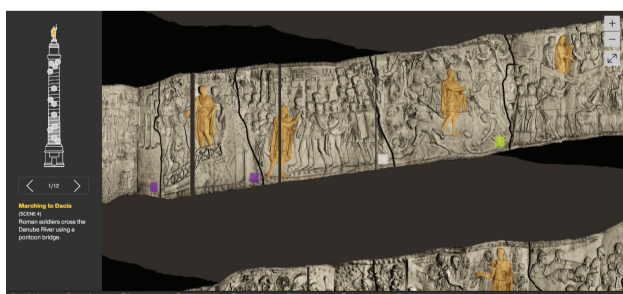**Narrative style:**
documentary

Narrative perspective:
told from the perspective of the Romans

Tone of voice:
monumental and propaganda; wartime violence has been downplayed

---

Other characteristics

Users/target group:
urban population of Rome, addressing their fear and distrust of the army by depicting its warfare as one with little collateral damage

Access:
publicly accessible; originally the column stood in the middle of a courtyard surrounded by galleries from which one could view at various levels the spiral band

Scope:
population of Rome and visitors

Language:
picture story with a short Latin inscription at the base of the column

Material:
white Carrara marble

Interactivity:
no

Response (production) time:
erected in 113 CE, seven years after the last military campaign depicted on the column

Images: Wikimedia Commons
Sources:
https://www.nationalgeographic.com/trajan-column/index.html
https://www.vam.ac.uk/articles/trajans-column

Casts of Trajan's Column at the Museum of Roman Civilization in Rome (IT).

Interactive graphic of Trajan's Column
https://www.nationalgeographic.com/trajan-column/index.html

Conclusion
A human, emotional representation full of details and a regular repetition of the main characters allow us to experience a story more intensely.

Cultural History 1880-1983 (2003)
Hanne Darboven

The encyclopedic installation combines cultural, social, and historical references with autobiographical documents by Hanne Darboven (1941-2009).

System

Classification system:
The timeline consists of 1,590 paper sheets and 19 sculptural objects arranged in chronological order.

Standards:
poster size 27½ x 19¾ inches (50x70cm), landscape format

Universal (design) methods:
color coding: larger sections cohere by color and morphology rather than by subjects

Network:
an infinite-yet-incomplete historical archive

Rules:
Darboven uses a grid that provides a taut formal structure.

Modularity:
same poster size throughout

Flexibility:
grid appears endless and infinitely repeatable

Storytelling

Themes:
a century of world history; a synthesis of collective memory and personal history; the social with the private

Setting (place/time): the whole world and Darboven's personal world; past

Characters (main/secondary):
Hanne Darboven, historical figures and unknown persons

Plot:
Telling the story of society at large, while also presenting an autobiography of Darboven herself by weaving together autobiographical documents with cultural, social, and historical references like postcards, pinups of film and rock stars, documentary references to the first and second world wars, geometric diagrams for textile weaving, a sampling of New York doorways, illustrated covers from news magazines, the contents of an exhibition catalogue devoted to postwar European and American art and a kitschy literary calendar.

Climax:
The work only poses as a complete systematization of a culture. In fact, the impossibility of such a system is Darboven's whole point.

Time frame:
around 100 years

Narrative style:
Like an encyclopedia, the work catalogues and displays information without subordinating it to a dominant narrative form.

Narrative perspective:
Hanne Darboven's choice

Tone of voice: a visual experience, an image of information. In some installations an ambient soundtrack of one of Darboven's musical compositions – a mind-massaging solo for double bass with a repetitive structure similar to her visual art – provides a beat.
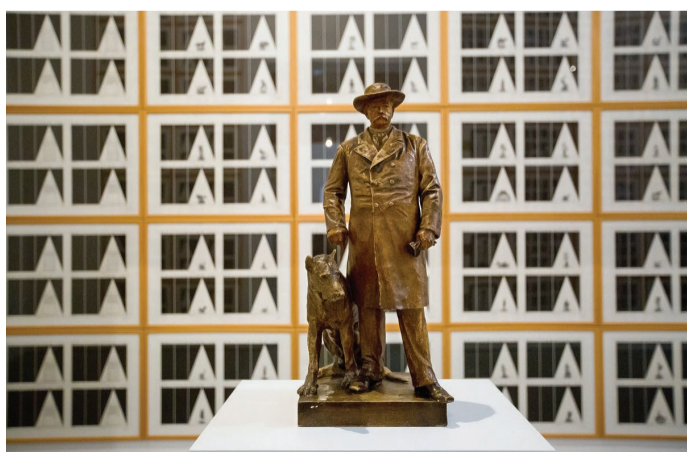
Other characteristics

