

MAPS OF DIVERSITY

New visualization tools for accurate understanding of the World

[Myriam Redondo Escudero.

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1. INTRODUCTION

Thirty years ago, our mental image of whatever happened abroad was a rigid result of what we were told by mass media. Foreign correspondents constituted almost the only privileged group who could travel abroad and translate faraway realities to us. There were no low-cost plane tickets, no international students grants, and, of course, no Internet or social networks or e-Mule or Youtube or chats.

Under such circumstances, and despite the gigantism of its mission, international journalism was a controlled communication circuit. There was an almost direct line from the news sources (in the destination country) to the foreign correspondents and to media readers/listeners/viewers at home. That was all. No direct contrast of the information was possible for the citizens.

But nowadays, such a gigantism is microexploding in millions of small transnational circuits, conversations and maps. Many of them are "out of control", understanding by it that they entail pure international communication but keep outside the realm of international information (adhering to professional journalism standards). They are unorganized, spontaneous and -most important- as diverse as ever, because the origin of the information does not spring anymore from an elitist set of sources but from a dialogue as many-headed as a Hydra. Or that is the purpose, at least. New technologies have made transnational dialogue possible (have they?).

This presentation analyzes the new technological geo-tools or "mashup maps" that are changing our perception of the World and of the "others" (the foreigners), from [Google maps](#) or [Flickrvision](#) to international news aggregators such as [Global Voices](#) or [Newsmap](#). It is not a mere compilation of apps and e-toys, but an analysis of their power to introduce peripheral voices -and thus a desired level of diversity- in the international media agenda.

2. INFORMATION FLOWS, STATIC IMAGES

International Relations scholars have been largely concerned with the idea that journalistic representation of the World is neither accurate nor fair. Some countries are literally swept from the map in the usual daily account of events carried out by television channels; Africa's been complaining about its media oblivion since decades. If, as thought very often, more communication means a better World, then the question of media misrepresentations might not merely be a communication problem but also a severe political/social setback for some countries.

The underlying assumption of those who endorse the idea of media as progress agents is that journalists have power to improve societies by deepening people's knowledge on public affairs and by watchdogging governments. In other words, journalistic messages influence citizen's opinion and thus facilitate/difficult elite's actions (Jáuregui, 1989: 92 y ss).

Three confluent academic perspectives fuel worries about media bias in an international context, all of them somehow related to movement: connecting/flows, patronizing/stereotypes and balancing/diversity.

- **Where do international information flows come from, and where do they go?**

During the Cold War, and by opposition to the Soviet Union, U.S. government sponsored freedom of information under the so called "theory of free flow". Its take was that media activities should not be restricted nor highly regulated throughout the World. Information should be treated as a commodity and media messages should cross the planet according to the only mandate of audience markets. But in the 1980's, the education arm of United Nations (UNESCO) realized some unpleasant results of such proposal: at that moment, most media contents circulating around the World came from (and were related to) highly developed countries, while tended to forget about underdeveloped region's circumstances and needs.

In order to revert the situation, UNESCO hosted debates for a "New World Information and Communication Order" (NWICO). Even if the concept of "World Order" sounds outdated in XXI fast-moving century, the fact is that NWICO's echoes, fraught with ideology, remain today: there is an ongoing feeling that information production and distribution is still imbalanced and that media flows and contents are too linked to economic and political status¹.

- **What is the ultimate end of flows? What are the patterns or images that they fix in citizens' minds?**

As studied before, torrents of information flows circulating the World paradoxically tend to uniformity and generate some static perceptions (or stereotypes) in the public consciousness. Images in our head as representation of the outer reality have been widely studied by philosophers, psychologists, linguists, political scientists and

communication experts². In the best of cases, and in an international context, they resemble reality, but are not reality itself. In the worst of cases, they lead to dangerous misunderstandings among countries.

The ultimate consequence of stereotypes is an informative world-system which, in line with the followers of Theory of Dependence, privileges some core countries while permanently condemns underdeveloped ones to fail and oblivion³. International agencies' and foreign correspondents' distribution throughout the World is a clear sign of that. As Anthony Smith states, it reflects geopolitical preferences and reinforces hostile or friendly attitudes towards foreign nations inside a country (cf. Smith: 1980).

- **Is there any movement or dispersion inside media universe of uniformity? Is there real media diversity?**

Stereotypes slant supposedly open debates and impede a well-balanced construction of public knowledge. On the contrary, diversity promotes both aspects, so its importance is unquestionable.

Years ago, the significant idea was to analyze which countries were behind the strongest international information flows, and thus could impose their geopolitical construction of reality. Nowadays, with national identities diluting and more room for media individualism, the question might be better changed to who are the news sources underlying the mainstream international discourses⁴. Which are their political, cultural and economical backgrounds, their place on the social hierarchy? Following a Galtungian path: to which extent are they core elites, independently of their nationality? With communication flows exponentially growing in the World, are we confronted with a wider arrange of contents and agendas or are we just receiving more messages (higher quantity) of similar tendency (same quality)?

Many hopes have been placed on the Internet –and specifically on the blogosphere– as a suitable arena to solve problems related to media flows, stereotypes and diversity. But do the new digital outlets really foster diversity? The issue is so complex that cannot be summarized here, but some warnings should be taken into account. According to the 2008 Project for Excellence in Journalism report, in fact the news agenda narrows on the web: bloggers do not have many resources, so they focus on smaller issues and niche news (PRC: 2008, 4). As writer Neil Carlsson graphically puts it: “Yet all evidence suggests that bloggers—even the self-proclaimed progressive ones—are overwhelmingly white. But how populist can the blogosphere be if the voices of people of color are so rare? Yet the mechanisms of exclusion are complicated”. According to Carlsson, for diversity to exist in the digital age “minority groups need access to the hardware, software, and broadband services as well as funding to support recruiting minority bloggers” (cf. Baynes: 2007).

3. CLASSIC THEORIES REVISITED

How can international flows, stereotypes and diversity be explained in a World where users have become potential producers of the information? The Net -and not the city, the school, nor the pub- is now the meeting place.

Ideas such as the "Network Society" (Castells: 1996) or "Liquid life" (Bauman: 2005) are insightful attempts to apprehend the complexity of the World we live in. But when applied to media, current unsteadiness still leaves room for a lot of uncertainties. In waiting for a definite new set of communication theories that help us explain upheavals of present times, classic explanations for international information system should be revisited. And if the theories are at stake, methodologies and objects of study that lead to them are also undergoing a renewal.

