Risk Communication in the COMPARE Project

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One of the main goals of COMPARE is predicting the risk of emerging pathogens with outbreak potential. The project is not expected to interact directly with the public, except in the general sense - shared with all EC funded projects - that its main results must be available to the public. Yet COMPARE is expected to produce "Actionable Information", which is information that enables users (i.e., relevant authorities in the human health, animal health and food safety domains) to take well-informed decisions and actions. Actionable Information includes critical decisions and actions that concern communicating to the public the potential risk of novel outbreaks. In other words, while COMPARE will not interact directly with European citizens, it will interact with them indirectly, via messages conveyed to public health authorities, policy makers, decision takers, specialized press. In their turn, COMPARE stakeholders will produce communication directed towards the citizens. This communication has at least two main goals. On the one hand, it aims to modify behaviors and to convince people to adopt preventive measures (including human and animal vaccinations, hygiene, early quarantine, etc.) in order to prevent the spread of pathogens, and, when the outbreak cannot be prevented anymore, to persuade people to comply with public health measures. On the other hand, it aims to encourage active participation in the global infectious disease surveillance system, and to mitigate risks of misinformation and idiosyncratic reactions against public health surveillance and preventive measures. COMPARE should then – so to speak – "empower" its stakeholders by providing them not only with the necessary information but also with the necessary tools for an effective public health communication. It is then fully justified to speak of the "COMPARE communication ecosystem" (Figure 1), in which information generated in the centre should be communicated to the periphery, avoiding major misrepresentations, misinterpretations, and falsifications. The problem that we are facing is difficult. Could messages generated by a network of highly scientifically sophisticated labs, which are using next generation sequencing (NGS) methodologies, be simply transferred to risk assessors, then to policy makers and decision takers, then to risk communicators, and finally to health care professionals, journalists, and the public? Given the complex, and sophisticated, information transmitted, would we run the risk to generate a global "whisper game" effect, which will progressively deform the original messages?

If one considers the poor outcomes of risk communication during the 2009 Flu Pandemics - which has been the first example of global management of a human infectious pandemics – it is clear that many steps are still to be taken. The true problem is that "risk communication" has increasingly become a buzzword, used in several circumstances by many different people, without a clear definition of its sense and functions. We will start then by trying to clarify the meaning of "risk communication".

