University of Applied Arts Vienna

Summer School
Metropolitan University
July 16th, 2014
Belgrade

VISUALITY & MATHEMATICS

Presentation + Workshop

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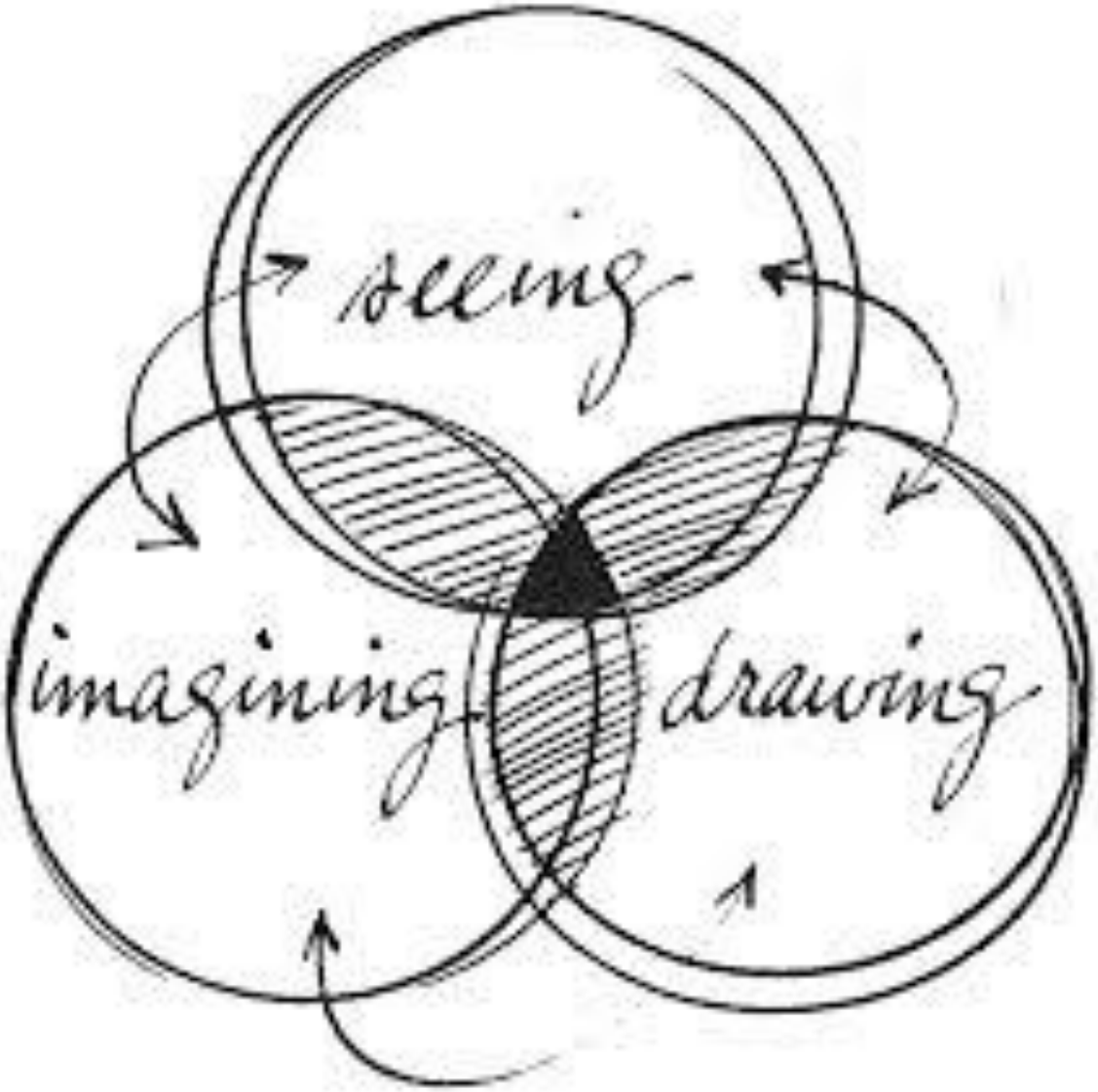
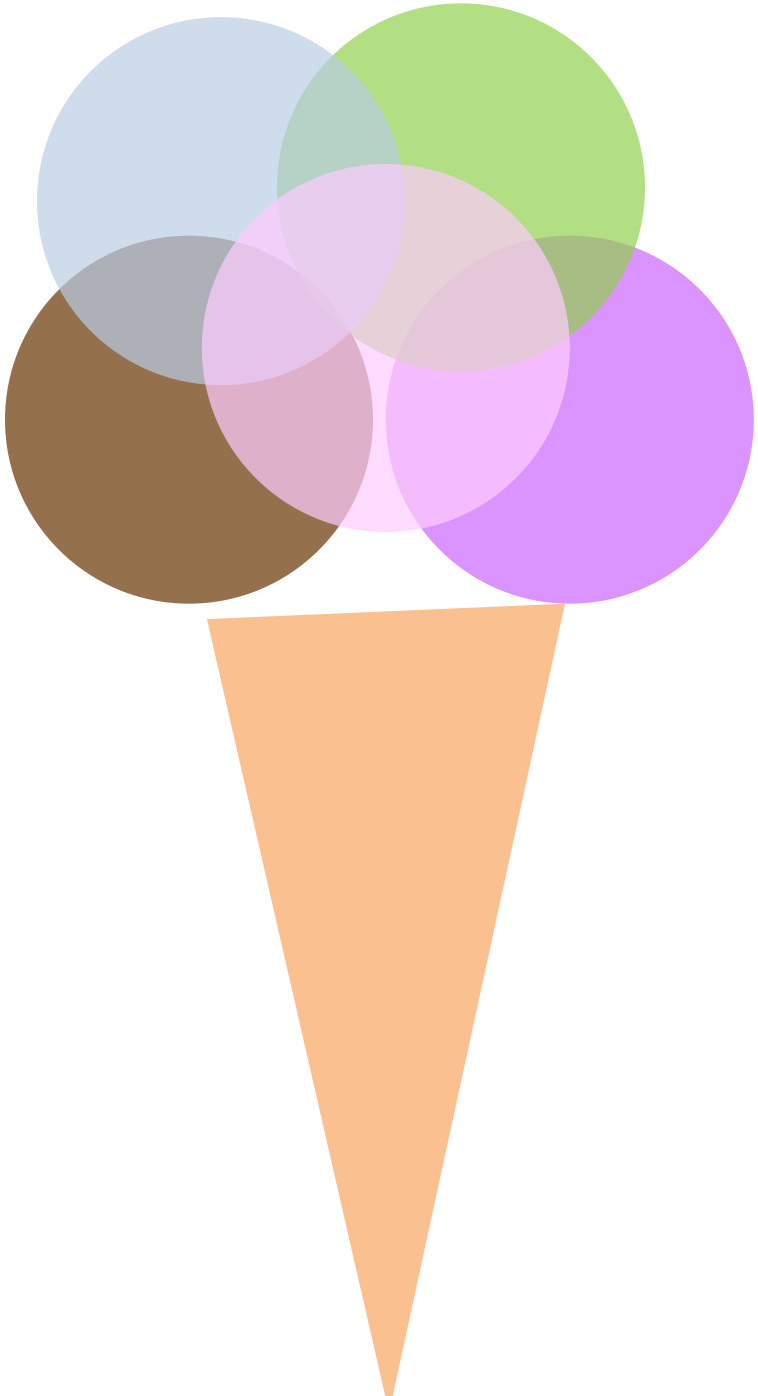
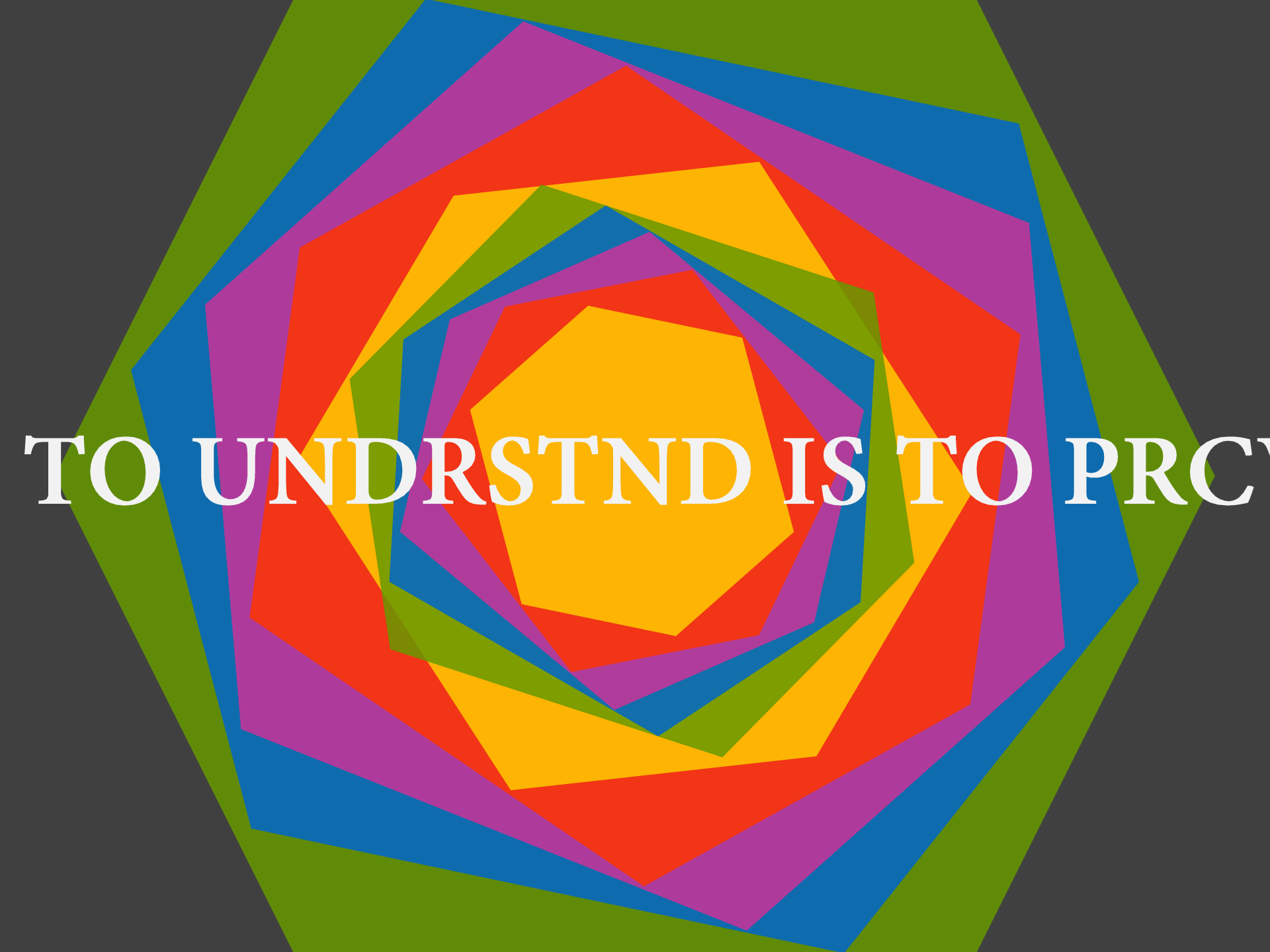
Playmath