The first step has been to adapt classic analysis on information flows to telecommunication flows, whether in the way of international telephone calls or of e-mails (Barnet and Salisbury: 1996; Barnet: 1999, 2001; Guldman: 2004). Another growing research trail consists on applying Social Network Analysis (SNA) to Hyperlink Network Analysis (HNA). In both cases, the common feature is the attention to electrical/digital nodes and the connections among them as identifiers of a social/international structure.

Hang Woo Park has done a superb compilation of recent works in the field of HNA (Park: 2003). Naewong Kang and Junho H. Choi followed international patterns of message exchange among users of Usenet (Kang and Choi: 1999); Eszter Hargittai, Alexander Halavais and Brunn and Dodge have also interesting proposals (Hargittai, 1999; Halavais, 2000; Brunn Dodge, 2001). Halavais studies geographic borders in the cyberspace according to hyperlinks placed between a website and websites abroad. Brunn and Dodge center their work in ingoing and outgoing top-level domain links (just as an example, between a given ".es" site -Spain- and an ".fr" site -France-). Eszter Hargittai and also G. A. Barnet, B. S. Chon, H. W. Park and D. Rosen study online connections among OECD countries (Barnet, Chon, Park y Rosen: 2001).

Some of these works resemble very much the notion of international flows, and indeed unveil that old patterns of country dominance and elite dominance are reluctant to disappear on the Net, an idea that will be obvious in many of the visualization examples given in this paper. According to Kang and Choi, the leading role of the U.S., United Kingdom and Japan is noticeable in Usenet. According to Eszter Hargittai, who has studied diversity on the Net: "[...] although people turn to a variety of sources for information online, their actions seem to resemble off-line media consumption patterns" (Hargittai: 2007).

The intention of this work is to back the idea that data visualization can increase the accuracy of projects of this kind and improve international communication research in general. As Kristian Skrede and Michael D. Ward state, it "can help reveal spatial patterns in political processes, which in turn

can help researchers discover new features of these processes that are not apparent from aggregate analysis and standard representations of the data" (Skrede and Ward:). Summing up, they allow achieving of representative models.

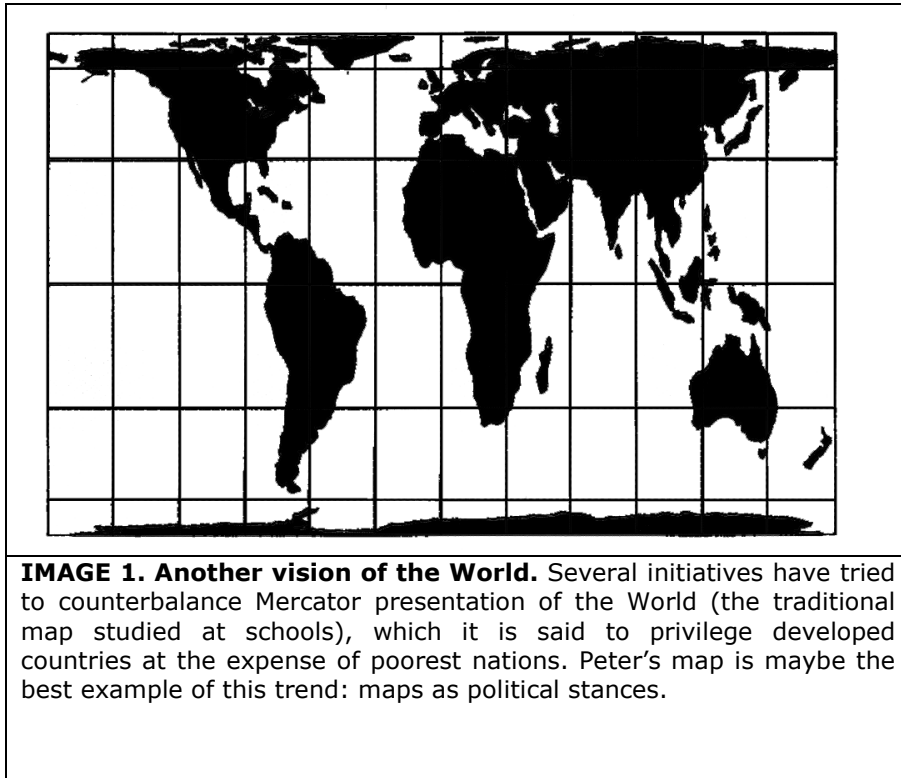
Indeed, computer-assisted data gathering and new visualization e-tools take former complex methodologies to the level of non-expert audience, allowing collective intelligence's developments while avoiding some procedural mistakes. Now, "its design can shift from being described as 'by experts, for experts' to a new characterization as 'for the people'" (Danzinger: 2008). In Walk2web.com, the user introduces a URL and can browse visually websites that are linked from it. As simple as that⁵. Skrede and Ward concede that, like theoretical abstractions, visualization models may "leave out many features of the system they represent" but despite of it "good models have invaluable practical applications" (Skrede and Ward: 66).

For the purpose of this presentation, the most appealing methodological choices are those combining data e-gathering with maps visualization tools. Maps have been present in History since immemorial times because Humanity needs orientation, a certain sense of geographical certainty. If displayed visually in appealing computer environments, they are easy to use and to understand.

Paul Rademacher, an animation programmer, is recognized as the inventor of the "map mashup"⁶: in 2004, he decided to link housing ads to pins he'd added to a Google map. He published a demo on the Net. Thousands of people thanked him immediately. Google hired him (Ratliff: 2007). The era of interactive and customizable maps had started.

Nowadays, mashup tools –and especially geographical mashups- are something to have into account as international relations / international communication researcher. As Klinghoffer predicts, we can expect a "return to a focus on the role of space and geography" that was lost in recent years in the study of those disciplines, cause it "may help advance the scientific study of world politics".

It is important to notice that maps are never an unintentional game, neither are maps mashups. So it is necessary to take care about their accuracy and to guarantee their compromise with objectivity. The take of Arthur Jay Klinghoffer is that there is always a political reason behind atlases (in fact, the most popular World map, Mercator, has been branded "imperialist" frequently). Maps are political projections, and thus they reflect decisions of political leaders.



What can be the effects of new World maps drawn by citizens, and not by politicians? Map mashups show constellations of individual wishes, intimate thoughts and dialogues. They do not only represent countries anymore, but people.

4. INTERNATIONAL VISUALIZATIONS

Before entering into specific examples of visualization experiments that can help international communication study, let's point out four common features of such exercises:

Coloring.- Most of new maps are "Choropleth maps", those ones in which numeric information is provided by any visual mark, for example, with colors. It is difficult for the human eye to distinguish among numbers, but much easier to differentiate colors. With colors, distinctions among variables can be made on the first sight.