Users/target group:
general public, art lovers

Access:
galleries and museums worldwide

Scope:
Western/European history

Language:
mainly visual

Material:
paper, objects, beat

Interactivity:
no

Response (production) time:
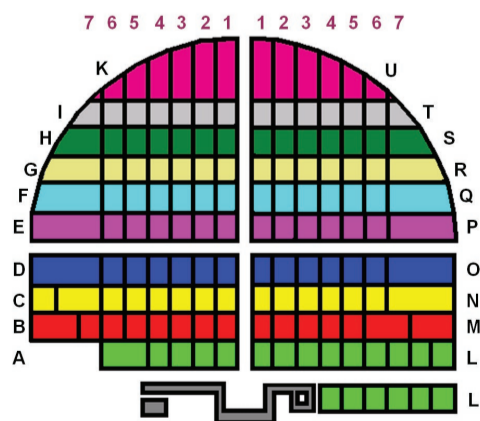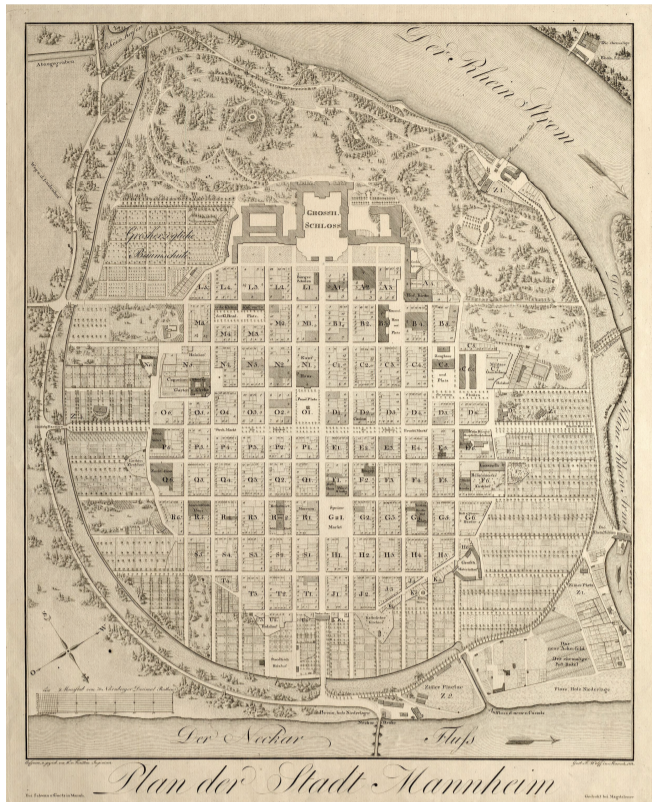1980-83

Photos: Bill Jacobson Studio
Sources:
Dia Art: https://tinyurl.com/y4sed3jj
NY Times: https://tinyurl.com/yxkw6nns

Conclusion
A systematic and visual coding and structure facilitates access to a complex story.

Plan der Stadt Mannheim

Mannheim – City of Squares, Germany (1813)

The city center of Mannheim, also known as 'City of Squares', is designed as a planned city.
The beginnings date back to 1606. Even today, the city center consists of 144 'squares'
which are actually different rectangles.

System

Classification system:
144 'squares' in a coordinate system A-U and 1-7.
A street named *Breite Straße* goes through the middle
of the blocks from south to north, with blocks A-K on the
west side of the street and L-U on the east, with each
row going 1 to at most 7 based on distance from this road.
House numbers begin on the south corner nearest *Breite
Straße* and go counterclockwise for A-K and Clockwise
for L-U.

Standards:
'Squares' although they are different rectangles.
There are rectangular, rhombic and trapezoidal 'squares'
and two triangles.

Universal (design) methods:
Coordinate system which provides a letter/number code

Network:
The Mannheim 'chess board' has the shape of an inverted
'U' and is divided into a left and a right half.

Rules:
An address is formed by the square code with
the associated house number, for example: D 6, 2.

Modularity:
More squares could be integrated.

Flexibility:
The squares on the coordinate system could be expanded
endlessly but the infrastructure of the city is determined
and doesn't allow expansion of the square system.

Storytelling

Themes:
protection from enemies; the influence of war on life;
planned city

Setting (place/time):
urban/town of Mannheim; past and present

Characters (main/secondary):
Elector Friedrich IV of the Palatinate (1574-1610),
Dutch fortress architect Bartel Janson

Plot:
In 1606, Elector Friedrich IV of the Palatinate laid the
foundation stone for the construction of the Friedrichs-
burg fortress and commissioned the Dutch architect
Bartel Janson to plan the neighboring city.
He followed the ideals that apply to planned cities,
which were strongly influenced by military aspects, and
designed the regular system of geometric shapes that is
so characteristic of Mannheim to this day. The fortress
was the historical fixed point of the squares, which are
all oriented towards it. In 1622, during the Thirty Years'
War, the city and fortress were destroyed. After 1648
a reconstruction under Elector Karl I. Ludwig followed.
In 1720, the Mannheim Baroque Palace was built on the
site of the former fortress. The current system of squares
with letters and numbers was introduced in 1811.
Today the city's tourism slogan is *Mannheim². Leben im
Quadrat* (*Life. Squared.*)

Climax:
People unused to the unusual addressing system will
often become lost. It also causes major issues with most
mapping software (e.g. Google Maps), as the databases
they use are based on the standard street-number system.

Time frame:
The planned city centre is around 410 years old.