seeing
imagining
drawing



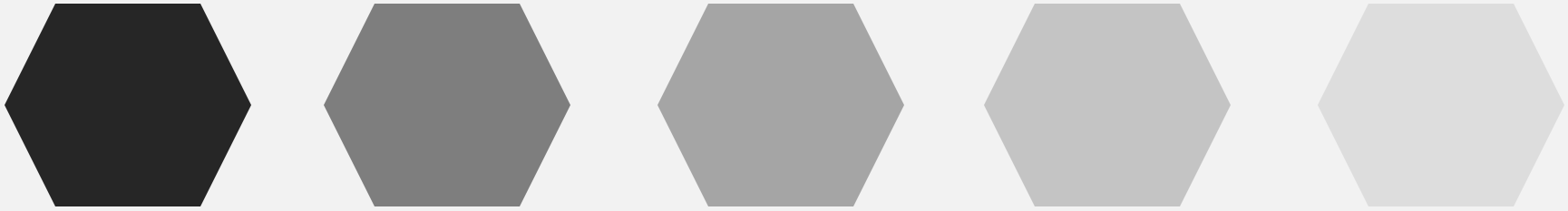

TO UNDRSTND IS TO PRC

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

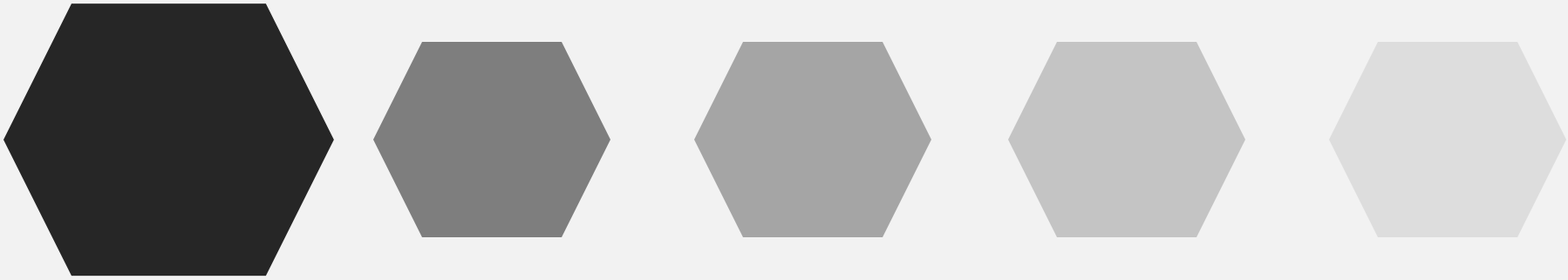
1	8	5	2	1	8	5	2
8	3	7	4	8	3	7	4
6	4	6	8	6	2	6	8
9	7	2	9	9	7	2	4
4	2	1	3	5	2	1	3