Distortion.- There is a frequent use of automated computer generated cartograms (maps where regions appear distorted in proportion to a specific parameter, such as population) and treemaps (space-constrained visualizations of hierarchical structures). A growing popular trend is to use physics of diffusion to generate cartograms, imitating the process by which a gas spreads to fill available space and to get uniform density throughout. All of these choices are very effective in showing attributes.

Customization.- Gapminder is a company that has become famous by “providing fun with statistics”. It allows everyone to make bubble graphs of the World and publish them in their own blogs. In Policymap, the user can create custom maps related to over 4.000 indicators such as demographics, education, energy... Personalization is an appreciated feature of any chart/map⁷.

Conceptualization.- The reader must forget the exclusive geographical meaning of the term “map” and render to abstraction. Mashups facilitated by new technologies can be maps of relations, of photographs, of news, and not only maps of countries. The idea is to make the viewers question their assumptions. Chris Harris’ maps of words confrontation, which we will see later on, can be taken as an example.



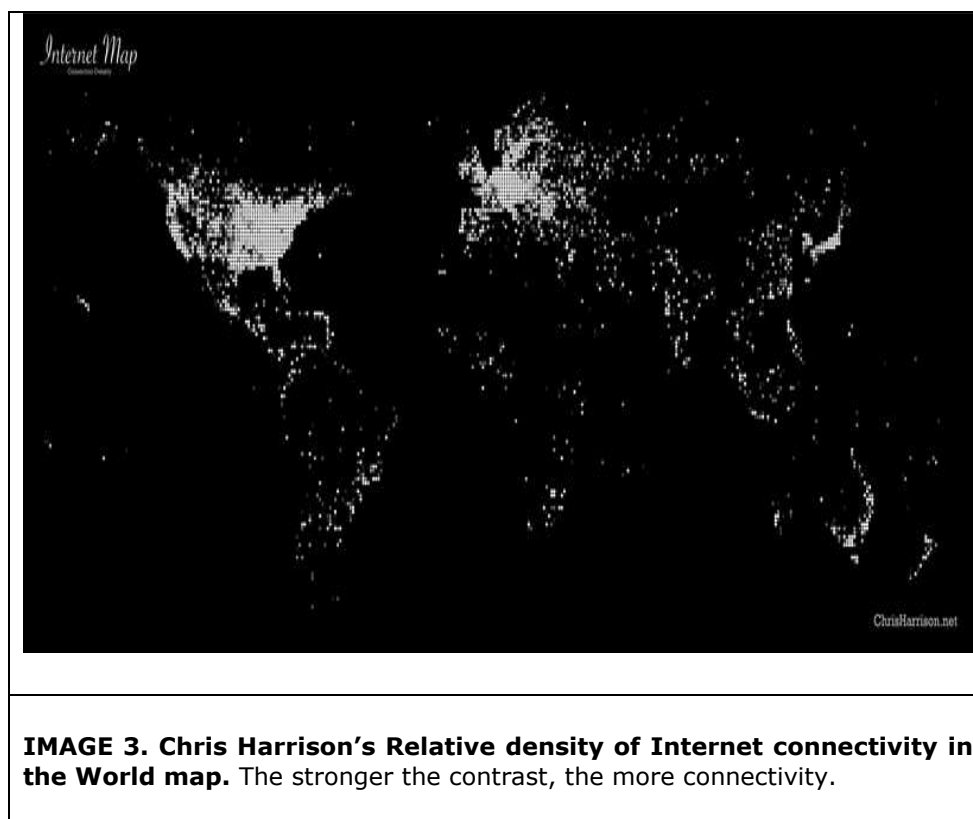
IMAGE 2. Gapminder. Converting time series into moving bubbles, where every bubble is a country.

4.1. Origin and location of the flows

The most logical way of upgrading classic international information flows visualizations is paying attention to current telecommunication and electricity distribution patterns. More specifically, it can be of great interest to analyze the structure of Net traffic.

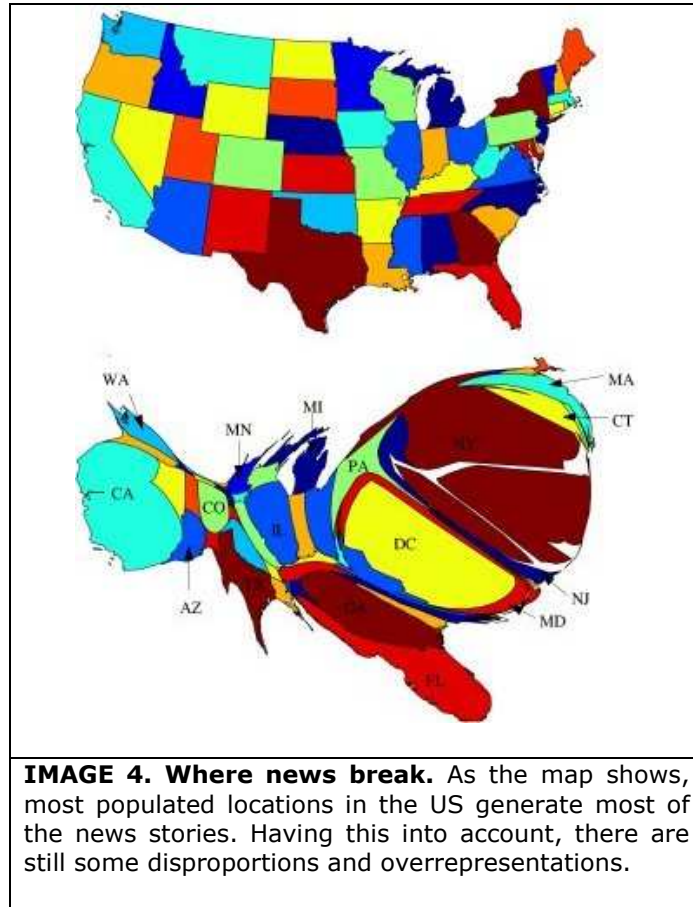
The best collection of early Internet infrastructure maps can be accessed at Martin Dodge’s now archived “Atlas of Cyberspace”⁸. It presents visual works created in the mid 1990’s by a number of scholars who understood very well the emerging linkages between online World’s connections and real life’s.

The virtual repository of the student Chris Harrison offers interesting maps as well. One of them displays the distribution of 89.344 interconnections among cities across the globe (by router configuration). The result backs the idea of old patterns coming back: North America, Western Europe and some Asian spots are “shining Net zones”; South America and Africa tend to shrink in the darkness. This reminds very much Galtung’s accusations of center and periphery unfairness. But the author underlines an important point: his works present connections density, not usage. In Africa, hundreds of people may utilize the single connection of an Internet café, while in developing nations many citizens have their own home computer⁹.