Narrative style:
abstract, military style

Narrative perspective:
Friedrich IV's ideal perception of a city

Tone of voice:
strict, classic

Other characteristics

Users/target group:
city dwellers

Access:
publicly accessible

Scope:
total city area is 145 km^2

Language:
universal codes – alphabetically and numerically

Material:
city infrastructure, maps and signs communicating
the addressing system

Interactivity:
no

Response (production) time:
start of construction was 1606, construction time
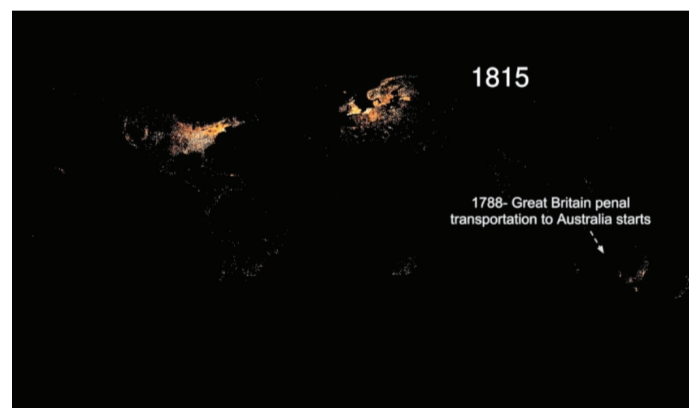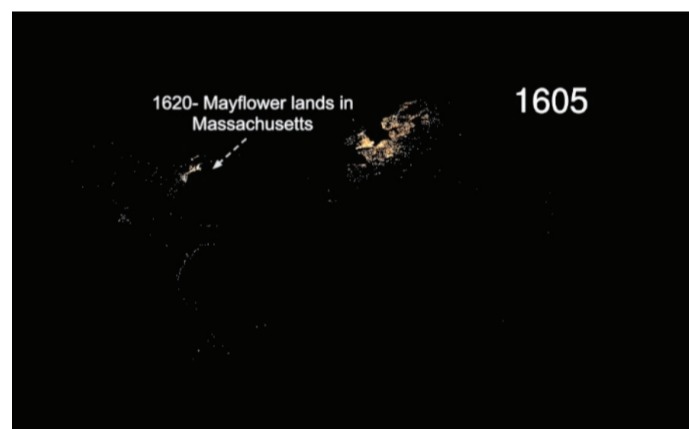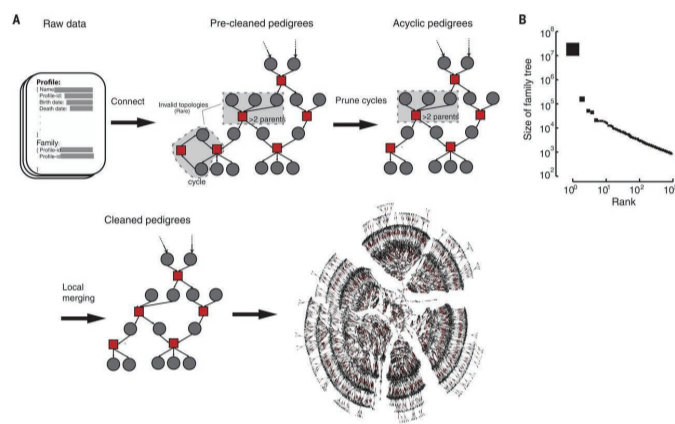is unknown

Image: Generallandesarchiv Karlsruhe (DE)
Sources:
https://tinyurl.com/y2p7pfz8
https://tinyurl.com/y32v7rp5

Conclusion
Universal classifications and codes allow
a long-term, if not infinite narrative to unfold.

Geni's World Family Tree connects

147,815,697

people worldwide and counting, including:

Kamala Harris, U.S. Senator · Eero Saarinen · Joseph Stalin · William IV of the United Kingdom · Charlemagne · Donald J. Trump, 45th President of the USA · Joe Biden, 47th Vice President of the USA · Elizabeth II, Queen of the United Kingdom

Family Tree (2018)
Joanna Kaplanis, Yaniv Erlich, New York Genome Center (US)

13 million people are connected on the world's largest family tree, mainly from Europe and North America, in a time frame of 500 years. For this purpose, 86 million profiles of people from a genealogy website were processed.

System

Classification system:
tree structure as a way of representing the hierarchical nature of a structure in a graphical form

Standards:
public profiles listing a person's name, sex, date and place of birth, date of death, and immediate relatives; for the visualization the names have been stripped from the data to protect privacy

Universal (design) methods:
quantative analysis, tree diagram, information visualization, color coding

Network:
data packages from *Geni.com,* where people share their family trees, are linked together

Rules:
color code in visualization; individuals are represented in green and marriages in red

Modularity:
comparable crowdsourcing data packages of 13 million people

Flexibility:
The family tree could be expanded endlessly with more and more data packages.

Storytelling

Themes:
research on what family trees can tell us

Setting (place/time):
the whole world; past

Characters (main/secondary):
13 million people

Plot:
This family tree is stretching back 500 years that links 13 million people related by blood or marriage. Their relatives were mostly of European descent, dating back 11 generations. By plotting births on a global map over time, the scientists charted major migration events, such as the Mayflower landing in 1620 in present-day Massachusetts – soon followed by a burst of births in the region – and the 1788 founding of the British penal colony that began Australia's colonization. Human relationships, as documented in the family tree, can elucidate the heritability of a host of medical and biological parameters. They are used to examine the genetic architecture of human longevity and migration patterns. But more interesting is the possibility that such data may one day be linked to medical information or to DNA sequence data as more people have their genomes sequenced and deposit that information in public databases.

Climax:
The family tree includes famous people, e.g. Sewall Wright, a founder of human population genetics, and the actor Kevin Bacon. The two are separated by 24 degrees.

Time frame:
500 years

Narrative style:
objective research

Narrative perspective:
The final research paper is witten by 14 researchers from New York Genome Center, Columbia, MIT, and Harvard.