TOOLS

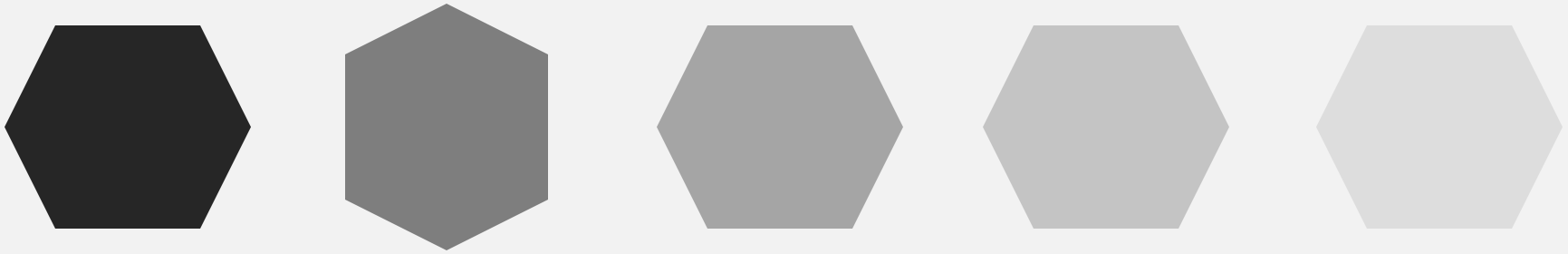
THE 5 TOOLS



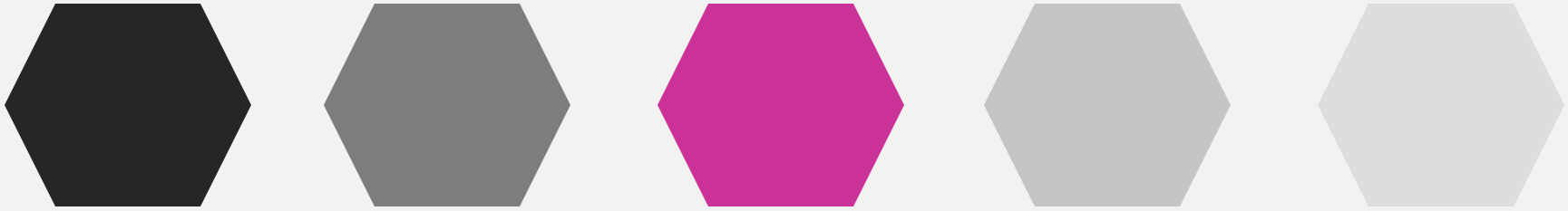
SIZE



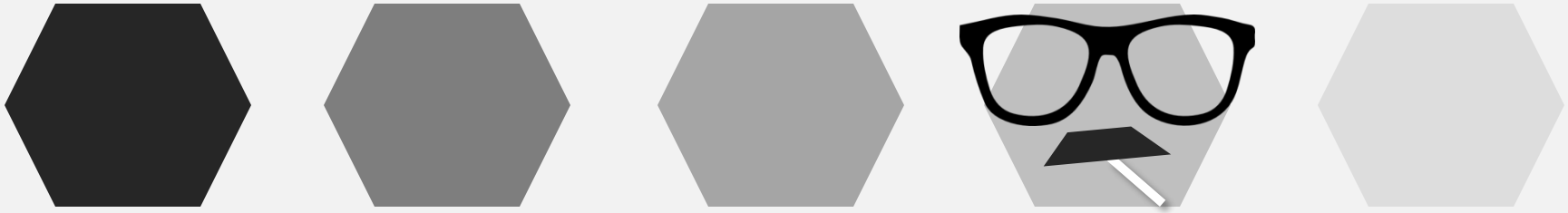
ORIENTATION



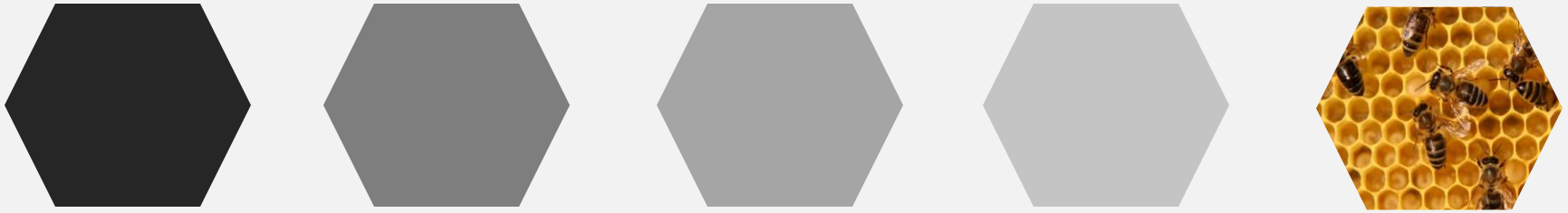
COLOR



HUMOR



METAPHOR



EXAMPLES

INFOGRAPHICS

Espresso
[ess-press-oh]

Espresso Macchiato
[ess-press-oh mock-e-ah-toe]

Espresso con Panna
[ess-press-oh kon pawn-nah]

Caffé Latte
[caf-ay lah-tey]

Flat White

Cafe Breve
[caf-ay brev-ay]

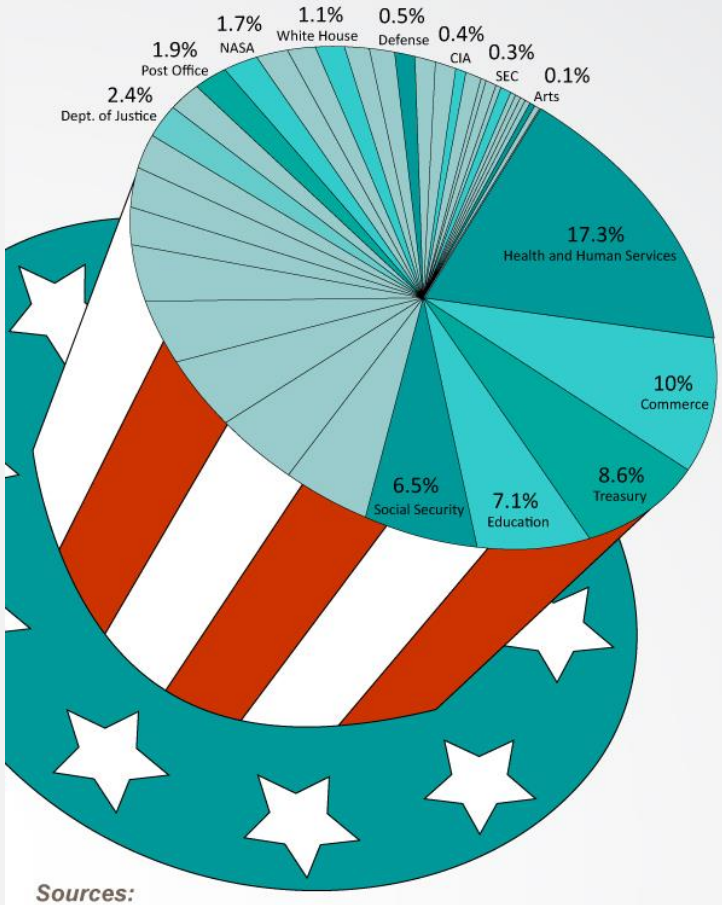
Cappuccino
[kapp-oo-chee-noh]

Caffé Mocha
[caf-ay moh-kuh]

Americano
[uh-mer-i-kan-oh]

#BudgetDebate

128 Million people visit federal gov't websites each month. If traffic is any indication of importance, which departments do netizens value most?