The company Akamai handles a platform which delivers roundly 20% of World’s Internet traffic, and uses the tens of billions of daily Web interactions which controls to generate data collections and comprehensive pictures of what’s happening on the Web. Its best known map is maybe the one reflecting who is consuming online news when and where. Again, Africa shrinks with the lowest level of peak visitors¹⁰.

One of the nicest experiments linked to current maps is “Where news breaks”, centered in the origin of information flows. Using physics of diffusion, a team of researchers led by Mark E.J. Newman and Michael T. Gastner surveyed the origination and distribution of wire service news stories inside U.S. (Peterson: 2004). The following cartogram speaks by itself: World informative core country has its own inner center and peripheries:



Current mashup tools allow also a better understanding of transnational news, those that that according to Furio Colombo affect several countries – such as wars or environmental issues- (Colombo: 1999). The Vulcan Project is a NASA funded effort led by Purdue University which quantifies CO₂, emissions at space and time scales much finer than achieved in the past. Vulcan maps show very graphically where greenhouse gases come from and where they go to¹¹.

Many current cartograms (and media infographies) take advantage of GoogleMaps, which has been providing with e-maps to online visitors since 2005, and Google Earth, which offers 3D images of the planet. A lot of data clustering can be made with these two services and a third one, Google News, an automatic aggregator of news coming from more than 4.500 information sources. The tip is to link the news to its geographical origin, something interesting to understand better those events that happen in faraway places or that have geographic causes.



IMAGE 5. Google News. The user enters Google Earth and chooses his zone of interest. After activating GoogleNews's box, several icons will mark the spots where something happened in that region.

Geographical tools like Google's can be applied to general news or to more specific topics (for example, a global map of terrorist acts, or a map of piracy attacks in the World¹²). Nowadays, many mashup maps offer three options: the satellite image (a photography taken from the space), the map (a draft) and the hybrid of both. This satisfies user's need of getting closer to the scene but hides some limitations. For each news item, the text is not offered by local sources, but by global agencies or newspapers (such as Associated Press or The Washington Post). So where is diversity in fact?

Flows can also be understood in a more conceptual way, as predominant informative choices. This leads us to the analysis of patterns, which will be scrutinized next. The example of Newsmap can act as a bridge between the two approaches, flows and stereotypes. This treemap divide information into recognizable bands and presents them together, revealing underlying patterns in news reporting across different countries¹³.

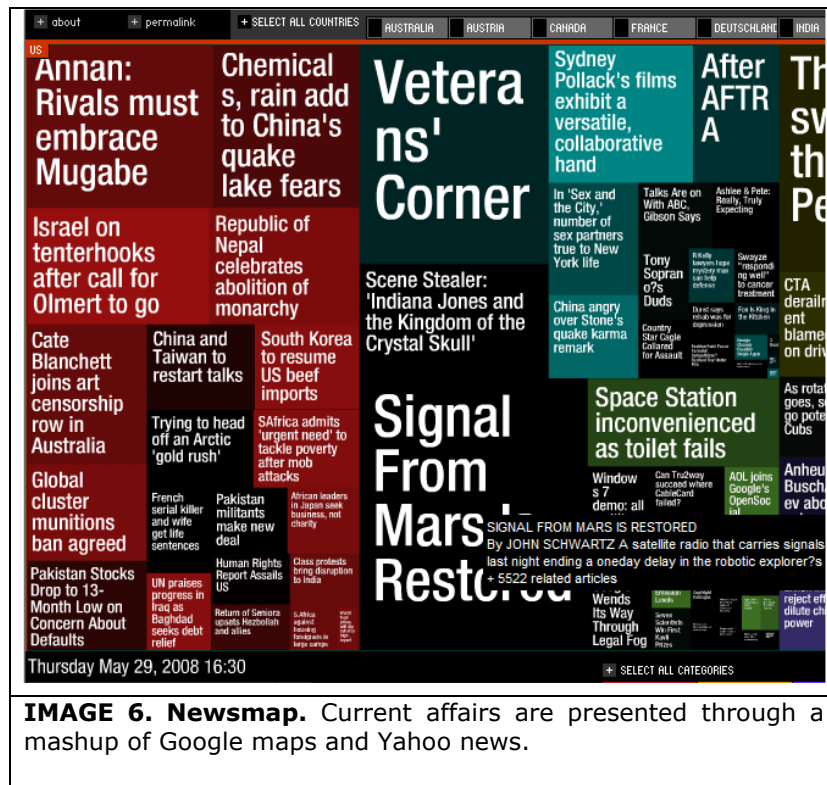


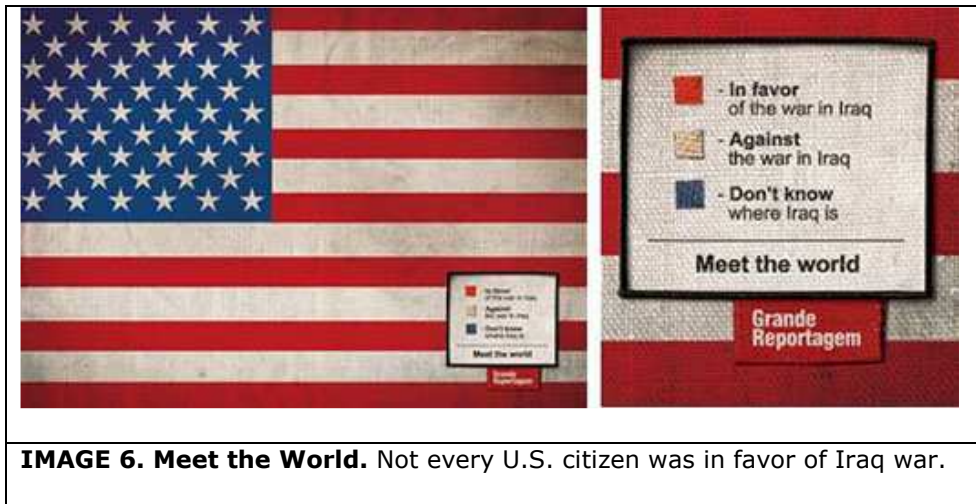
IMAGE 6. Newsmap. Current affairs are presented through a mashup of Google maps and Yahoo news.