Tone of voice:
scientific, academic

Other characteristics

Users/target group:
scientific community and general public

Access:
research article in *Science*

Scope:
worldwide

Language:
English

Material:
raw profile data, programming, data visualization

Interactivity:
no

Response (production) time:
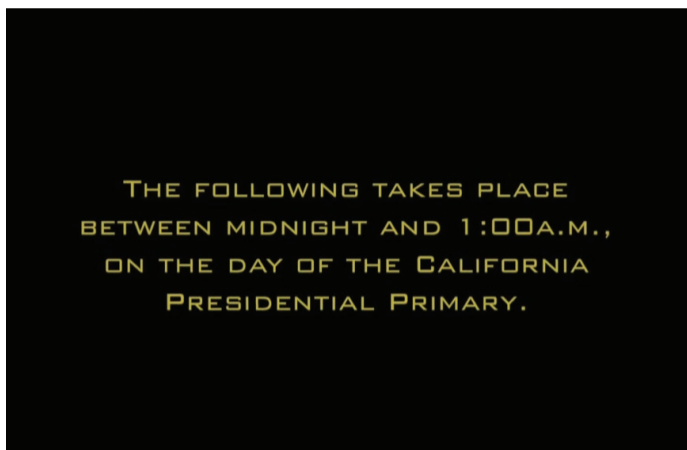appr. 7 years (2011-2018)

Image: New York Genome Center (US)
Sources:
science.sciencemag.org/content/360/6385/171
NY Times: https://tinyurl.com/yb724neq

Conclusion
A story that unfolds like a network enables non-linear storylines and individual access for each user.

'24' TV series (2001)
Joel Surnow, Robert Cochran for Fox (US)

24 is an American action drama television series with counter-terrorist agent Jack Bauer
as protagonist. The series is characterized by the action taking place in real time.

System

Classification system:
24 has eight seasons all made up of 24 episodes.
Each episode is an hour long, taking place over the
course of a single day.

Standards:
A 24 episode is between 39 and 42 minutes long.
This corresponds to the standard length for drama in
the United States (excluding advertisements).

Universal (design) methods:
serialised narration, splitscreens, clock/countdown

Network:
8 seasons, a feature film, *24: Legacy*-series (spin-off of
24), a series adaptation for India, a video game, an energy
drink, a DVD board game, novels, comic books, toys

Rules:
Every season lasts 24 hours, but begins at another time
e.g. season 1 begins at midnight, season 2 at 8:00 a.m.,
season 3 at 1:00 p.m.. The action happens in real time,
not using slow motion and flashback techniques.

Modularity:
units of time such as day, hour, minute, second

Flexibility:
The series could go on forever. It stopped because
the audience numbers dropped dramatically.

Other characteristics

Users/target group:
general public, TV/film viewers

Access:
Fox, Amazon Prime Video, DVD box set

Scope:
worldwide

Language:
English (original language)

Material:
film and diverse material for merchandising

Interactivity:
A valid California phone number (310-597-3781) has been
shown on screen at various points during the show. The
number, since dubbed the 24 'fan phone', leads to an
actual telephone on the set, and received upwards of
50,000 callers in the first week after it was shown. The
phone is often picked up by whoever is free on set, and
viewers have spoken to a wide variety of cast and crew
members.
A video game for *PlayStation 2* and a DVD board game
also allow viewer to interact with the fictional characters.

Response (production) time:
13 years (2001-2014); *24* tv series on Fox (2001-2010)

Images: Fox Corporation (US)
Sources: https://tinyurl.com/y2xebxct

Storytelling

Themes:
good vs. evil, counter terrorism in post-9/11 America,
a race against the clock

Setting (place/time): urban (Los Angeles, Washington);
present

Characters (main/secondary):
Jack Bauer (Kiefer Sutherland) is the main character.
The rest of the cast changed considerably each season.

Plot:
Jack Bauer, counter-terror agent, has exactly 24 hours
per episode to stop a terror plot from taking place in
the United States. A typical plot has Bauer racing against
the clock as he attempts to thwart multiple terrorist
plots, including presidential assassination attempts,
weapons of mass destruction detonations, bioterrorism,
cyber attacks, as well as conspiracies that deal with
government and corporate corruption. There is a huge
narration gap between the events of the seasons, and
it is never completely explained what happened in
the meantime.

Climax:
The first *24* season was postponed due to the 9/11
attacks. It was finally aired on November 6, 2001.

Time frame:
The story time of each series is 24 hours. Each episode
takes place over the course of one hour, with time
continuing to elapse during the commercial breaks.
The story time is one hour, whereas the viewing time
is 39-42 minutes. Events in the 24 timeline take place in
the 'perpetual now', where concepts of the exact date
and year are never specified.

Narrative style:
action-espionage series, political thriller, real-time
narrative, illusion of omniscience
The title of the show refers to its narration technique.
Split-screen and jump-cuts are used as a form of story-
telling to help the audience keep up with the intense
twists and turns on the show. The 24 h-format means
that the action will keep on coming relentlessly. Also
the stress and tiredness of the events of the day can be
emphasized with clever use of make up and costumes,
e.g. characters get more dirty and more tired as the day
progresses. A on-screen countdown clock is adding
urgency to each passing second of Bauer's mission.
When the running clock is shown full screen, an alternat-
ing pulsating beeping noise (like the kind seen on a time
bomb) for each second can be heard.

Narrative perspective:
Each episode of 24 can be divided into two parts: the
recap with its homodiegetic voice-over host/narrator
(the protagonist Jack Bauer), who updates the viewer;
and the show itself which is transmitted from another,
invisible narration level.