Sources:
http://www.compete.com
http://www.data.gov

Infographic Designer:
@beibeique

Most Popluar

uniques per month

nih.gov.....11,880,715
ed.gov.....7,764,269
irs.gov.....6,729,018
weather.gov.....5,628,090
ssa.gov.....5,068,704

Least Popular

uniques per month

hiv.gov.....133
clubdrugs.gov.....117
scienceeducation.gov...95
indianaffairs.gov.....92
nuclear.gov.....82

Add to Favorites

Despite a budget of more than $650 bn, the Social Security Administration has only 4 sites, and they collectively draw more than 6.5 mn visitors per month. That makes the SSA one of the most visited and least bloated departments of the government!

System Resources Low!!!

<bloat> The Department of the Treasury has 169 different websites. That's more than the departments of the State, Education, Defense, and the White House all combined! </bloat>

.Gov versus .Com

Hey there Netizen! Order these sites from most popular to least popular:

- Facebook
- All gov't websites
- Google
- Youtube
- Yelp
- Twitter

(See if you're right: bit.ly/oo7T92)

ATTORNEY $ FEE.com

WHERE DO SMALL BUSINESSES SOURCE THEIR DESIGNERS?

THE COLORS OF SUCCESS

Respondents selected the colors they associate with business success.

In order of popularity:

Blue	57%
Green	35%
White	32%
Black	29%
Red	21%
Yellow	14%
Orange	12%
Gray	12%
Purple	10%

♂ Purple is the color men associate **LEAST** with business success.

♀ Orange is the color women associate **LEAST** with business success.

LOGO DESIGNS

BEST

APPLE
NIKE
COCA-COLA
GOOGLE
FEDEX

WORST

WAL-MART
MICROSOFT
PEPSI
IBM
GOOGLE

AN UN-LED SEMINAR ON

ENERGY

AND FOREST PRODUCTS CONCLUDED THAT PAPER AND

PRINT

ARE PART OF THE

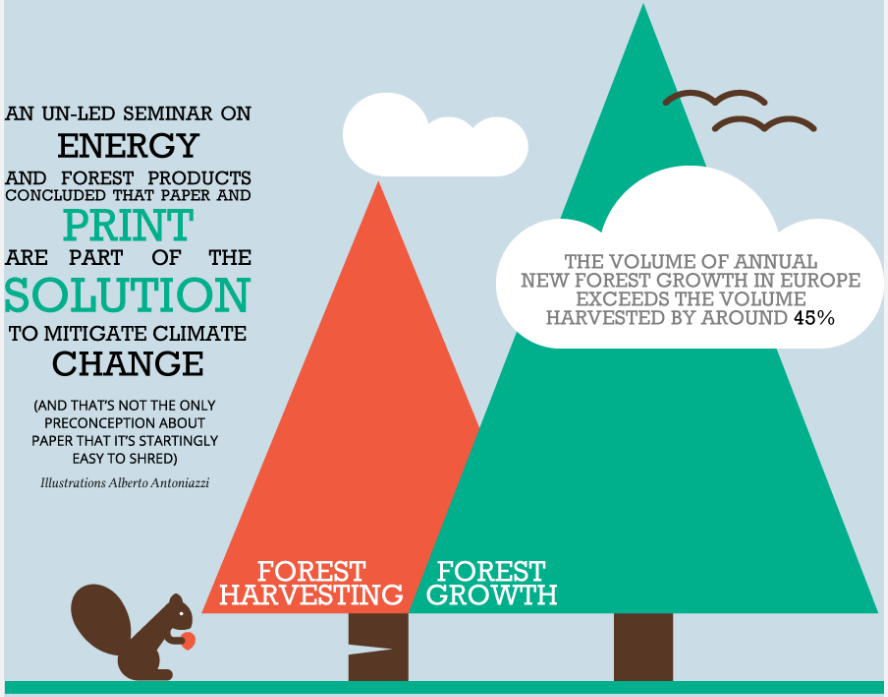
SOLUTION

TO MITIGATE CLIMATE

CHANGE

(AND THAT'S NOT THE ONLY PRECONCEPTION ABOUT PAPER THAT IT'S STARTINGLY EASY TO SHRED)

Illustrations Alberto Antoniazzi



THE VOLUME OF ANNUAL NEW FOREST GROWTH IN EUROPE EXCEEDS THE VOLUME HARVESTED BY AROUND **45%**

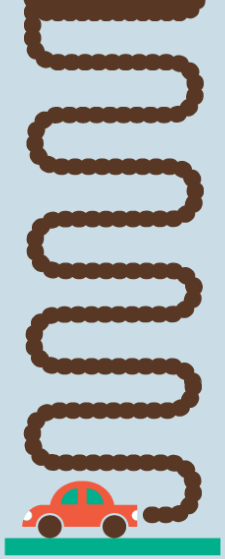
EUROPEAN FOREST COVER INCREASES BY **FOUR** TIMES THE SIZE OF LONDON EVERY YEAR...

THAT'S THE EQUIVALENT OF **1.5 MILLION** FOOTBALL PITCHES

98% OF ALL FORESTS IN EUROPE ARE COVERED BY A MANAGEMENT PLAN OR EQUIVALENT

ONE HECTARE OF FOREST ABSORBS ABOUT **2.5 TONNES** OF CARBON A YEAR*...

EQUIVALENT TO A CAR JOURNEY OF 56,790 KM



THE CRISIS of CREDIT VISUALIZED

PART 1:
FROM HOMEOWNER TO INVESTOR

1 BUYING A HOUSE

A family like us wants a house, so we contact a *MORTGAGE LENDER*, who lends us a *MORTGAGE* loan.

We buy a house and become *HOMEOWNERS!* This is great for us because housing prices have been rising practically forever.

The lender profits from fees and interest payments.

HOMEOWNERS

MORTGAGE LENDER

2 SELLING THE MORTGAGE

The lender gets a call from an *INVESTMENT BANKER* to buy his mortgage — a nice payday for the lender. Along with the mortgage, the lender has also sold his risk. Were the homeowner to default, it is now the banker's problem.

INVESTMENT BANKER

MORTGAGE

× 1000s

CDO

COLLATERALIZED DEBT OBLIGATION

3 TRANSFORMING THE MORTGAGE

The banker borrows millions of dollars and buys thousands more mortgages and puts them into a nice big box.

This means that every month, the banker gets the monthly payment from all of the mortgage holders in the box, like me.

This box is called a *COLLATERALIZED DEBT OBLIGATION*, or CDO.

4 INSIDE A CDO

The banker then slices the box into three slices, or *TRANCHES*. The tranches work like 3 cascading trays.

As money from mortgage payments comes in, the top tray fills up first, then spills over into the middle, then finally into the bottom.

If some homeowners default on their mortgages, less money comes in, and the bottom tray may not get filled.