4.2. Stereotypes and patterns

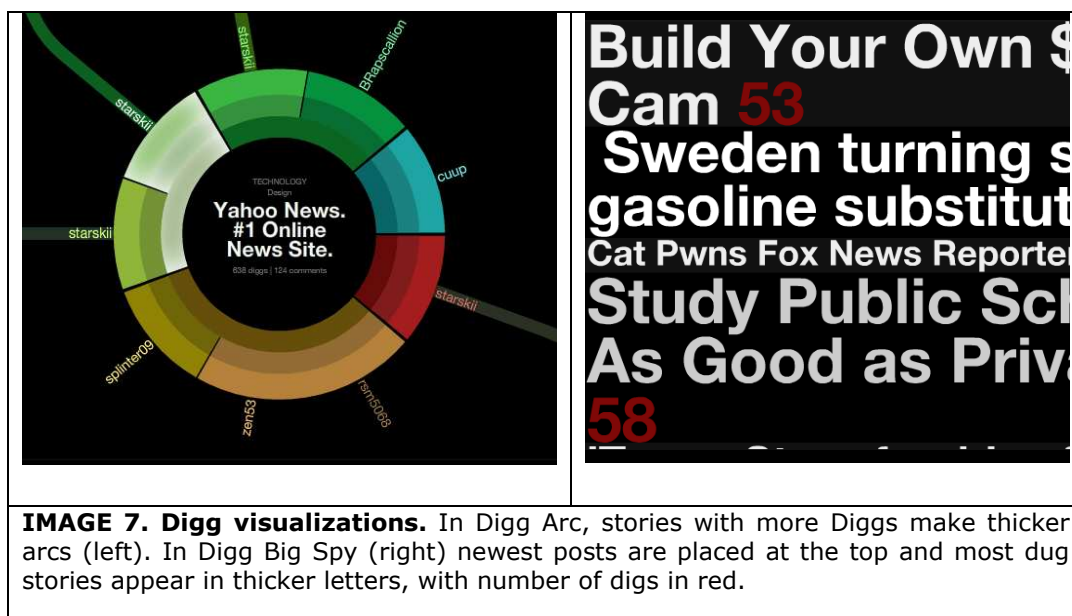
According to the NOMIC movement, the media (and specially television channels) either promoted a biased image of the Third World or either ignored it, which was even worst¹⁴. Today, mashups disclose data on demand, so users can start observing nations with their own eyes. At the same time, stereotypes are more easily captured through conceptual exercises.

In 2005, the Portuguese magazine *Revista Grande Reportagem* entrusted a campaign to promote its commitment to serious international journalism. The result was the successful e-mail chain campaign "Meet the World", which circulated widely. The author, Ícaro Doria, combined eight national flags with demographic data of the countries they represented. The result was shocking.

This proposal might be disregarded under the excuse of "spectacularization" or even as simplistic. But the truth is that it is based on real data from Amnesty International and United Nations and that it explains some country realities better than many complicated graphs.

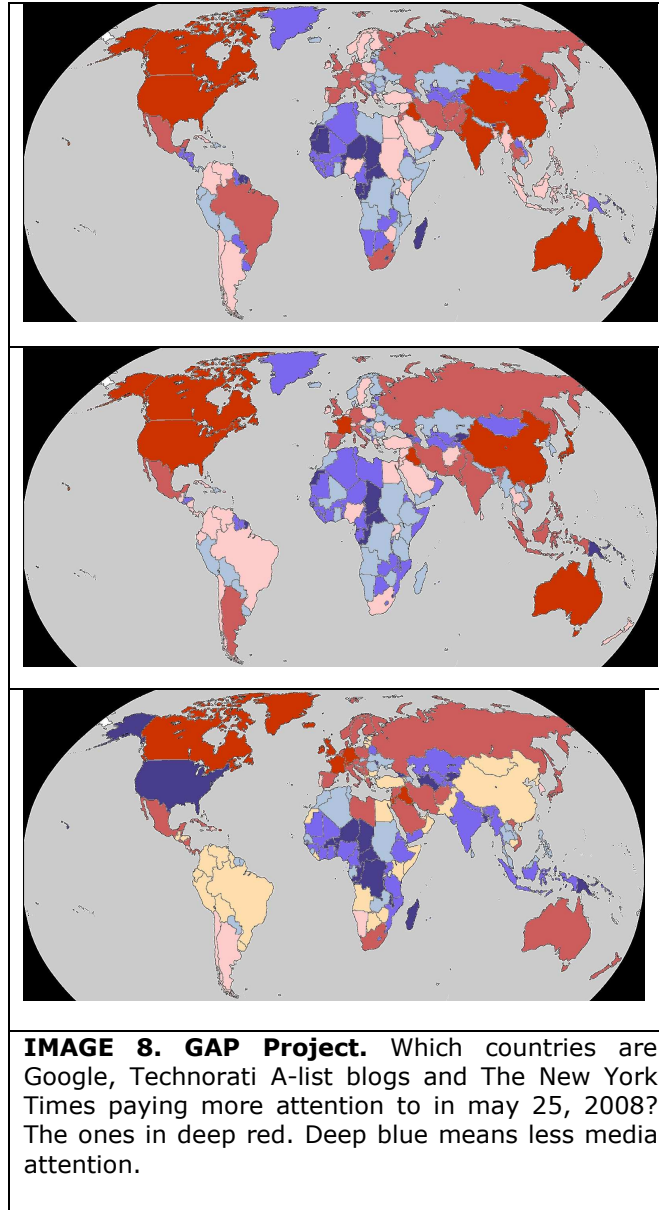


The interesting thing of other conceptual proposals is that they combine current affairs news (as in the case of Newsmap) with personal contents. Digg, for example, is a website that allows users to vote for their favorite reading, that can be related to a *Times* article but also to the intimate vicissitudes of a blogger. In visualizing the most promoted issues, researchers can observe core contents and also people who is promoting them, getting a different perspective about centric and peripheral questions. The proposal is quite difficult to read, but is visually appealing and entails a very human and democratic conception of news¹⁵.