Tone of voice:
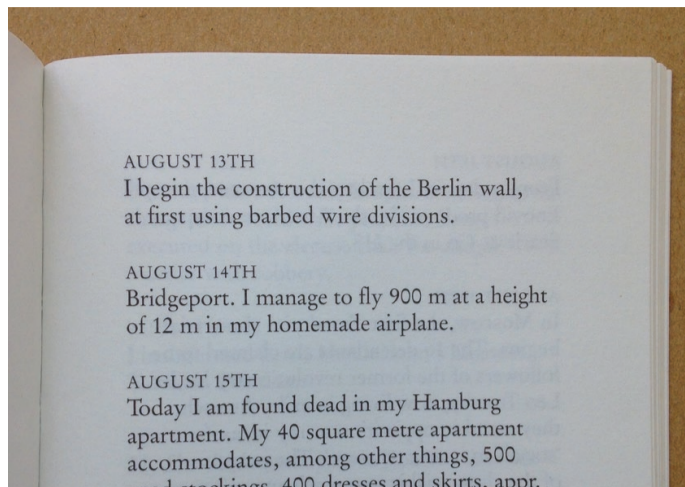dramatic, aggressive (showing 67 scenes of torture
in its first five seasons)

Conclusion
Excitement and highlights can be delivered in systematically
structured 'time' windows without wearing out.

Today Series

24,698 Days (100 Years Calendar)

Today Series (1966-2014)
On Kawara

The *Today Series* includes nearly 3,000 paintings that show the date of the day On Kawara (1932-2014) painted the picture. The date format corresponds to that of the country in which he stayed at the time. Each painting is accompanied by a clipping of a daily newspaper. On Kawara marked each finished picture in a *100 Years Calendar*.

System

Classification system:
time units (days and years of On Kawara's life), timeline

Standards:
The paintings conform to one of eight sizes, produced in a landscape format, ranging from eight by ten to sixty-one by eighty-nine inches. They are painted in one of three colours – grey, red and blue. On Kawara used international date formats and common typefaces, e.g. Gill Sans and Futura.

Universal (design) methods:
white on colour, primary colors, monochrome, landscape formats, handmade

Network:
Appr. 3,000 date paintings are accompanied by a clipping of a daily newspaper and are documented in On Kawara's *100 Years Calendar*. The *Today Series*-boxes are distributed (separate from each other) all over the world in various museums.

Rules:
The painting is always completed on the day it is begun. The date format corresponds to that of the country in which On Kawara stayed at the time. As far as the national language did not use Latin characters, the date is shown in Esperanto. The paintings in the series conform to one of eight sizes, produced in a horizontal format.
For each work On Kawara mixed the paint afresh, so that the color of each is unique, e.g. the red is never the same red. He painted white block letters on a monochromatic ground. Each finished picture is marked in a *100 Years Calendar*. Each painting is stored in a handmade cardboard box along with a clipping from the local newspaper.

Modularity:
The system's recurring component is a 'day'.

Flexibility:
On Kawara's project ended with his death in 2014. However, his system is flexible. In 2013 the artist Eric Doeringer began making 'date paintings', following the parameters of Kawara's *Today series*.

Storytelling

Themes:
experiencing and recording time

Setting (place/time):
different places worldwide; present

Characters (main/secondary):
On Kawara; people appearing in the newspaper

Plot:
On Kawara begins his *Today Series* of paintings on January 4, 1966, and continues to work on them until his death in mid-2014. He sets up an extensive set of rules, a kind of protocol for the production of the paintings. In addition to these formal conventions, the paintings are stored in handmade cardboard boxes along with a clipping from the local newspaper. Combining the individual with the universal, the *Today Series* is both a deeply personal journey (asserting that I was here on this day), but also the story of humanity and struggles experienced on a much larger scale – as captured through the lens of daily newspaper reportage.

Climax:
If On Kawara did not complete a painting by midnight, he destroyed it. Some days he made two paintings. Very occasionally, he made three. He marked each finished picture in a *100 Years Calendar*, in which, beginning with his date of birth, he systematically marked every day of his life with a yellow dot and every finished painting with a dark green dot.

Time frame:
48 years (1966-2014)

Narrative style:
universal, systematic, timeline, reportage
The works appear industrially produced but are handmade.

Narrative perspective:
On Kawara's choice to produce a painting
He exhibited the paintings both with and without their boxes.

Tone of voice:
abstract, classic, archival

Other characteristics

Users/target group:
general public, art lovers

Access:
museums worldwide

Scope:
On Kawara created date paintings in 137 cities worldwide.

Language:
different languages and Esperanto (constructed international auxiliary language)

Material:
oil on canvas, cardboard, newspaper

Interactivity:
no

Response (production) time:
appr. one day for one painting =
nearly 3,000 days for the whole series

Conclusion
A system can be simple and rigid, but needs a human touch and an emotional framework in order not to be boring.

Garden Cities of To-morrow (1902)
Ebenezer Howard

In this publication, the British city planner Ebenezer Howard (1850-1928) describes his idea of reorganizing society by means of networks of Garden Cities. He believed that bringing urban and rural life together could break the strong influence of capitalism and lead to cooperative socialism. The book was first published in 1898 under the title *To-morrow: A Peaceful Path to Real Reform* and reprinted in 1902 as *Garden Cities of To-morrow*.

System

Classification system:
'The Three Magnets' form the basis for Howard's model city. Howard distinguishes between people who want to live in the town, in the countryside or in the hybrid structure 'town-country'. For the latter, he developed the garden city which he considered a perfect blend of city and nature.