$ $

SAFE 4%
OKAY 7%
RISKY 10%

This makes the bottom tray riskier, and the top tray safer.

To compensate for the higher risk, the owner of the bottom tray receives a higher rate of return, and the top tray receives a lower (but still nice) return.

SAFE
OKAY
RISKY

TRANCHES

PENSION FUNDS
INSURANCE COMPANIES
SOVEREIGN FUNDS
MUTUAL FUNDS
ETC.

INVESTORS

BANKERS

HEDGE FUNDS

5 MAKING IT "SAFE"

The banker splits the CDO this way so that *CREDIT RATING AGENCIES* will rate the top tranche with the safest rating: AAA.

The middle tranche is rated BBB (still pretty good).

And they don't bother to rate the bottom, risky slice.

RATING AGENCY

AAA
BBB
UNRATED

6 INVESTING IN MORTGAGES

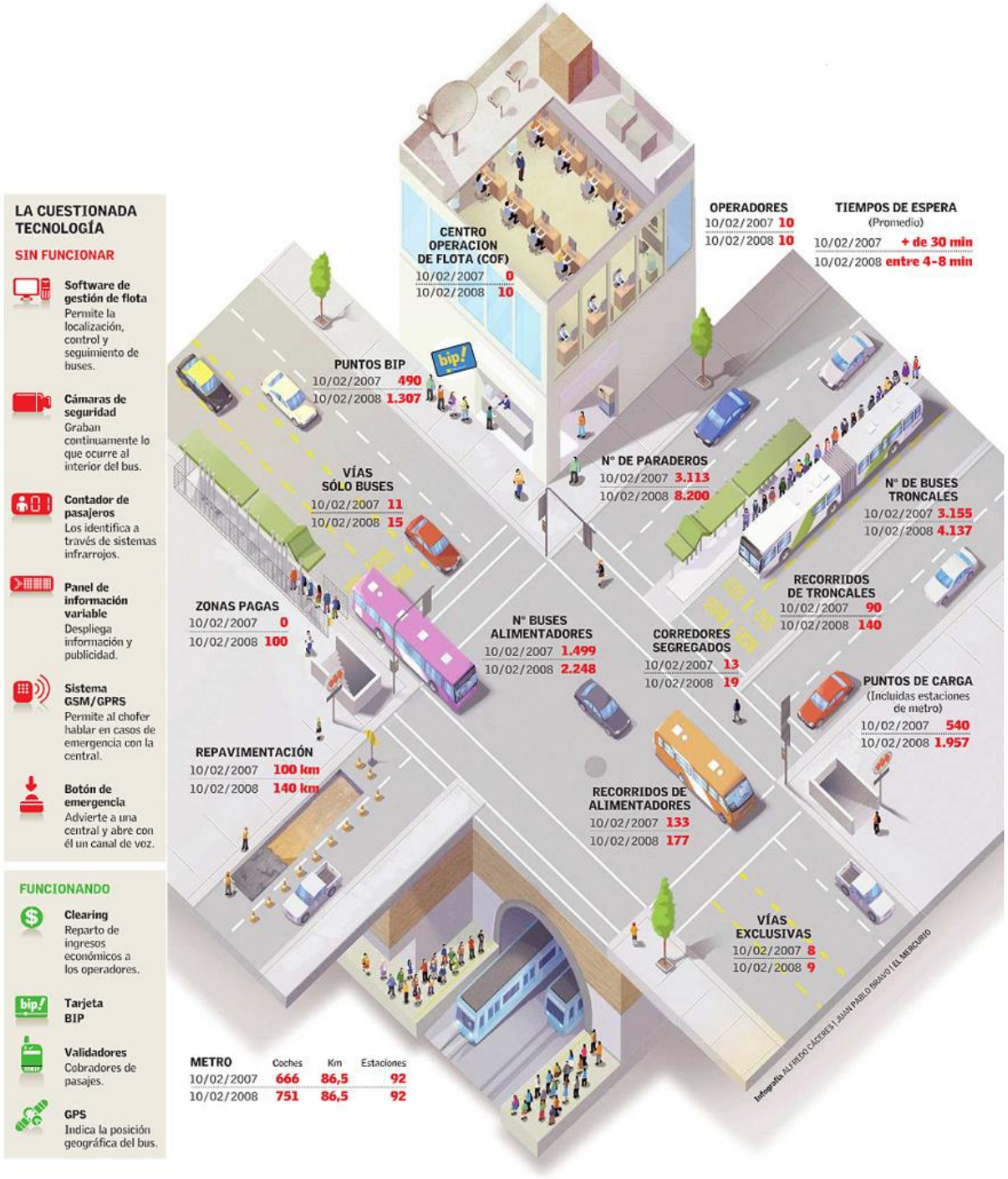
The *INVESTORS*, representing billions of dollars in managed money, buy the top tranche because it meets their low-risk profile.

Other banks buy the middle tranche.

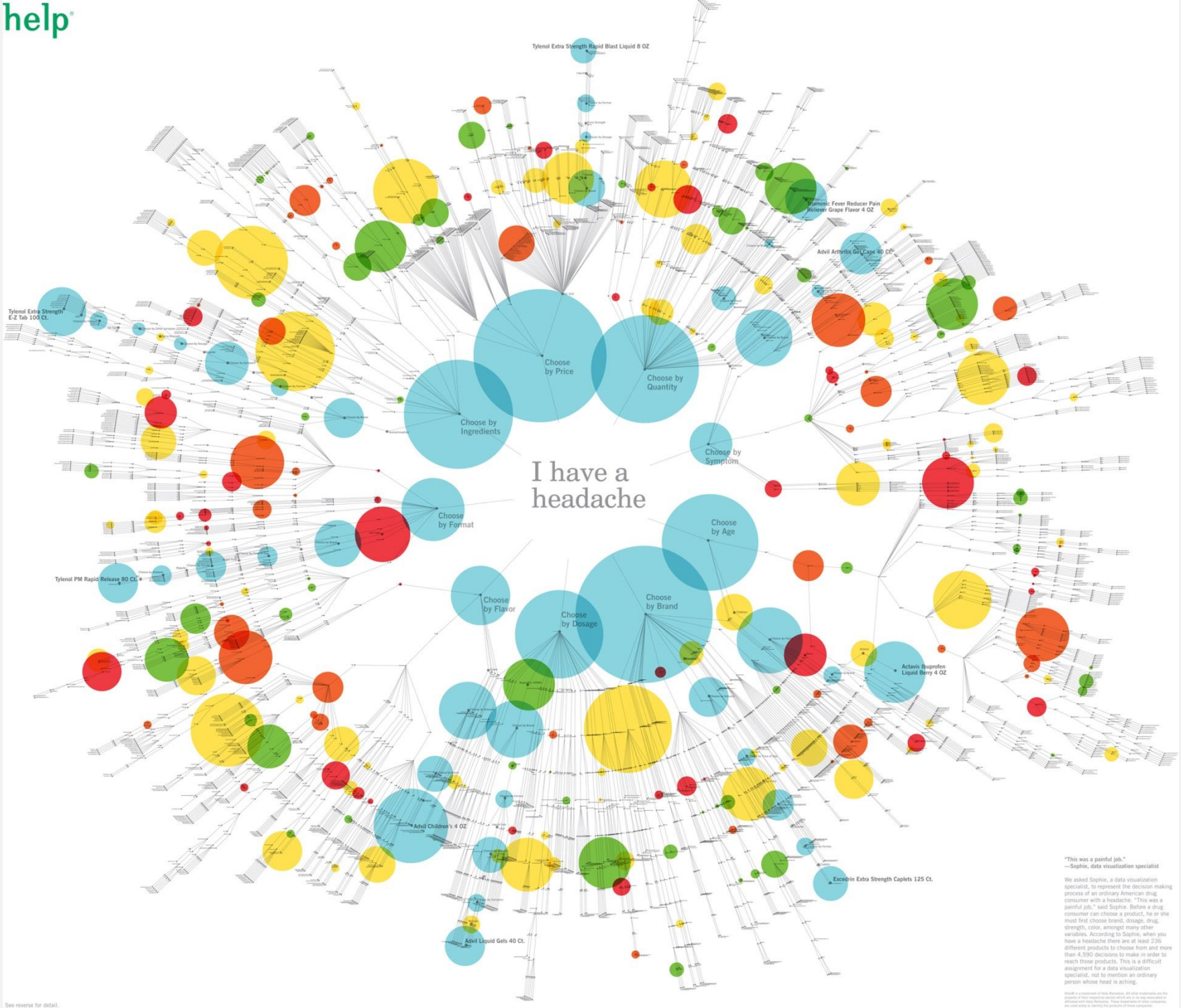
Hedge fund managers, other speculators and risk takers, like me, buy the bottom tranche.