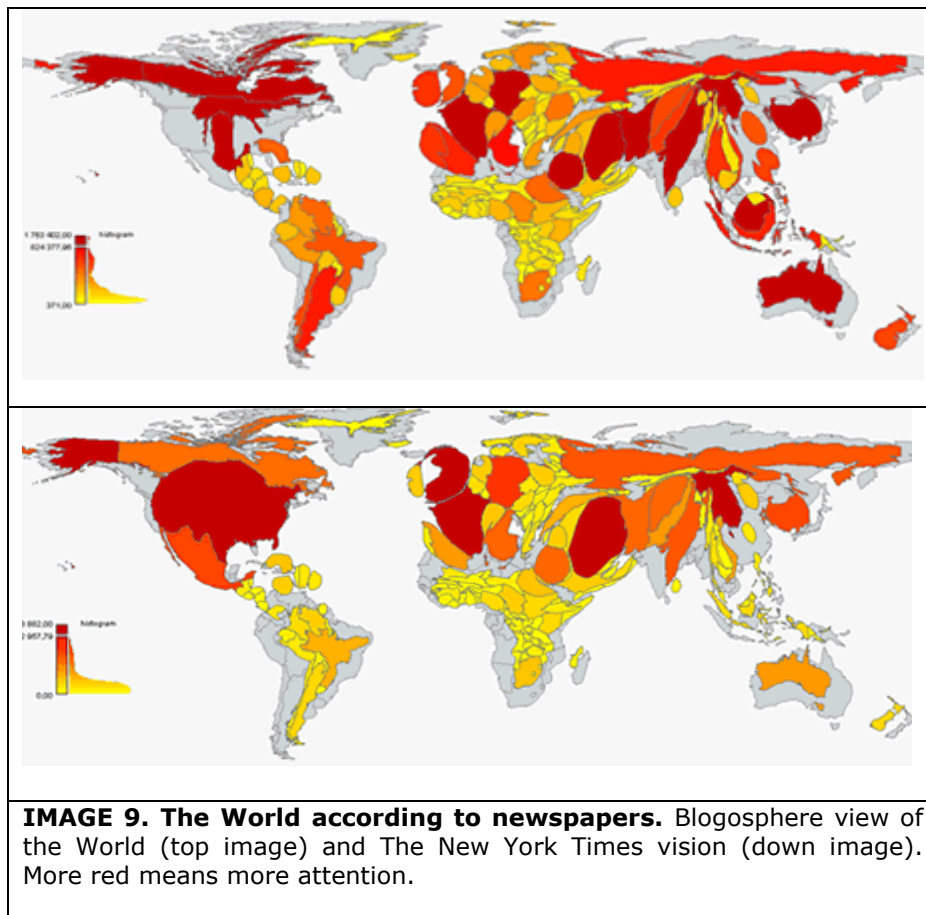
Going back to more geographic proposals, in 2003 Ethan Zuckerman presented his first "Global attention profiles" paper (GAP), a project to track frequency of country appearances in newspapers, magazines, online outlets and the blogosphere. A set of 1.700 web searches are performed automatically every day in data bases such as Google News or Technorati. Readers can see each colored region in relation to some correlated

demographic statistics (national GDP, population and child mortality are the most common). No surprise: again, some old following patterns are reflected and, according to Zuckerman, "every nation's media is parochial"¹⁶.



Similarly to Zuckerman's work, a 2007 project called "the World according to newspapers" shows the Earth through the preferences of United Kingdom editors-in-chief. The student Nicholas Kayser-Bril started the exercise as a school dissertation. At the beginning he centered it in the patterns of three newspapers which are representative of different political trends: *The Guardian* (liberal), *The Sun* (daily joke) and *The Daily Mail* (conservative). However, he decided later on to keep track of more newspapers and also to extend the analysis to the blogosphere and to web only outlets such as Slate. The author explains that his purpose is "to pressure editors into covering more diverse issues" (Kayser-Bril: 2008).

Once again, trends showed by the map would delight NWICO promoters: traditional U.K. media pay more attention to countries which are: a) bigger, b) more populated, c) closer, d) economically developed, e) strongly governed, f) hosts of national army operations, g) origin of their national foreign minorities (especially of white immigrants, so English newspapers tend to talk about Australia and not that much about South Africa). The unpleasant surprise is that websites' perspectives are not completely different of newspapers'.



Why, if we have more information than ever, do we know less than ever about the World? In Alisa Miller's gas diffusion style cartograms, the reason is clear. In February 2007, Korea agreed to dismantle nuclear facilities and Intergovernmental panel on climate change (IPCC) issued an important report, but ex playmate Anne Nicole Smith's death received ten times more attention than IPCC item alone in U.S. media¹⁷. As Miller points out, news U.S. networks have reduced their foreign bureaus in the last years. There are not cable networks bureaus in all of Africa, India or South America. What would Anthony Smith say about that?

Miller also underlines that things are not much better on the Internet: "A recent study analyzed a day's worth of stories on Google News' front page. The 14.000 stories all covered the same 24 news events. Similarly, a study featured in EContent magazine indicates that much of the international

news available from leading U.S. news providers consists mainly of recycled stories from the wire services¹⁸”.

4.3. Diversity

As we said before, in analyzing current international communication flows, diversity is the crux of the matter. Nobody doubts that communication flows have grown in quantity, but what about its quality? To know what’s inside every message that crosses the World is impossible, and thus it is impossible to measure its communicative value in absolute terms. But we can at least check if those messages are balanced and come from different perspectives or they are just the product of the old (or the new) elites. Are current online flows as biased as old international information flows?

A very individual yet at the same time communal way of expressing oneself today is represented by social networks. MySpace and Facebook are the most popular (the second claiming to have exceeded 64 million users already). They allow people to state who they are, what they like and how many friends they have. For international communication researchers, the current boom in social networking is very interesting as long as it steers the debate about World maps to the arena of maps of people. Here, human connections are the important thing against the idea of borders or territories. Social networks give an interesting glimpse of citizens’ stances, of social, political and demographic concentrations and dispersions. In many occasions, real political disputes move on to the Net, as in the case of Israel-Palestine hostility, which has arrived to Facebook (McCarthy: 2008).

Technology Review compiled recently a state of the art in social networks maps¹⁹. The examples are graphs and not geographic maps, but as Anthony Townsend points out, with future technical developments we will be able to see networks graphs embedded into enlightening geographic maps. Then, they will become very useful tools for international communication researchers even if, as the author suspects, such maps “raise a lot more questions than they answer” (Townsend: 2008).

It is impossible to collect here every new tool/service for social networks visualization. There are dozens already, and they increase every day. Just as an example, we can take Dietmar Offenhuber’s and Judith Donath’s maps of comment flow. They track users’ habits when expressing in other user’s websites (where do they comment? How often?). As times passes by without message crossings, the specific connection between two users fades²⁰.