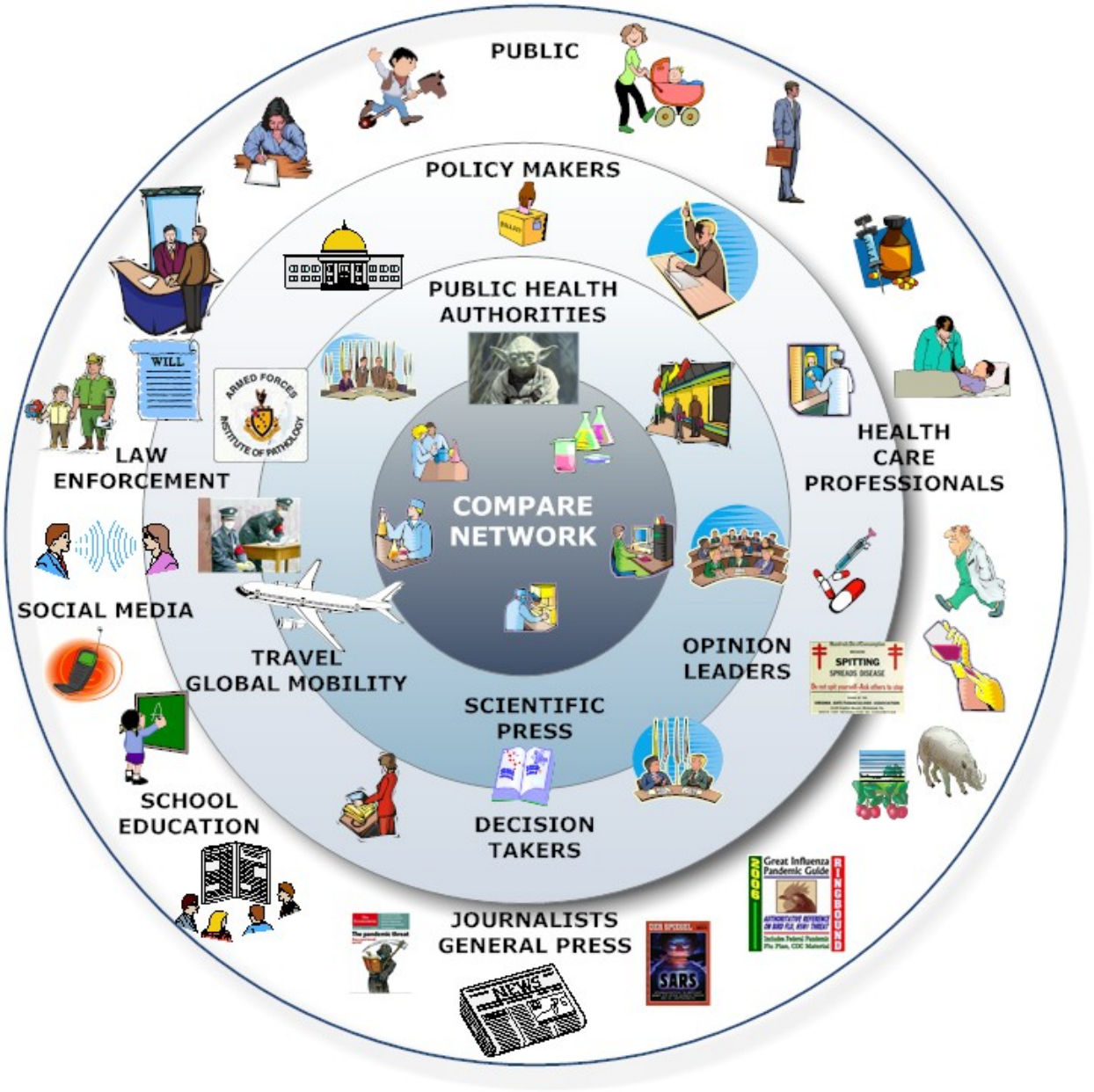

Figure 1. COMPARE communication ecosystem

Risk and Risk Communication: Definitions

"Risk Communication" is defined by the US Dept. of Homeland Security (DHS) Risk Lexicon as "*exchange of information with the goal of improving risk understanding, affecting risk perception, and/or equipping people or groups to act appropriately in response to an identified risk*" (Risk Steering Committee, 2010). The annotations further specify "*Risk communication is practiced for both non-hazardous conditions and during incidents. During an incident, risk communication is intended to provide information that fosters*

trust and credibility in government and empowers partners, stakeholders, and the public to make the best possible decisions under extremely difficult time constraints and circumstances" (ibid.).

I have started with this definition for two main reasons, first it is clear and concise; second, it enlightens the inherent ambiguity of this notion. On the basis of the DHS definition, one could hardly be able to decide whether risk communication is just exchange of information (as the definition starts), or it is communication (which is never simply declarative), conviction (which is chiefly based on arguments), persuasion (which is chiefly based on emotional messages), advice (which is a recommendation for a course of action), or inducement (which is a consideration that leads to action, just a bit before coercion). As a matter of fact, risk communication shares all of these aspects. This explains why risk communication is often so problematic and difficult to implement.

The standard definition of risk is made up of the probability of occurrence of an event multiplied by the magnitude of the value or cost of the event. This standard, engineer-like definition has been partly modified by one of the main "risk communication gurus", Peter M. Sandman, who introduced the definition "Risk = Hazard + Outrage". Sandman's definition aims to emphasize subjective elements in risk definition, which become critical in risk communication. "*Sometimes people are apathetic about a serious risk and need to be alerted; sometimes people are upset about a small risk and need to be reassured; sometimes people are upset about a serious risk and need to be guided (…) I had been struggling toward an understanding that these three risk communication paradigms had very little in common. For a while I had it framed as "apathy" versus "hysteria" – but then I came up with a better frame: hazard versus outrage*" (Sandman, 2010).