We now assume the risk if the homeowners default.

PART 2


LA CUESTIONADA TECNOLOGÍA
SIN FUNCIONAR
Software de gestión de flota
Permite la localización, control y seguimiento de buses.
Cámaras de seguridad
Graban continuamente lo que ocurre al interior del bus.
Contador de pasajeros
Los identifica a través de sistemas infrarrojos.
Panel de información variable
Despliega información y publicidad.
Sistema GSM/GPRS
Permite al chofer hablar en casos de emergencia con la central.
Botón de emergencia
Advierte a una central y abre con él un canal de voz.
FUNCIONANDO
Clearing
Reparto de ingresos económicos a los operadores.
Tarjeta BIP
Validadores
Cobradores de pasajes.
GPS
Indica la posición geográfica del bus.
CENTRO OPERACION DE FLOTA (COF)
10/02/2007 0
10/02/2008 10
OPERADORES
10/02/2007 10
10/02/2008 10
TIEMPOS DE ESPERA
(Promedio)
10/02/2007 + de 30 min
10/02/2008 entre 4-8 min
PUNTOS BIP
10/02/2007 490
10/02/2008 1.307
VÍAS SÓLO BUSES
10/02/2007 11
10/02/2008 15
N° DE PARADEROS
10/02/2007 3.113
10/02/2008 8.200
N° DE BUSES TRONCALES
10/02/2007 3.155
10/02/2008 4.137
RECORRIDOS DE TRONCALES
10/02/2007 90
10/02/2008 140
ZONAS PAGAS
10/02/2007 0
10/02/2008 100
N° BUSES ALIMENTADORES
10/02/2007 1.499
10/02/2008 2.248
CORREDORES SEGREGADOS
10/02/2007 13
10/02/2008 19
PUNTOS DE CARGA
(Incluidas estaciones de metro)
10/02/2007 540
10/02/2008 1.957
REPAVIMENTACIÓN
10/02/2007 100 km
10/02/2008 140 km
RECORRIDOS DE ALIMENTADORES
10/02/2007 133
10/02/2008 177
VÍAS EXCLUSIVAS
10/02/2007 8
10/02/2008 9
METRO
Coches Km Estaciones
10/02/2007 666 86,5 92
10/02/2008 751 86,5 92
Infografía ALFREDO CÁCERES | JUAN PABLO BRAVO | EL MERCURIO