Standards:
Today, zoning, greenbelting and urban decentralization are common methods of urban planning.

Universal (design) methods:
diagrams and maps for explaining ideas effectively

Network:
After the success of one garden city, clusters of Garden Cities would grow up. As the first garden city reached its optimal size (max. 32,000 inhabitants), another would be founded. The cities in the network are linked to each other by a fast railway system.

Rules:
Industry should be kept separate from residential areas – such zoning was a new idea at the time. Each garden city has a belt of country around itself. The distance from any garden city to the heart of a central city is only three and a quarter miles, a distance that could be covered in five minutes. Each garden city should have a limit of 32,000 inhabitants.

Modularity:
Every garden city consists of the same infrastructure and equipment modules. Howard planned a constitution for the Garden Cities that is divided into a 'central council' and three 'municipal groups': Public Control (assessment, law, inspection), Engineering (roads, railway lines), and Social Purposes (education, baths and wash-houses, music, libraries, recreation).

Flexibility:
Howard considered his diagrams to be merely suggestive as each city should be planned to be organised as per the needs of the people and their environment.
The garden city was not flexible in size but limited to 32,000 inhabitants.

Storytelling

Theme (main/secondary):
sustainable interactions between human society and nature, cooperative socialism, model for the privatisation of the municipality, controlling urban sprawl

Setting (place/time):
urban and rural; future

Characters (main/secondary):
urban planners, citizens

Plot:
In Ebenezer Howard's utopian 'Garden City' people live harmoniously together with nature. The new suburban towns should be of limited size, planned in advance, and surrounded by a permanent belt of agricultural land. Social production are organized for local demands with the goal of creating self-sustaining communities, thus reducing the need for long-distance trade. Howard insisted that the long-term sustainability of Garden Cities was founded on abiding by the law of restitution, where all wastes were recycled back to the soil to ensure the continued productive potential of the land. In this, Howard's Garden Cities provided a model for an ecologically sustainable society. The Garden Cities would be largely independent, managed by the citizens who had an economic interest in them, and financed by ground rents on the Georgist model. The land on which they were to be built was to be owned by a group of trustees and leased to the citizens.

Climax:
Howard lived to see his plans put into action. In 1903 he developed Letchworth Garden City and in 1920 Welwyn Garden City near London (UK). Based on his ideas Letchworth was owned by a company called *First Garden City Ltd* (15 individual owners) and was constructed as an example of how the Garden City could be achieved. Howard's ideas inspired city projects around the world, including Canberra (AU), Hellerau (DE), Tapanila (FI) and Mežaparks (LV).

Time frame:
Until today Ebenezer Howard's vision of Garden Cities has had an enormous impact upon urban planning and the development of cities around the world.

Narrative style:
First-person narrative, giving instructions

Narrative perspective:
Ebenezer Howard's ideas

Tone of voice:
utopian, reasoned

Other characteristics

Users/target group:
citizens

Access:
publicly accessible

Scope:
9,000 acres (~36,421,707 m²)

Language:
symmetric structures

Material:
land

Interactivity:
no

Response (production) time:
In 1903, five years after Howard's first book
Letchworth Garden City is built.

Images: Wikimedia Commons
Source: Andrea Gibbons on writingcities.com: https://tinyurl.com/y698w7hl

Letchworth (1903)

Canberra (1913)

Conclusion
Storytellers who focus on interaction and collaboration engage audiences for a long time. It's about a process not a product.

chronology (appendix)

It was me-Diary on Twitter

It was me. Diary 1900-1999 (2002)
Daniela Comani

In a publication and different art installations Daniela Comani reports about events from the entire 20th century in a mixture of a calendar and a diary. She does this as if the described events had happened to her, impersonating Hirohito, Hitler or Einstein.

System

Classification system:
one event is described per day; in total, events are described on 366 days (from January 1 to December 31 in a leap year) in the 20th century
While the individual dates (day/month) are accurately set to their historical reference, the years do not appear in chronological order. A chronology in the appendix indicates the years of the events. The first event happens on 1.01.1919, the last on 31.12.1958.

Standards:
calendar system, timeline, diary entries in the first person
While the life events of 366 days are told in chronological order, the sequence of historical events is broken. These two kinds of narrations, a linear (simple) and a nonlinear (complex) one were already described by Aristotle, who referred to them respectively as mythos (irrationality, stories of gods) and logos (rationality, science).

Universal (design) methods:
black text on white; Courier (a computer font that was originally a typewriter typeface)

Network:
The work exists in different mediums: book, wall installation, audio installation (CD, 66 min.), app, a site specific version for Alexanderplatz, Berlin (DE)

Rules:
short diary entries (appr. 3 sentences), naming the date without the year, I-messages only, real historical events

Modularity:
One component consists of a date (and sometimes place) and a historical event.

Flexibility:
The diary could be expanded endlessly with new entries. They could also be inserted in between, provided they follow the chronological order.

Storytelling

Theme (main/secondary):
world history, collective memory/individual memory, universal/particular, impersonal/personal

Setting (place/time):
different places worldwide; present

Characters (main/secondary):
Malcolm X, Willy Brandt, Hirohito, Hitler, Einstein and many others

Plot:
Daniela Comani is citing events of the 20th century as if they occured to herself. Through a mix of conceptual rigor and poetic depth, she unfolds an index of human drama and war, technical and social achievement and catastrophe. All diary notes are narrated in first-person. A single author, the artist's persona, alleges to hold responsibility for events and actions as diverse as the murder of Malcolm X, the prohibition of slavery in China or Willy Brandt's famous visit to Warsaw. The first entry is: *"January 1st. I founded the Communist Party of Germany in Berlin."*| The last entry is: *"December 31st. During a New Year's party I flee Cuba. Thus ends my regime."*

Climax:
"August 15th: Today I am found dead in my Hamburg apartment."