At this point, a standard scholarly paper would start discussing the main theorists of the interaction between risks and society, and its implication for risk communication, e.g., Mary Douglas (Douglas & Wildavsky, 1983) Charles Perrow (Perrow, 1984) Ulrich Beck (Beck, 1992), Niklas Luhmann (Luhmann, 2005), to cite a few. Given that this is not a scholarly paper or a report, I feel myself authorized to avoid torturing the reader with synopses, which rarely do justice to the authors, and often bore the reader. Actually, it would be impossible not only to discuss here the core literature on the notion of risk and risk communication, but even to mention the most important reviews on this literature. The literature on risk communication includes also a plethora of official and semi-official reports, manuals, guidelines, best practices, and so on, issued by almost every governmental body and international institution, worldwide. They are hundreds, and unfortunately, often redundant.

Foundational Reflection

Avoiding discussing the main literature of risk communication does not imply avoiding a foundational reflection. On the contrary, I am confident that a foundational reflection exercise could be easier or, at least, clearer.

The word "risk" was imported in the English lexicon from French, approx. at the end of the 17th century. The French term (risque) came from the Italian "risco" (of uncertain origins) which meant "the state of running into danger". By the end of the 18th century the word entered into standard English usage in the sense of "danger, peril, menace, hazard". Actually, these words could be considered nearly synonymous in the ordinary (non-technical) usage. If one analyses their frequency in English language books from

1700 to 2008 by using *Google Ngram* - which allows visualization from a large corpus of books, approx. 5.2 million scanned books - the results are impressive (Figure 2). Until the mid 1800s, the usage of "danger" is definitely more frequent than any other word, being almost 8 times more frequent than the second occurrence (hazard). To this moment, the usage of "risk, peril, menace, hazard" is rather marginal. While "peril, menace, hazard" keep on being marginal, from the mid 1800s, the usage of "risk" starts slowly to increase, becoming the second-highest ranked occurrence by the 1900s. This is mirrored by a concurrent, slow decrease of frequency of "danger". This trend continues regularly until the 1950s. From the 1950s to 1970s, there is a rapid climb of frequency of "risk" with a corresponding decrease of "danger". Around the 1960s, the two curves cross, and then they continue decreasing and increasing in opposite directions. Today (say, 2008, because this is the most recent year scanned by *Google Ngram*) "risk" is used approx. 5 times more frequently than "danger".

Without trying to infer too much from a simple frequency analysis, at least two considerations could be done. First, it is apparent that the concept expressed by the constellation "danger, peril, menace, hazard, risk" tend to have a rather stable frequency from 1800 until today. If one sums up the five curves, the total frequency is almost constant. This observation challenges the standard account according to which modern times are particularly obsessed by the notion of "risk, danger, peril". Maybe it is true, but it is not supported by word usage frequency. The second consideration concerns the substitution of "danger" with "risk". Does such a substitution depend only on "linguistic fashions", or does it reveal something about the way in which our society deals with risky/dangerous events? I am willing to accept the second hypothesis.