help

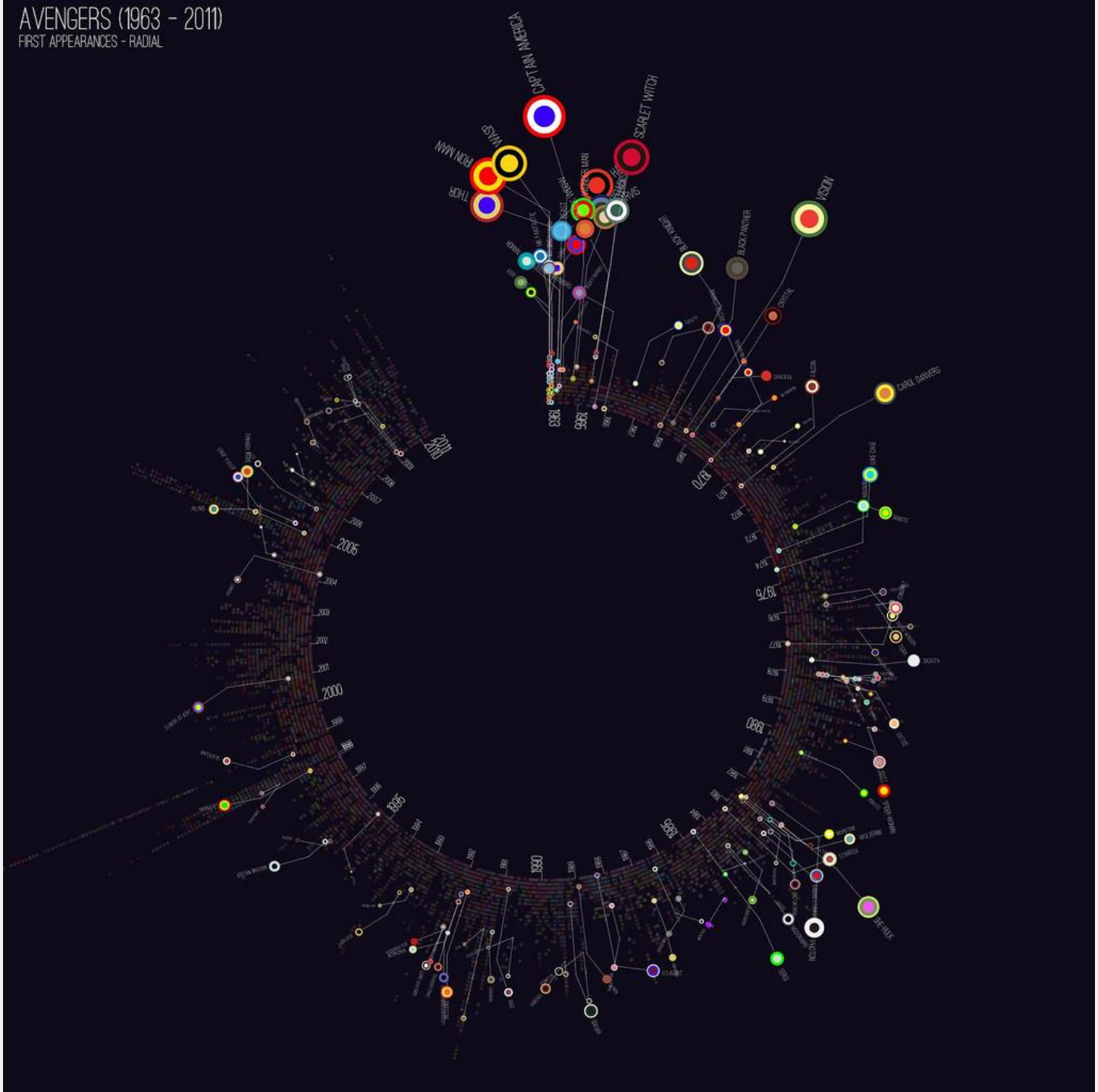


"This was a painful job."
—Sophie, data visualization specialist

We asked Sophie, a data visualization specialist, to represent the decision making process of an ordinary American drug consumer with a headache. "This was a painful job," said Sophie. Before a drug consumer can choose a product, he or she must first choose brand, dosage, drug, strength, color, amongst many other variables. According to Sophie, when you have a headache there are at least 236 different products to choose from and more than 4,590 decisions to make in order to reach those products. This is a difficult assignment for a data visualization specialist, not to mention an ordinary person whose head is aching.

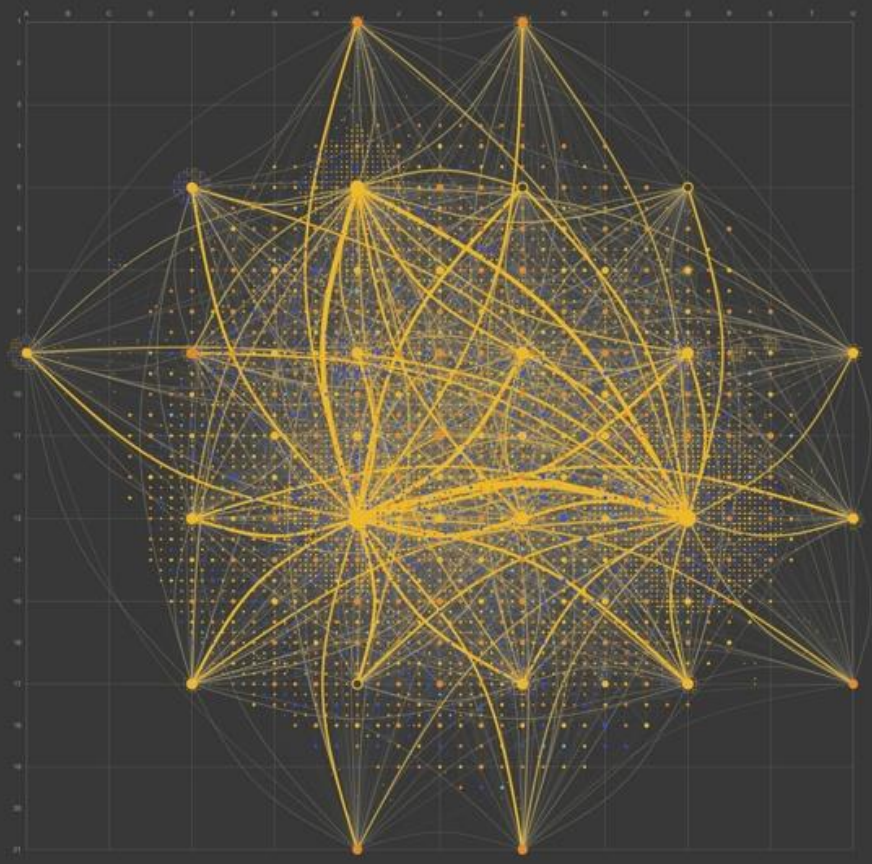
Help® is a trademark of Help Remedies. All other trademarks are the property of their respective owners which are in no way associated or affiliated with Help Remedies. These trademarks of other companies are used solely to identify the products of these companies.

See reverse for detail.


AVENGERS (1963 - 2011)
FIRST APPEARANCES - RADIAL
CAPTAIN AMERICA
SCARLET WITCH
WASP
IRON MAN
THOR
VISION
BLACK PANTHER
CAROL DANVERS
SHE-HULK
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2011

The Internet

Topology of Autonomous Systems, 2011.01.02



The Internet is made up of autonomous systems. Each autonomous system is a network operated by a single organization, and has routing connections to some number of neighboring autonomous systems.

This image depicts a graph of 19,869 autonomous system nodes joined by 44,344 connections. The sizing and layout of the autonomous systems is based on their eigenvector centrality, which is a measure of how central to the network each autonomous system is – an autonomous system is central if it is connected to other autonomous systems that are central. This is the same graph theoretical concept that forms the basis of Google's PageRank algorithm.

The graph layout begins with the most central nodes and proceeds to the least, positioning them on a grid that subdivides after each order of magnitude of centrality. Within the constraints of the current subdivision level, nodes are placed as near as possible to previously placed nodes that they are connected to.