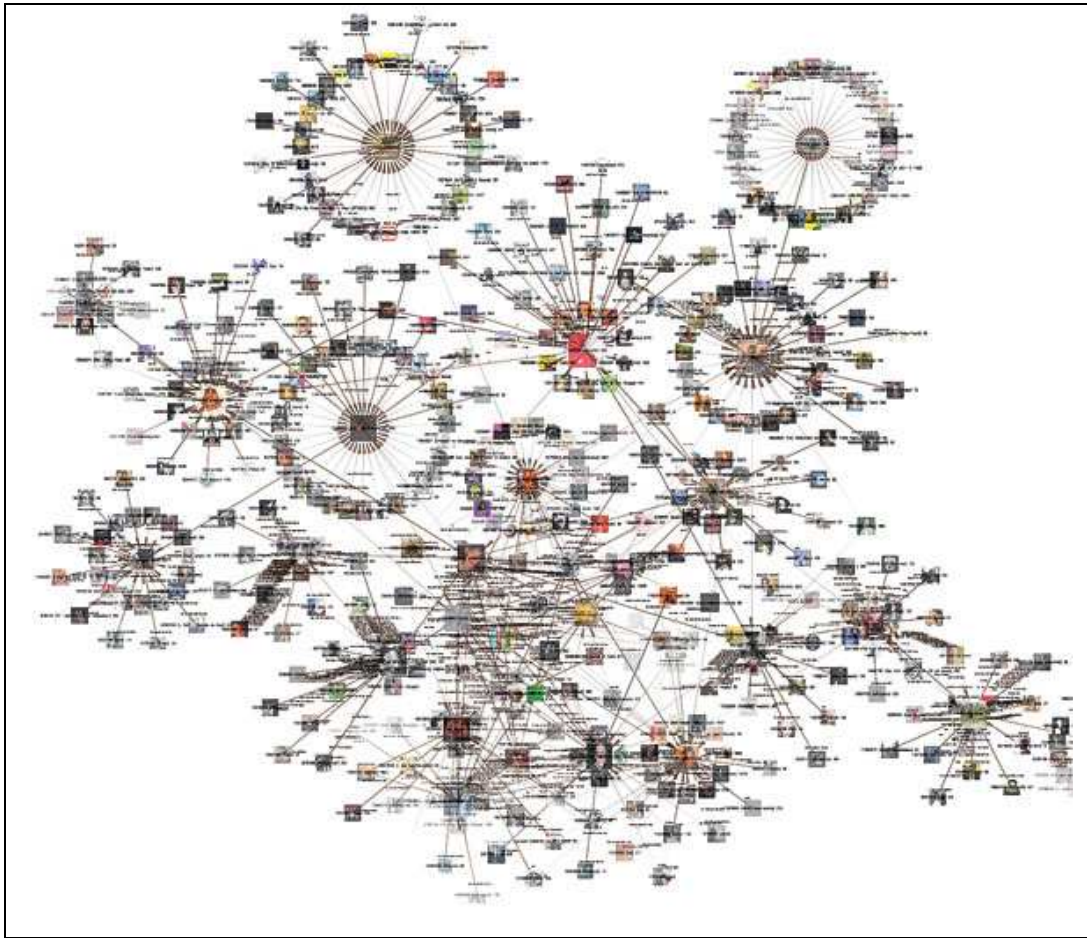
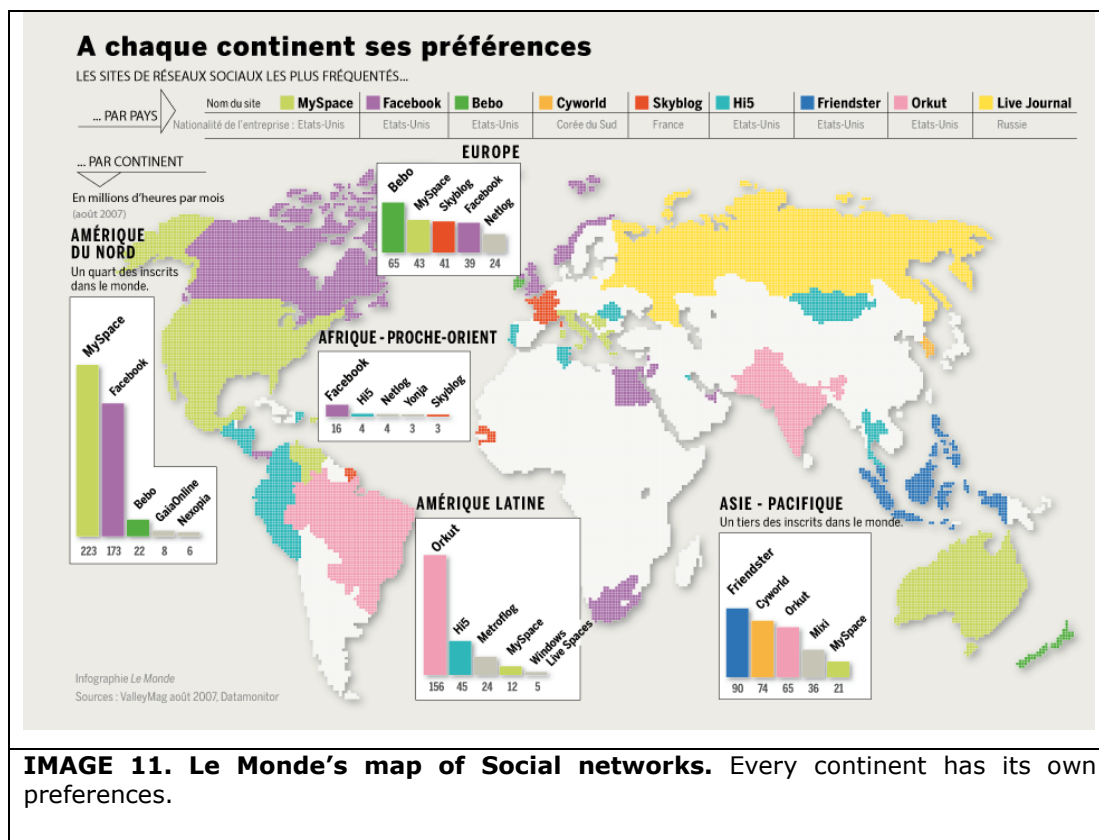


IMAGE 10. Dietmar Offenhuber and Judith Donath's maps of comment flow.
This one includes user's pictures.

Likely, a person can wish to see not only connection but also faces. In Flickr, users upload their personal pictures; through Flickrvision, they visualize where other users' pictures come from over a 3D view of the planet. A homologue service (but this time for conversations) is offered by TwitterVision and Twittearth: when somebody answers the simple question "What are you doing?" a little Twitter bird darts away to that faraway user/city, making the Earth spin²¹.

Some uncertainties accompany social networks maps' successful path. It is not yet predictable to what extent they are something more than appealing visualizations. Besides, each social network itself might be not as plural and balanced as expected, and thus must be studied in combination with others. *Le Monde* published recently a map of social network's influence by continent, and the result was a fragmented planet²². There is another constraint (in fact, it is an intrinsic limitation of the Net) related to the languages in use. Ethan Zuckerman reminds the case of Google's social network, Orkut: as Brazilians and Indians made up the most abundant group (and thus determined the predominant language), English-speakers left the service. Now, the network is a "Brazilian monopoly" (cf. Morozov: 2007).