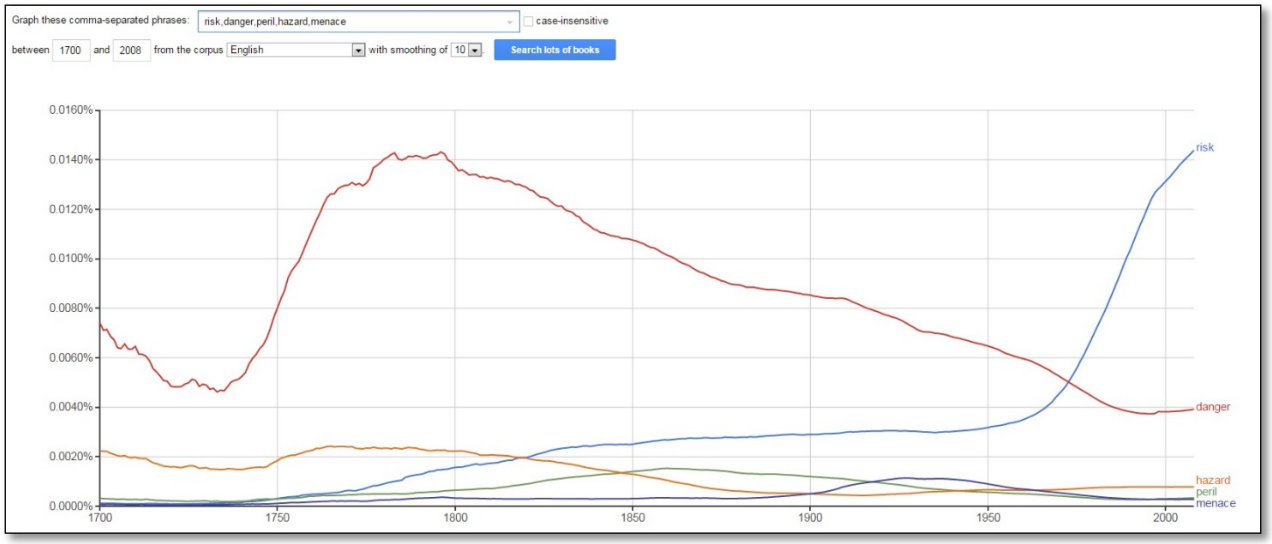

Figure 2: Peril, Risk, and Danger in English Books 1700-2008

According to Peter Bernstein, who wrote a seminal book on the story of risk, the shift from the concept of hazard to the concept of risk is the hallmark of modernity. He puts this paradigm shift in the period comprised between the early 1700s and mid 1800s. "*The revolutionary idea that defines the boundary*

between modern times and the past is the mastery of risk: the notion that the future is more than a whim of the gods and that men and women are not passive before nature (…) The transformation in attitudes towards risk management unleashed by their achievements has channeled the human passion for games and wagering into economic growth, improved quality of life, and technological progress" (Bernstein, 1996, p. 1)

Berstein called his book "*Against the Gods*", so capturing something extremely important in the notion of risk. We are faced again with two elements, first Berstein strictly links the fortune of the notion of "risk" with the development of the insurance system. In a sense – he argues - the two phenomena are one, risk is not just a different way to call a danger, but it is a different way of thinking of it. Risk is a danger that can be avoided, mitigated, or transferred. In other words, the focus shifts from the dangerous event, to human activity aiming to minimize its negative impact. Second, Berstein's central idea is that the paradigm shift is in essence a political-theological shift. His central argument is that the change from "hazard/danger" to "risk" means a different idea of transcendence. Both the idea of God and the idea of "measurable future" concern something which exists, without being fully included in the here and now. Both God and measurable future are highly metaphysical concepts, which transcend the here and now, yet in a completely different way. The concept of "measurable future" is based on the idea of *mathesis universalis*, which is a science of pure, naked quantities without any concrete reality, developed by Descartes and Leibnitz. In a universe ruled by the *mathesis universalis*, God is useless. Of course it would not make sense to enter now in such a huge philosophical discussion, but it is important to emphasize that a different approach to the future implies also a different understanding of human goals and human security. This is splendidly expressed by Stefan Zweig, who, in his celebrated autobiography, *The World of Yesterday* (Zweig, 1939 - 1942), so describes the "Great Vienna", "*When I attempted to find a simple formula for the period in which I grew up, prior to the First World War I hope that I convey its fullness by calling it the Golden Age of Security*", and he continues "*This feeling of security was the most eagerly sought-after possession of millions, the common ideal of life. Only the possession of this security made life seem worthwhile, and constantly widening circles desired their share of this costly treasure* (…) *The century of security became the golden age of insurance. One's house was insured against fire and theft, one's field against hail and storm, one's person against accident and sickness. Annuities were purchased for one's old age, and a policy was laid in a girl's cradle for her future dowry*" (Zweig, 1939 - 1942, p. 1). The very idea of risk implies the idea that we could secure our future by ourselves, without the need of trusting in any god. This is the reason why Heidegger (Heidegger & Krell, 1991) argues that the modern obsession for risk, hazard, certainty and uncertainty, eventually originates from Nietzsche's doctrine of the will to power, and it would pave the way to the contemporary technological revolution.