Large ISP
Network Information Center

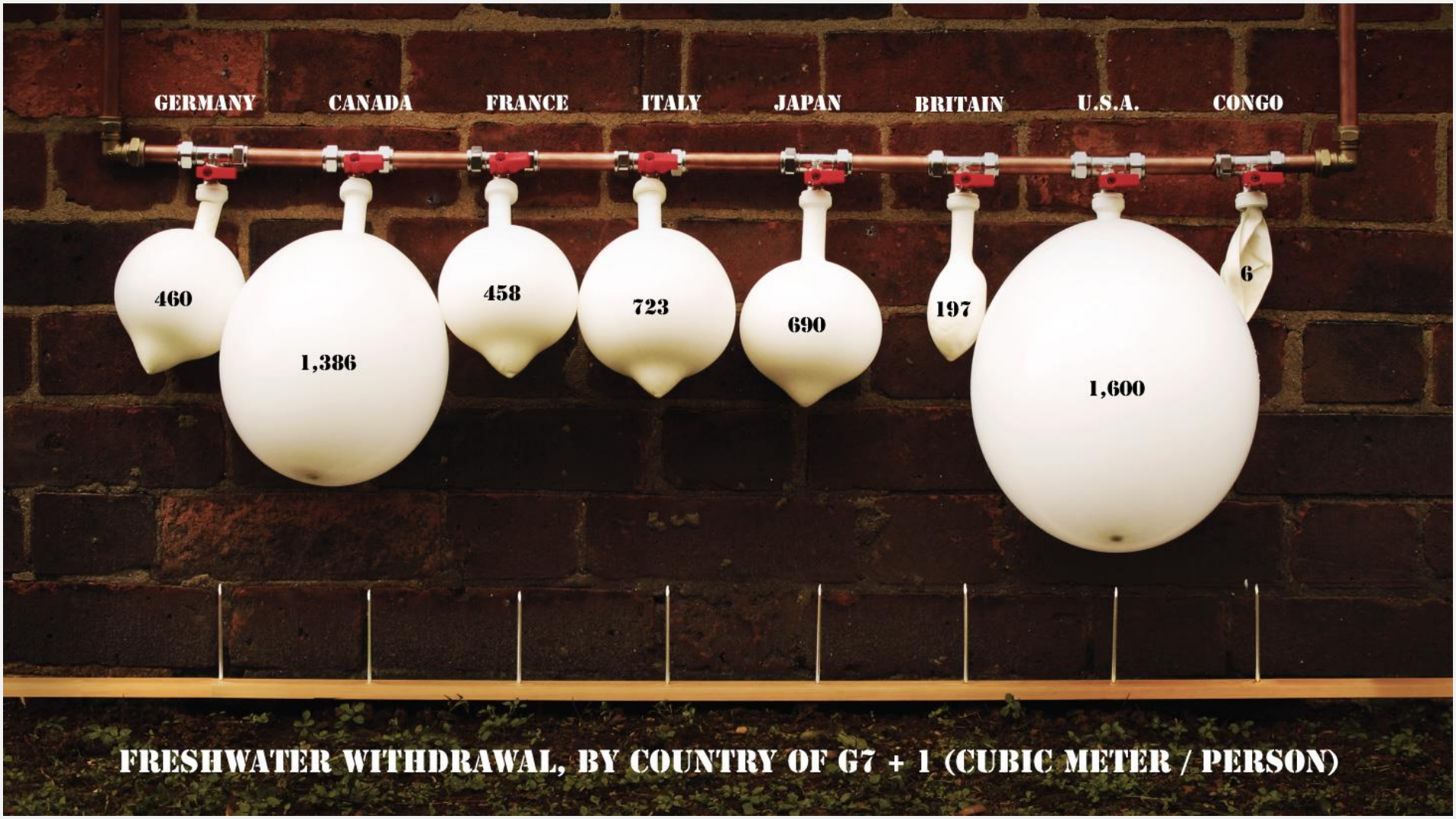
Small ISP
Organization Network

Internet Exchange Point
University

peer1 hosting

PING & PEOPLE

REAL LIFE INFOGRA


GERMANY
CANADA
FRANCE
ITALY
JAPAN
BRITAIN
U.S.A.
CONGO
460
1,386
458
723
690
197
1,600
6
FRESHWATER WITHDRAWAL, BY COUNTRY OF G7 + 1 (CUBIC METER / PERSON)

46%
Thinks it is unethical if nurses and doctors go to work wearing an Islamic headscarf
42,5%
Thinks it is unethical if schoolteachers and educators go to work wearing an Islamic headscarf
66%
Thinks it is unethical if judges go to work wearing an Islamic headscarf
38%
Thinks it is unethical if home carers go to work wearing an Islamic headscarf

Parents say
Children do
HA Hospital Alemán
Kinderplan

FRENCH FRY CONSUMPTION BY MONTH
IN 2010
15
10
5
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC

VEGETARIANISM **IN NUMBERS**

6M
of farm animals die each hour worldwide to produce meat

70%
of the world's vegetarians are Indians

1.3B
of people could be fed by the grain and soybeans that are currently fed to U.S. livestock

59%
female

41%
male

1 IN 30
is a vegetarian in the U.S.

DESIGNED BY ANGELINA IGNATOVA

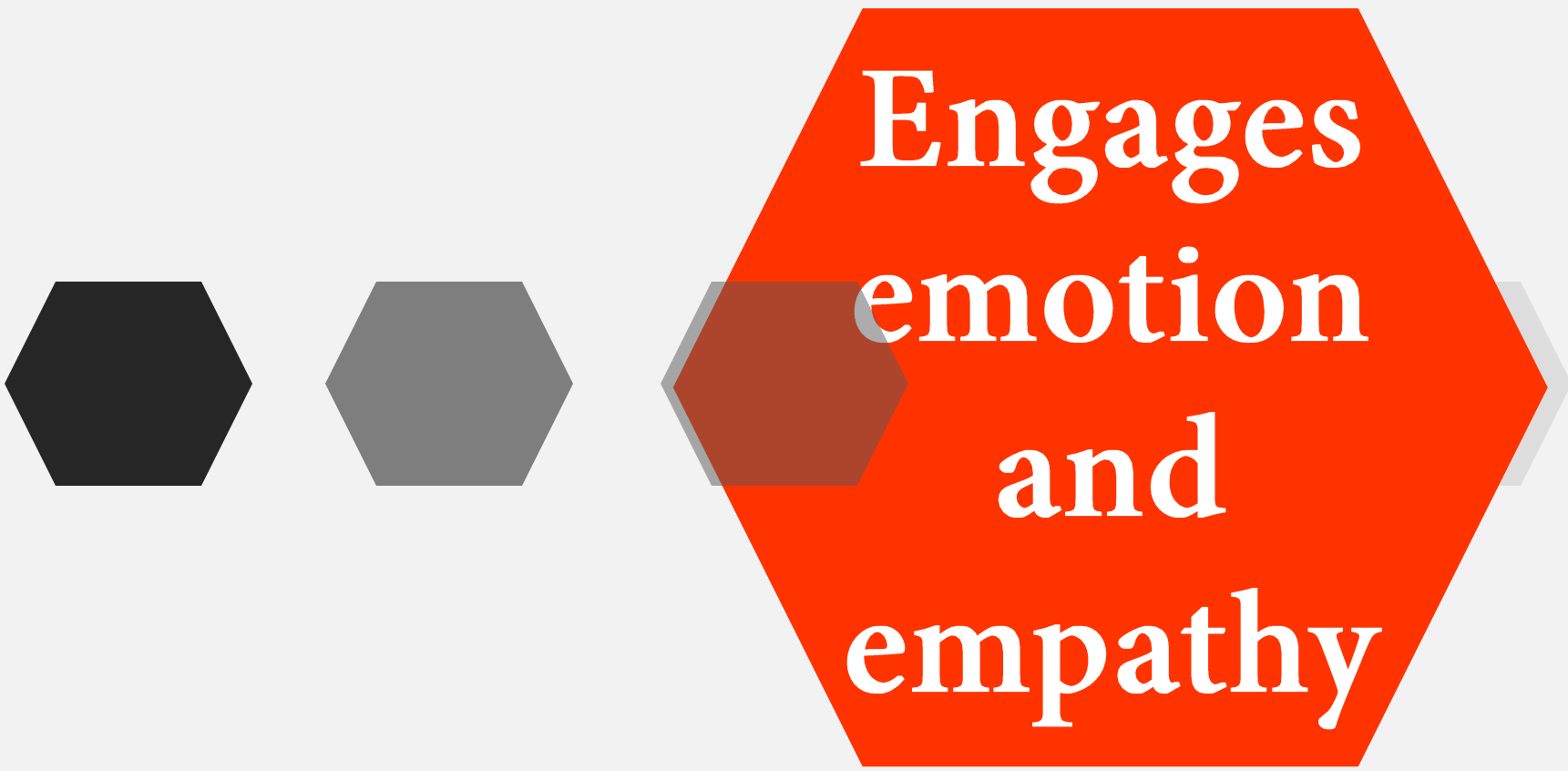
Resources:
http://facts.randomhistory.com/facts-about-vegetarianism-and-veganism.html
http://awellfedworld.org/issues/animalprotection

BENEFITS

Tickles imaginat ion

Inspires critical thinking

Starts a creative process


Engages
emotion
and
empathy

Offers
variety

IT`S FUN!

IN THE WORKSHO

Thank you!