The importance of languages in World politics has been underlined many times. It is not merely a question of signs but of a whole identity system that links people, influences its perception of reality and distinguishes nations from one another (Mowlana: 1996, 103-112). Language is also a well-known weapon for spin and propaganda. As it has been asked before: how do expressions like "evil axe" or "collateral damages" influence public opinion about international affairs? What is the influence of the so called "warspeak", the sanitized account of military conflicts? (Redondo: 2005, 77). We can ask here: how does language influence communication in online conversations?

Data visualization has entered the realm of words as well. Chris Harrison and Jonathan Harris are known for his vocabulary associations. In his exercises, Harrison pits two primary terms against each other. Then, he analyses the use frequency of words that follows these two terms. Each word is then drawn towards its more frequently related term. So, what do we understand by War? What do we understand by Peace? With the objection that foul language is present (prepositions, conjunctions) Harris' word pairings are interesting. In the case of Jonathan Harris, his experiment "We feel fine" deepens into users' emotional vocabulary²³.

academicians). One of the best features of new e-maps is that they can benefit from collective intelligence, and in fact most mashup maps are user generated maps. Nothing impedes scholars to benefit from those efforts, as nothing restrains online visitors from mashing academic maps up again with a permanent purpose of improvement. From the broadest visualization to the tiniest one, any map seems to be possible now.

Assuming that the examples provided confirm the utility of visualization tools, it is convenient to signal several limitations faced by current international communication mapping:

- Both techniques for producing maps and methodologies for using them in communication researches need to be fine tuned. Assuming that perfection is impossible in this field (a compromise is always needed in order to interpret the curved surface of the Earth in a plain map with only two dimensions), scholars have to look for "the better distorted view", reject political manipulation of mashup maps.

- It is clear that computers ease the way ahead regarding field work, but in data collection automation alone could cause mistakes. There is no complete scientific or mathematic accuracy in many of the mapping tools we find on the Web. In academic attempts, researcher's discretion in the selection of data is more needed than ever to avoid net information noise and distortion.

- It is necessary to assume that current Net connection levels entail a distorted starting point: the physical World is not strictly equivalent to the online World. A strong digital connection does not always imply a deep human relationship, and people do not behave the same in social networks that in bars.

- Media diversity, one of the things that the Net comes to improve, is not guaranteed on the Internet. Many examples have shown here that countries that were underrepresented in the old media landscape use to maintain high levels of oblivion in modern networks; minority languages are missing in some mashup tools; and most people participating in the global conversation online have a considerable level of education, income and social class. Therefore, any gross sample is biased. It is necessary to think twice before tracing analogies between online World and real World. As Park asks himself in relation to hyperlinks: "What do centrality measures (such as in/out degree, betweenness, and closeness) tell us? Are they reliable indicators of credibility, reputation, or quality contents?" (Park: 2003, 58).

Finally, there is the question of news sources. Most of the news maps shown before are based on international agencies, elite newspapers or mainstream websites data. According to the Project for Excellence in Journalism last report on the state of news, newer media have an even narrower peripheral vision than older media (PEJ: 2008, 4):

"Cable news, talk radio (and also blogs) tend to seize on top stories (often polarizing ones) and amplify them. The Internet

offers the promise of aggregating ever more sources, but its value still depends on what those originating sources are providing. Even as the media world has fragmented into more outlets and options, reporting resources have shrunk”.

But we would like to introduce a note for optimism. Even if most Internet users are located in Western Europe and North America, a single new connection for Africa, Latin America or Asia (and there are many in the examples given) means an opportunity for communication empowerment. And better maps have to be there to tell us.

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1 An excellent compilation of International information flows studies is present in Pizarro, M.: *Dinámica y contenidos de la sección internacional de la prensa argentina: La Nación y Clarín, 1980-1998*, tesis doctoral, Facultad de Comunicación, Universidad de Navarra, Pamplona, 2004.

2 Regarding studies about mental images and mental models we can cite philosophers such as George Berkeley and David Hume, psychologists as Lawrence W. Barsalou and discourse analyst such as Teun A. Van Dyk.

3 Both Johan Galtung's and Immanuelle Wallerstein's works are classic readings in this field. These authors point to the existence of peripheral countries which are exploited by the core, and Galtung reminds specifically that sometimes the exploitation happens by the confluence of interests between core countries' elites and underdeveloped nation's elites (Galtung: 1971, Wallerstein: 1974). George Gerbner and George Marvanyi applied these notions to the World's press system (Gerbner and Marvanyi: 1977)

4 As L. Duits remembers, in this networked World identities are something fragmented and temporary, and thus not linked to professional organizations or countries of origin (Duits: 2007).

5 Walktowed: <http://walktowed.com>

6 According to Wikipedia, a mashup is "a digital media file containing any or all of text, graphics, audio, video, and animation, which recombines and modifies existing

digital works to create a derivative work.” A mashup map would be a mashup based on a map. Wikipedia: <http://en.wikipedia.org/wiki/Mashup>

7 Gapminder: <http://gapminder.com> | Policymap: <http://policymap.com>

8 Atlas of Cyberspace: <http://tinyurl.com/5zbur9>

9 Chris Harrison: <http://www.chrisharrison.net/projects/InternetMap/index.html>

10 Akamai: <http://tinyurl.com/26php7>

11 The Vulcan Project: <http://tinyurl.com/5djlax>

12 Global Incident map: <http://globalincidentmap.com>; Live Piracy Map: <http://www.icc-ccs.org/extra/display.php>

13 Newsmap: <http://tinyurl.com/y pb67x>

14 An interesting following up of Africa’s media oblivion along the years has been written by F. Ogundimu (Ogundimu: 1994).

15 DigiLabs: <http://labs.digg.com/>

16 GAP: <http://tinyurl.com/2aqvmk>

17 Allisa Miller presentation: http://blog.ted.com/2008/05/alisa_miller.php

18 Good Magazine: http://www.goodmagazine.com/section/Provocations/invest_in_international_news

19 Naone, E.: “Between friends”, Technology Review, March / April 2008.

20 MIT Comment flows project: <http://web.media.mit.edu/~dietmar/myspace.html>

21 TwitterVision: <http://twittervision.com>; Twittearth: <http://twittearth.com>

22 Map of Social networks by continent: <http://tinyurl.com/2ov6gc>

23 Chris Harrison: <http://tinyurl.com/2mmo6b> | Jonathan Harris: <http://www.wefeelfine.org>

24 Global Voices Online: <http://www.globalvoicesonline.org>