Time frame:
366 days/events in a time frame of 99 years

Narrative style:
diary style, uniting two forms of storytelling–biographical and historical; combining linear and nonlinear narration (events in chronological order/years do not appear in chronological order)

Narrative perspective:
first-person narrator
The narrator assumes alternatively the role of the victim and the role of the perpetrator, introducing an 'impossible author' of the century's world history. The events are chosen by the artist for subjective reasons and not according to the criteria of official history.

Tone of voice:
it's me, it was me, it was me!, enumerating facts, succinct

Other characteristics

Users/target group:
general public

Access:
museums worldwide

Scope:
worldwide

Language:
The original text is in German. The wall installation is available in eight languages: German, English, Italian, French, Swedish, Chinese, Hungarian, Russian.

Material:
paper, digital print on vinyl cloth, audio

Interactivity:
In *Ich war's. In 32 Tagen um den Alexanderplatz. 1805-2007* (2007/2008) Comani adapted the concept into a public art installation by using the billboards in the Alexanderplatz underground station to describe real events which took place around Alexanderplatz.

Response (production) time:
Comeni started the project in 2002 and continues to exhibit it to this day.

Images: Daniela Comani
Sources:
danielacomani.net/a.ichwars.08.html
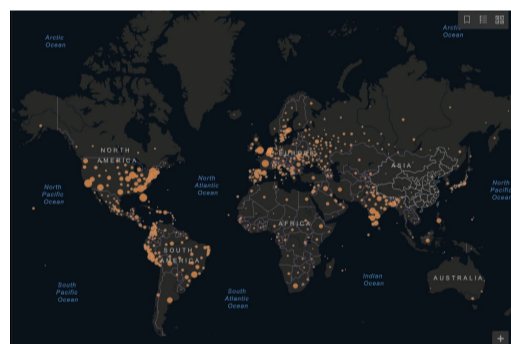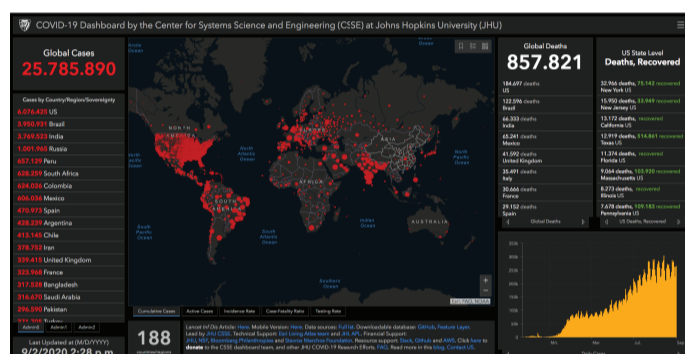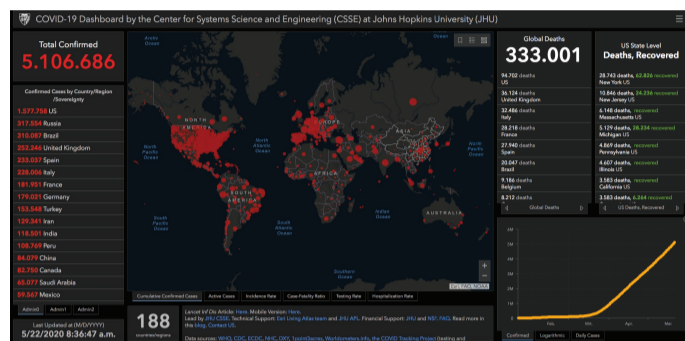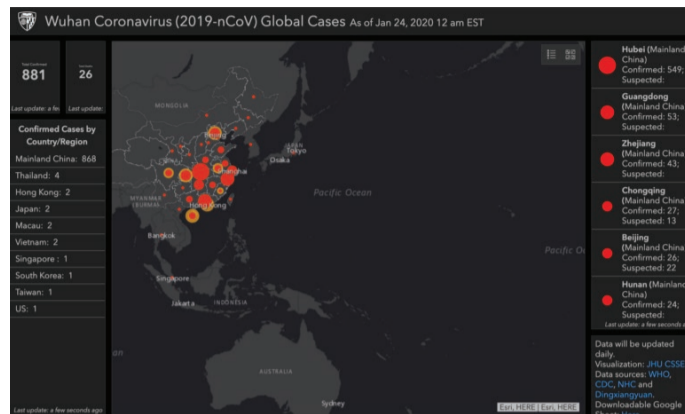https://twitter.com/danielacomani

Conclusion
Stories told from different perspectives encourage reflection and opinion forming.