Foundation of risk communication in COMPARE

Surprisingly enough, Heidegger's analysis is mirrored by our analysis of risk-related word frequency. We have seen that the curves of substitutions between "danger" and "risk" progress regularly until the 1950s, providing linguistic evidence to Berstein's argument that the rise of the concept of risk corresponds to a secularization of the notion of danger, which corresponds to the progressive decline of collective feelings of religious transcendence in western societies. Then, in the early 1950s, out of the blue, the "risk" curve starts climbing higher, and "danger" curve starts falling down. In the 1960s, the

two curves cross, and then again rapidly diverge in opposite directions. What happened? My interpretation is that this signals the explosion of the crisis between the scientific-technological development and the western public opinion.

Nuclear energy (and the atomic war nightmare) in the 1950s and 1960s; molecular biology (and fears of genetic manipulation) in the 1970s and 1980s; digital revolution, nanotechnology, today; each decade in the last 60 years has been hallmarked by hope and enthusiasm driven by new technology, but also by new fears, discontent, distrust, and apocalyptic fantasies. I argue that the increasing usage of the word "risk", and of the concept of risk, have been one of the ways in which political and scientific elites had – almost unconsciously - tried to mitigate the discontent towards techno-science. Briefly, I guess that the word usage may unravel a reaction to the rising gap between scientific elites and public opinion, as though by increasing the usage of "risk", instead of "danger", scientists, technologists, and policy makers were telling the public "*don't panic, we are in control*". Paradoxically, this message risks to produce the opposite effect, because it is evident that we are not in control (Figure 3).

Figure 3: Mankind is entrusted with the Planet Earth

The final result is that the gap between "risk" and "danger" is mirrored, reversed, by the public opinion. Experts speak of risks, but people perceive danger. This is the deep reason why most approaches to risk communication based on conviction, rational arguments, and pondered considerations of variables and probabilities are ineffective. The public does not need much more information – in the digital era they have been already overloaded by information – rather they need interpretations, frameworks, perspectives, visions, narratives. They need to be supported to cope with danger perception, instead of being assisted to calculate risk. This is our starting point in setting COMPARE risk communication strategies.

References

Beck, U. (1992). *Risk Society: Towards a New Modernity.* London: SAGE.

Bernstein, P. L. (1996). *Against the Gods. The remarkable story of risk.* New York: Wiley & Sons Inc.

Douglas, M., & Wildavsky, A. (1983). *Risk and culture: An essay on the selection of technological and environmental dangers.* Berkeley (CA): Univ. of California Press.

Heidegger, M., & Krell, D. F. (1991). *Nietzsche: Vols. 3 and 4 (Vol. 3: The Will to Power as Knowledge and as Metaphysics; Vol. 4: Nihilism).* New York, London, Glasgow: HarperOne .

Luhmann, N. (2005). *Risk: A sociological theory.* New Brunswick (NJ): Aldine Transaction.

Perrow, C. (1984). *Normal accidents: Living with high-risk technologies.* New York : Basic Books.

Risk Steering Committee. (2010). *DHS Risk Lexicon.* Retrieved 2015, from Official Web Site of the United States Department of Homeland Security DHS: https://www.dhs.gov/xlibrary/assets/dhs-risk-lexicon-2010.pdf

Sandman, P. M. (2010, January). *Trust the Public with More of the Truth: What I Learned in 40 Years in Risk Communication.* Retrieved from Peter M. Sandman Risk Communication Web Site : http://www.psandman.com/articles/berreth.htm

Zweig, S. (1939 - 1942). *Die Welt von Gestern* (The World of Yesterday (Viking Press, 1943) ed.). (A. Bell, Trans.) Stockholm: Bermann-Fischer Verlag AB.