Active Cases (= total number of cumulative confirmed cases minus the recovery minus the death cases; reflect best the current risks)
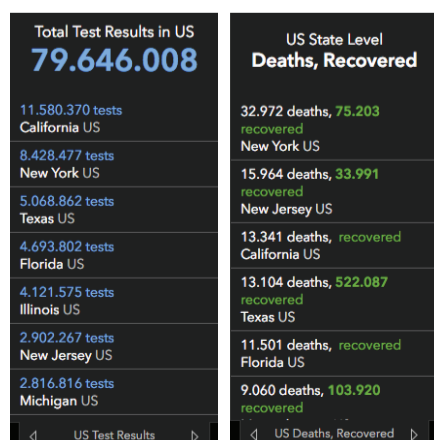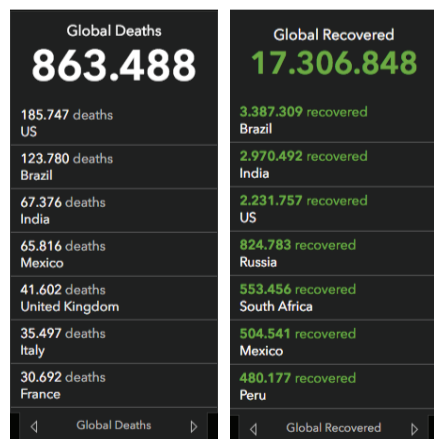
Global and US data on 3 September, 2020

COVID-19 Dashboard (2020)
Ensheng Dong, Hongru Du, Lauren Gardner, Center for Systems Science and Engineering (CSSE) at Johns Hopkins University, Baltimore (US)

Researchers from Johns Hopkins University developed one of the first and most widely used online dashboards to visualise and track reported cases of coronavirus disease in real time. The dashboard, first shared publicly on January 22, 2020, illustrates the location and number of confirmed COVID-19 cases, deaths, and recoveries for all affected countries.

System

Classification system:
The dashboard shows global data of 188 countries. It reports cases at the country level, at the province level in China, at the regional level of e.g. Russia, Germany, Brazil, Mexico, Netherlands and at the city level in the USA, Australia, and Canada. The most detailed data is shown of the United States on country, state, county and city level (cumulative cases, active cases, deaths, recovered, test results). The data is shown in listings, on a world map and on a line plot/bar graph (as a timeline since January 2020).

Standards:
the use of cumulative data (incorporating all current and previous data up to the present or at the time of measuring); the use of datavisualization-formats like data bubble map, line plot and bar graph

Universal (design) methods:
The use of the colour red for indicating danger. Numerical data is ordered from large to small numbers.

Network:
Appr. 200 data sources are used. The most important one is DXY, an online platform run by members of the Chinese medical community, which aggregates local media and government reports to provide cumulative totals of COVID-19 cases at the province level in China and at the country level otherwise. The dasboard-website also provides information about the data sources, the downloadable database and general information (FAQ) about the development of the dashboard.

Rules:
Data is double checked – confirmed by health departments and compared with the data by WHO, which is a completely independent source.

Modularity:
The dashboard works as a template which could also be used for tracking other global diseases.

Flexibility:
All data collected and displayed are made freely available through a *GitHub* repository (open-source platform), along with the feature layers of the dashboard, which are now included in the *ESRI Living Atlas* (ready-to-use data layers, maps and apps).

Other characteristics

Users/target group:
general public, 1,2 billion requests a day (March 2020)

Access:
World Wide Web (desktop and mobile version)

Scope:
data of 188 countries worldwide (Sept. 2020)

Language:
English

Material:
website, free data sets

Interactivity:
All data is downloadable for educational and academic research purposes. The dashboard uses crowdsourced information from the public. The public also reports data errors.

Response (production) time:
Launched on January 22, 2020, appr. 2 months after the first COVID-19 case became known.

Images: Johns Hopkins University (US)
Sources: https://tinyurl.com/uvclzl9

Storytelling

Theme (main/secondary):
tracking the COVID-19 spread in real-time, sick vs healthy

Setting (place/time):
different regions worldwide; past and present

Characters (main/secondary):
world population; Johns Hopkins (entrepreneur and philanthropist), Stavros Niarchos (entrepreneur), Mike Bloomberg (politician and philanthropist)

Plot:
On December 31, 2019, the World Health Organization (WHO) was informed of an outbreak of a novel coronavirus detected in Wuhan City (CN). The Johns Hopkins University (US) built a COVID-19 online dashboard to mapping the corona outbreak in near real-time. It was launched on January 22, 2020 to provide researchers, public health authorities, and the general public with a user-friendly tool to track the outbreak as it unfolds. As of January 24, 2020 there were 881 cases of COVID-19 confirmed globally. By September this number increased to appr. 26 million cases. The dashboard is a philanthropic project – in addition to the National Science Foundation, it is funded by the Bloomberg Philanthropies and Stavros Niarchos Foundation.

Climax:
The climax has yet to come.

Time frame:
The data is updated in near real time throughout the day. The time of the latest update is noted in hours and minutes. The story is still in full development.

Narrative style:
visual, self explanatory, objective
During January 22-31, 2020 all data collection and processing were done manually. Since February a semi-automated living data stream strategy is adopted. Data is not filled in when there is no reliable source to provide truthful information. The dashboard uses ArcGIS software, which combines mapping and data analytics. It's programmed by ESRI (US), a global market leader in geographic information systems (GIS).

Narrative perspective:
The data visualized is collected from various sources, including World Health Organization, U.S. Centers for Disease Control and Prevention, US National Health Council (NHC), Chinese Centre for Disease Control and Prevention (CCDC) and DXY. DXY is a Chinese website that aggregates NHC and local CCDC situation reports in near real-time (updated every 15 minutes).

Tone of voice:
reliable, trustworthy, somber

Conclusion
When a story is too emotionally involving, we need credible storytellers who prevent us from losing the plot thread.

SYSTEMS DESIGN TELLING

SYSTEMATIC STORYTELLING